

**ADMINISTRATIVE ACTION
FINAL ENVIRONMENTAL IMPACT STATEMENT
AND FINAL SECTION 4(F) EVALUATION**

US Department of Transportation
Federal Highway Administration
and
North Carolina Department of Transportation

**NC 119 Relocation
I-85/40 to South of SR 1918 (Mrs. White Lane)
Mebane, Alamance County**

Federal Aid Project No. STP-119(1)
State Project No. 8.1470901
WBS Element 34900.1.1
TIP Project No. U-3109

Submitted Pursuant to 42 USC 4332(2)(c)

Cooperating Agencies
US Army Corps of Engineers

6/11/09
Date

Eric Midkiff
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The proposed action consists of relocating NC 119 from the I-85/40 interchange southwest of Mebane to existing NC 119 south of SR 1918 (Mrs. White Lane) north of Mebane in Alamance County. This statement documents the need for the relocation of existing NC 119 and evaluates alternatives with respect to costs and social, economic, and environmental impacts. A Preferred Alternative has been identified, as described in this document.

Comments on the Final EIS are due by September 9, 2009 and should be sent to Dr. Thorpe at the above address.

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May 2009

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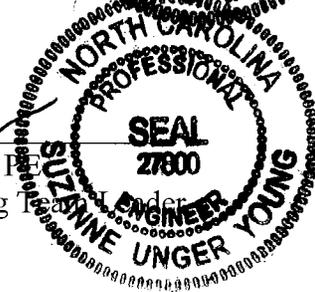
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For the:

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SUMMARY

S.1 FEDERAL HIGHWAY ADMINISTRATION

() Draft (X) Final

S.2 CONTACTS

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S.3 PROPOSED ACTION

S.3.1 Description of Proposed Action

This project addresses the proposed relocation of NC 119 from the I-85/40 interchange southwest of Mebane to existing NC 119 near SR 1918 (Mrs. White Lane) north of Mebane in Alamance County. The general location of the project in the state of North Carolina is shown in Figure S.1. Improvements to a portion of SR 1997 (Corrigidor Road) are also proposed as a part of this project and include realigning SR 1997 (Corrigidor Road) east of its existing location and connecting it to SR 1973 (Tate Avenue) in the vicinity of MoAdams Creek, the City of Mebane Wastewater Treatment Plant, and the City of Mebane Maintenance Yard. In addition, SR 1970 (Roosevelt Street) would be tied into the proposed SR 1997 (Corrigidor Road) realignment just north of the City of Mebane Maintenance Yard.

The proposed project is included in NCDOT's 2009-2015 Transportation Improvement Program (TIP) as TIP Project No. U-3109 and has been divided into two sections in the TIP. Section A extends from I-85/40 to north of US 70 and has been appropriated funding for planning, right-of-way acquisition, and construction, while Section B, which extends from north of US 70 to south of SR 1918 (Mrs. White Lane), is currently unfunded. The TIP has right-of-way acquisition for TIP Project No. U-3109 Section A scheduled to begin in Fiscal Year (FY) 2011 and construction to begin in 2013.

S.3.2 Purpose of Proposed Action

The primary needs of the proposed action include the following:

- Capacity deficiencies
- Lack of connectivity within the local community
- Lack of efficient north-south routes through Mebane due to development patterns

The primary purposes of the proposed action include the following:

- Reduce traffic congestion in downtown Mebane
- Improve access to the local area
- Provide Alamance County a primary north-south route

S.3.3 Other Major Actions in the Project Vicinity

There are three other major actions in the vicinity of TIP Project No. U-3109 included in the NCDOT's 2009-2015 TIP. They are listed in Table S.1.

The North Carolina Railroad (NCR) owns and operates a mainline freight and passenger railroad that parallels US 70 through the project study area. This portion of the NCR corridor through Mebane has also been identified as part of the Southeast High Speed Rail (SEHSR) corridor, whose

goal is to ultimately provide high speed passenger service between Atlanta, GA, and New York, NY. However, planning studies on this section of the SEHSR through Mebane have not yet begun and are currently unfunded.

TABLE S.1
Projects in the Vicinity of TIP Project No. U-3109
2009-2015 TIP

Project Number	Description	Proposed Improvement	Projected Schedule
R-3105	NC 119 from South of SR 1917 (White Level Road) in Alamance County to NC 62 in Caswell County	Widen NC 119 in Alamance County to SR1901 and construct a connector to NC 62 on new location; 10.0 miles	Unfunded project
U-2546	US 70 in Mebane from Haw River Bypass to Mebane City Limits	Widen to multi-lanes; 4.6 miles	Unfunded project
I-4918	I-85/40 from NC 54 (Milepost 148) in Alamance County to west of SR 1114 (Buckhorn Rd) in Orange County (Milepost 154)	Pavement repair; 8.3 miles	Under construction

Source: NCDOT Program Development Branch, 2009

S.4 DETAILED STUDY ALTERNATIVES

A screening evaluation was conducted to identify the alternatives that could meet the purpose of and need for improving the NC 119 corridor between I-85/40 and SR 1918 (Mrs. White Lane). The preliminary alternatives considered were:

- No-Build Alternative
- Improve Existing NC 119
- East Side Alternative
- Transportation System Management Alternative
- Travel Demand Management Alternatives
- Mass Transit Alternatives
- Build Alternatives

The preliminary alternatives that could not fulfill the purpose of and need for the project, had excessive undesirable impacts, or were considered impractical were eliminated from further consideration. The potential for environmental impacts on residential communities and businesses, water supply watersheds, historic resources, streams, wetlands, and environmental justice issues was also considered. The evaluations of the preliminary alternatives are included in Chapter 2 of this

FEIS. Based on this screening evaluation, only the Build Alternatives were determined to meet the goals of the proposed project.

Land suitability maps of the project study area were created highlighting man-made and natural features that required consideration in the alternative evaluation process. These features included community facilities (churches, schools, emergency facilities, community meeting places, and parks), known historical architecture and archaeological sites, streams, wetlands (based on the National Wetland Inventory developed by the US Fish and Wildlife Service), farmland soils, and protected watershed areas.

Potential roadway study corridors were then overlain onto the land suitability maps, avoiding the previously described features to the extent possible, and in accordance with the design criteria. The locations of the preliminary corridor segments were closely coordinated with the local agencies and officials, as well as State and Federal environmental and regulatory resource agencies. In addition, numerous public meetings were held in an effort to involve the public in the project planning process.

NCDOT conducted a screening evaluation of the Preliminary Corridor Alternatives in order to identify those corridors to be carried forward. During the course of several regulatory resource agency meetings, alternatives were eliminated from further study and additional alternatives were identified for further study. Alternatives were eliminated from further study because of resulting impacts to the West End community, to the water supply watershed critical area of the Graham-Mebane Reservoir, and to historic properties.

Based on the results of the screening evaluation and consideration of comments received through extensive public involvement and agency coordination programs, three Detailed Study Alternatives were selected from among the Preliminary Study Corridor Alternatives to be studied in detail in this FEIS (Figure S.2). These include Alternative 8, Alternative 9 (Preferred), and Alternative 10. Chapter 3 of the FEIS describes the human and natural environment setting for these alternatives. Chapter 4 of the FEIS summarizes the environmental impacts associated with these alternatives.

The typical section for the Detailed Study Alternatives, including the Preferred Alternative, varies along the length of the project. The proposed roadway near the beginning of the project varies in width due to projected traffic volumes. At the beginning of the project, a six-lane curb and gutter facility is proposed with additional turn-lanes located at the I-85/40 interchange. Continuing north from the interchange, a six-lane curb and gutter facility with a 30-foot median is proposed. The curb and gutter typical section, which extends from the beginning of the project to south of the Fieldstone subdivision and US Post Office, would include 5-foot sidewalks. Near the realignment of SR 1962 (Third Street Extension), the six-lane curb and gutter facility would transition to a six-lane shoulder section with a 30-foot median for a short distance before transitioning again to a four-lane roadway with a 30-foot grass median in the vicinity of the Fieldstone subdivision and the US Post Office. For the remainder of the project, a four-lane roadway with a 30-foot wide grass median would be constructed on new location to the west of Mebane for all of the Detailed Study Alternatives, including the Preferred Alternative.

S.4.1 Preferred Alternative

S.4.1.1 Selection of the Preferred Alternative

The DEIS for this project was completed in August 2007 and evaluated three Detailed Study Alternatives. It was distributed to federal and state environmental regulatory and resource agencies and made available to the general public for comment in October 2007.

Based on the findings of the DEIS, comments from the citizens at the public meetings and corridor public hearing on January 15, 2008, and identification of Alternative 9 as the least environmentally damaging practicable alternative (LEDPA) by the Section 404/NEPA Merger Team, NCDOT endorsed Alternative 9 as its Preferred Alternative (Figure S.3). This decision was based primarily on minimizing impacts to a water supply watershed critical area, historic property, and streams.

On June 19, 2008, the Section 404/NEPA Merger Team met to discuss the identification of the LEDPA (Concurrence Point 3). At this meeting, the Team evaluated the three Detailed Study Alternatives (Alternatives 8, 9, and 10) and agreed to Alternative 9 as the LEDPA based on the following discussion (see the concurrence form dated June 19, 2008, in Appendix G – Part 4).

- The three Detailed Study Alternatives have the same basic corridor location and the same proposed access control with only slight variations in their alignments in the vicinity of the Cates Farm (between SR 1921 [Mebane Rogers Road] and SR 1917 [White Level Road]). These small variations would have no effect on the traffic assignments or operational characteristics for each of the three alternatives.
- Approximately one mile of Alternative 8 and 0.7 miles of Alternative 9 are within the water supply watershed critical area of the Graham-Mebane Reservoir. Alternative 10 lies outside of the water supply watershed critical area.
- Alternatives 9 and 10 would require the acquisition of right-of-way from the Cates Farm. Alternative 8 passes west and north (outside) of the historic property boundary of the Cates Farm. For Alternative 9, approximately 12.6 acres of land would be acquired of the approximately 100 acres listed on the NRHP. Alternative 10 would acquire approximately 13.4 acres of the area listed on the NRHP. An additional 4.6 acres of the farm would be isolated from the remaining historic property with Alternative 9, compared to 23.4 acres with Alternative 10.
- For both Alternative 9 and Alternative 10, the proposed roadway is anticipated to be visible and audible from the Cates farmhouse. However, the potential visual impacts are less with Alternative 9 than with Alternative 10, because it is located further west of the farmhouse than Alternative 10. In addition, Alternative 9 would not require the removal of any structures associated with the Cates Farm, while Alternative 10 would remove one structure. However, the structure is not listed as a contributing element of the historic property.
- Modifications to existing roadways intersecting proposed NC 119 are virtually the same for each of the Detailed Study Alternatives, with the exception of the SR 1921 (Mebane Rogers

Road) intersection. Alternative 8 requires no realignment of SR 1921 (Mebane Rogers Road), while Alternatives 9 and 10 would realign SR 1921 (Mebane Rogers Road) to accommodate its proposed intersection with NC 119. Alternative 10 would require more realignment of SR 1921 (Mebane Rogers Road) than Alternative 9 to accommodate the proposed intersection.

- Although a portion of the Cates Farm property (not including the house or outbuildings) is currently for sale; historic preservation regulations apply based on the current status of the property. Therefore, until development begins, the entire property is subject to Section 106 of the National Historic Preservation Act of 1966 and Section 4(f) of the Department of Transportation Act of 1966.
- The NC Division of Water Quality (NCDWQ) expressed concern about Alternatives 8 and 9 impacting the water supply watershed critical area of the Graham-Mebane Reservoir and asked about citizen comments on this issue. While several citizens at the Corridor Public Hearing were not in favor of an alternative that impacted the watershed critical area, there were also verbal and written comments from citizens requesting that NCDOT avoid the Cates Farm historic property.
- The Merger Team reviewed the impacts of the Detailed Study Alternatives on streams in the project study area. Alternatives 9 and 10 have the fewest stream impacts. Alternatives 9 and 10 cross 16 perennial streams, while Alternative 8 crosses 18 streams. Alternative 9 impacts approximately 3,178 linear feet of streams along the proposed corridor, while Alternatives 8 and 10 impact approximately 3,454 and 3,328 linear feet of streams, respectively.

Based on the reasons described above, the Merger Team, including NCDOT, FHWA, US Army Corps of Engineers, NCDWQ, US Fish and Wildlife Service, NC Wildlife Resources Commission, and the State Historic Preservation Office (HPO) concurred on June 19, 2008, that Alternative 9 is the LEDPA.

S.5 SUMMARY OF IMPACTS FOR DETAILED STUDY ALTERNATIVES

The following is a narrative summary of the primary environmental consequences associated with each of the Detailed Study Alternatives. Table S.2 provides a summary of environmental impacts associated with this project.

**Table S.2
Summary of Environmental Impacts**

Issue	Detailed Study Alternative		
	8	9 (Preferred)	10
<i>PROJECT FACTORS</i>			
Mainline Length (miles)*	5.6	5.6	5.6
Construction Cost (\$)**	68,700,000	68,500,000	70,100,000
Utility Relocation Cost (\$)**	2,402,000	2,402,000	2,402,000
Right-of-Way Cost (\$)**	30,475,000	30,550,000	29,947,500
TOTAL COST (\$)	101,577,000	101,452,000	102,449,500
<i>SOCIOECONOMIC FACTORS</i>			
Residential Relocations	44	46	46
West End Community	4	4	4
White Level Community	6	6	6
Woodlawn Community (eastern half)	8	10	10
Business Relocations	5	5	5
Parks Impacted	0	0	0
Schools Impacted	0	0	0
Churches Displaced (located in West End Community)	1	1	1
Cemeteries Impacted	0	0	0
Noise Impacts (# receptors approaching or exceeding criteria)	12	11	12
Noise Impacts (# receptors with substantial noise level increase)	4	3	4
<i>INFRASTRUCTURE</i>			
Major Electric Power Transmission Line Crossings	2	2	2
Water and Sewer Facility Impacts (Water Tower)	1	1	1
Fiber Optic Cable Crossings	1	1	1
<i>CULTURAL RESOURCE FACTORS</i>			
Historic Sites with Adverse Effect	0	1	1
Impacted Section 4(f) Resources	0	1	1
<i>NATURAL RESOURCE FACTORS</i>			
Federally Listed T&E Species Impacted	0	0	0
Perennial Stream Crossings***	18	16	16
Impacts to Streams (linear feet)	3,454	3,178	3,328
Wetlands (acres)	0.249	0.249	0.249
Length in water supply watershed critical area (miles)****	1.0	0.7	0
Length in water supply watershed protected area (miles)****	1.7	1.7	2.5

Issue	Detailed Study Alternative		
	8	9 (Preferred)	10
Estimated Impacts to Terrestrial Communities			
Oak-Hickory Forest (acres)	69.5	61.7	62.7
Secondary Pine Forest (acres)	3.4	3.4	3.4
Maintained / Disturbed (acres)	113.5	120.1	120.9
TOTAL COMMUNITY IMPACTS (acres)	186.4	185.2	187.0
PHYSICAL FACTORS			
Floodplains (acres)	2.51	3.15	4.12
Floodplains (linear feet of crossing)	1,052	1,029	1,215
Floodway (linear feet of crossing)	429	519	691
Prime and Unique Farmland (acres)	153.18	153.48	149.78
Hazardous Materials Sites Within Corridor	2	2	2
Ambient Air Quality CO Standards Exceedances (#)	0	0	0

Notes: Estimate of impacts based on construction limits (slope stakes), unless otherwise noted.

* Mainline lengths are approximate.

** Construction cost in 2009 dollars. Utility and Right-of-Way costs in 2007 dollars.

*** Total stream crossings do not include the bridge structure recommended at Mill Creek or UT 15 (UT to Mill Creek) which lies within the Alternative 10 corridor and would be spanned by the recommended bridge at Mill Creek.

**** Water supply watershed critical area and water supply watershed protected area lengths are approximate.

S.5.1 Socioeconomic Impacts

S.5.1.1 Land Use and Transportation Planning

The NC 119 Relocation project is consistent with state and local transportation plans for the project area.

S.5.1.2 Public Services and Facilities

The proposed project would require the relocation of St. Luke's Christian Church, located within the West End community. This right-of-way acquisition would be considered an impact to the West End community if a suitable relocation site is not available in the area; however, based on recent discussions with the pastor of the church, the majority of the congregation at St. Luke's Christian Church is from Burlington, with some parishioners from West End and Durham. There appears to be vacant suitable land near the church, so it is anticipated that the church will be able to relocate within the West End community. Additionally, church representatives have stated a preference for relocation versus loss of a portion of their property. In August 2000, NCDOT met with representatives from the church to discuss the NC 119 relocation project (Appendix H – Part 2). After reviewing the plans, the church stated they preferred to be relocated because the project would hamper plans for expansion of the church. In subsequent meetings with NCDOT in January 2001 and December 2008, church representatives reiterated they would prefer to be relocated if the project is constructed. Their preference was to build a new church building on 2.5 acres opposite the

existing church parking lot on the east side of SR 1982 (St. Luke’s Church Road). The NCDOT will continue to coordinate with the church throughout the project and work with the church to develop a detailed plan on the timing and means of the relocation prior to right-of-way acquisition.

The associated extension of SR 1997 (Corridor Road) would allow residents of the West End community to have improved access to the Mebane Arts and Community Center.

S.5.1.3 Relocations

The number and type of right-of-way acquisitions would be similar for each of the three Detailed Study Alternatives, including the Preferred Alternative, with minor differences in the number of residential relocations in the vicinity of SR 1921 (Mebane Rogers Road) in the Woodlawn community. Potential residential and business relocation impacts based on the preliminary engineering designs within each of the Detailed Study Alternatives, including the Preferred Alternative (including the extension of SR 1997 [Corridor Road]) are presented in Table S.3. The NCDOT Relocation Reports (2007) are included in Appendix C. These estimates are based on preliminary engineering designs and are subject to change as the project progresses through the final, avoidance, minimization, and design phases.

**Table S.3
Estimated Relocations by Detailed Study Alternative**

Detailed Study Alternative	Residential Relocations*	Business Relocations*	Churches Displaced*
Alternative 8	44 **	5	1
Alternative 9 (Preferred)	46 **	5	1
Alternative 10	46 **	5	1

Notes: * Based on NCDOT Relocation Reports included in Appendix C. Churches are listed as non-profit relocatees in the NCDOT Relocation Reports.

** Includes relocations associated with the improvements to SR 1997 (Corridor Road).

S.5.1.4 Community Cohesion

The impacts to community cohesion are summarized below for the communities in the study area.

Fieldstone. The proposed project would not require displacements or property acquisitions directly within the Fieldstone community and, therefore, would not result in neighborhood divisions or loss of community cohesion within the Fieldstone development. The proposed realignment of SR 1962 (Third Street Extension) to connect with the proposed roadway immediately south of the Fieldstone Apartments and north of the US Post Office would require displacement of approximately six single-family residences. The project would provide improved access between the Fieldstone community and areas north and west of the community.

South of the Fieldstone community, the proposed realignment of Fifth Street to intersect with the proposed realignment of SR 1962 (Third Street Extension) would require displacement of approximately 10 single-family residences.

West End. The proposed access locations to the Detailed Study Alternatives, including the Preferred Alternative, in the vicinity of the West End community include the extension of SR 1972 (Smith Drive), as well as the connector road from the proposed roadway to US 70. The proposed project would provide an overpass of SR 1963 (Holt Street), the North Carolina Railroad (NCR), and US 70. This new connection at SR 1972 (Smith Drive) would also increase the traffic volumes on SR 1972 (Smith Drive) and SR 1975 (Fitch Drive); however, the projected low traffic volumes are not anticipated to result in traffic congestion at any time of the day.

The proposed project would require three residential displacements within the West End community; however, it would not result in neighborhood divisions or loss of community cohesion. All of the Detailed Study Alternatives, including the Preferred Alternative, would also require the displacement of St. Luke's Christian Church. In discussions with NCDOT in 2000, 2001, and 2008, church officials stated a preference for relocation along US 70 rather than having the proposed NC 119 located close to the church, as it would limit future plans to expand church facilities. There appears to be vacant suitable land near the church; therefore, it is anticipated that the church will be able to relocate within the West End community. Census data and project coordination and outreach indicate that both low-income and minority environmental justice populations are present in West End. Environmental justice impacts are discussed in Section 4.1.2.4.

Other roadway improvements associated with the NC 119 Relocation project include the extension of SR 1997 (Corrigidor Road) to connect with SR 1973 (Tate Avenue) and a short extension of SR 1970 (Roosevelt Street) to connect with the SR 1997 (Corrigidor Road) extension. This new connection would relocate one residence; however, it would provide much improved access for the West End community to community facilities and services, the commercial areas of Mebane, and the I-85/40 corridor. These improvements would also create improved circulation patterns within the community which currently has several dead-end streets and poor street connectivity.

Downtown Mebane. The proposed project would not require displacements or property acquisitions within downtown Mebane. The decreased traffic volumes through downtown Mebane could remove potential customers from businesses along existing NC 119 in the downtown area. If some of the businesses in downtown Mebane moved to the proposed roadway, it could result in changes to the character and type of businesses located in downtown Mebane. A positive benefit to travel conditions in downtown Mebane would be the reduction in commercial truck traffic and congestion along existing NC 119, which could enhance pedestrian safety in downtown Mebane, thereby making the environment more conducive to shopping and other activities. The project would also provide an overpass of the NCR that would provide an alternative to the existing at-grade crossing.

Woodlawn. The proposed roadway is located in the eastern half of the Woodlawn community, which is mostly open space and farmland with scattered rural residential development and areas of dense vegetation north of Mill Creek. Each of the Detailed Study Alternatives, including the Preferred Alternative, would require property acquisitions within the Woodlawn community. Alternative 8 would displace eight single-family residences and the Preferred Alternative and Alternative 10 would displace ten single-family residences. The presence of the proposed roadway within the Woodlawn community could be perceived as a division of this community considering the location of the proposed corridor within the context of the overall community. An additional

community-related impact would be associated with the acquisition of a portion of the Cates Farm historic property.

In general, access to community facilities and services would be maintained or enhanced in this area as a result of the proposed project by providing a direct route for north-south travel in the study area with limited access control along the proposed roadway. In response to requests from concerned citizens, the Preferred Alternative was modified south of SR 1921 (Mebane Rogers Road)/SR 1996 (East Stagecoach Road) to include a realignment of SR 1951 (Woodlawn Road) to tie into proposed NC 119 south of where existing SR 1951 (Woodlawn Road) would intersect the proposed roadway. The purpose of this realignment is to maintain continuity of the street system in the Woodlawn community by providing a connection from SR 1951 (Woodlawn Road) to the proposed NC 119 roadway. This proposed connection would improve access for the Woodlawn community to community facilities and services, the commercial areas of Mebane, and the I-85/40 corridor. This new connection would not require any relocations.

Mill Creek. Existing NC 119 would be realigned near the northern project terminus to intersect with the proposed project and maintain access to area residents. This connection would provide residents of the Mill Creek community with more direct access to I-85/40 and reduced travel times to destinations south and west of the community as compared to the current conditions. The Mill Creek community would not be directly affected by displacements or property acquisitions from the proposed project and would not experience neighborhood divisions or loss of community cohesion.

White Level. The proposed alignment for the Preferred Alternative, as well as Alternatives 8 and 10, travels into the southernmost portion of the White Level community and reconnects with existing NC 119 just south of its intersection with SR 1918 (Mrs. White Lane). Therefore, access to the White Level community would remain essentially the same with the proposed project transitioning from the proposed four-lane roadway to the existing two-lane roadway in this area.

The proposed tie-in near the intersections of SR 1917 (White Level Road), SR 1918 (Mrs. White Lane), and the proposed roadway would displace six single-family residences. However, it is anticipated that suitable relocation sites may be available in the nearby vicinity, which would minimize any long-term impacts associated with the relocation of the residences and business.

The proposed roadway would not isolate portions of the White Level community nor create a barrier to the interaction of remaining residents in this area. This community has a relatively high percentage of minority residents; environmental justice impacts are discussed in Section 4.1.2.4.

Travel patterns are anticipated to remain essentially the same in the White Level community as a result of the proposed project. It is anticipated that the proposed roadway would provide residents of the White Level community with more direct access to I-85/40 and reduced travel times to destinations south and west of the community as compared to the current conditions.

S.5.1.5 Community Access

The travel analyses conducted for both the existing and future travel conditions within the study area indicate that the proposed project would enhance local travel within and among the communities in the study area by reducing traffic congestion along the existing NC 119 roadway and by providing an alternative north-south travel route in the Mebane area. Since through-traffic would be diverted from existing NC 119, accessibility to employment, facilities, and services within the developed community centers is expected to improve for local traffic. While no major cross-street connecting to any of the residential areas would be closed as part of the proposed action, there may be individual property access impacts due to relocation of driveways and local roads.

The West End community would benefit from improved accessibility with the Detailed Study Alternatives, including the Preferred Alternative. The proposed access points to the proposed roadway in this community would be located at the intersection of the proposed roadway and the proposed extension of SR 1972 (Smith Drive) and at the intersection of the proposed connector road to the Detailed Study Alternatives, including the Preferred Alternative, from US 70. The proposed overpass of the NCRR and US 70 would provide a safer crossing of these facilities and also provide uninterrupted travel across the railroad, thereby possibly improving the response time for emergency services vehicles to some areas of Mebane and the surrounding communities.

The Preferred Alternative was modified south of SR 1921 (Mebane Rogers Road)/SR 1996 (East Stagecoach Road) to include a realignment of existing SR 1951 (Woodlawn Road) to tie into proposed NC 119 approximately 520 feet south of where existing SR 1951 (Woodlawn Road) would intersect the proposed roadway. This realignment provides right-in/right-out access from SR 1951 (Woodlawn Road) onto the proposed NC 119 and would improve access for these residences to and from the Woodlawn community.

S.5.1.6 Environmental Justice

The proportions of minority and ethnic populations residing in the demographic study area are similar to the proportions in Alamance County and the State of North Carolina. However, the proportion of minority and ethnic residents varies greatly among the communities within the demographic study area ranging from approximately 9 percent in the downtown area of Mebane (Census Block Group 212.03-2), to 38 percent in the area located south and east of downtown Mebane (Census Block Group 212-03-4). Census Block Group 213.00-2 has a minority population of 34 percent and includes the White Level community and the northern portion of the NC 119 Relocation project. Census Block Group 212.03-4 has a minority population of 38 percent. This area is located approximately one mile east of the proposed project and includes existing NC 119.

Thus, while the Census data point particularly to the White Level community and portions of downtown Mebane, the West End community and the eastern half of the Woodlawn community also have minority populations that may be affected by the proposed action.

The Hispanic population ranges from approximately 2 to 3 percent in most of the demographic study area and increases to 6 to 11 percent in the areas south of downtown Mebane (Census Block Group 212.03-3 and 212.03-4). The two Census Block Groups that have notably high Hispanic populations

are located approximately one mile or more to the east of the proposed project and would not be directly impacted by the proposed project.

The proportions of low-income populations residing in the demographic study area are similar to the proportions in Alamance County and the State of North Carolina. However, the proportion of low-income residents also varies greatly among the communities within the demographic study area ranging from approximately 6 percent in the area located south and east of downtown Mebane (Census Block Group 212.03-4), to 29 percent in the area located in the southwestern portion of downtown Mebane (Census Block Group 212.03-3). Census Block Group 212.03-3 is the only area with a share of the population below the poverty level that is substantially above the state and county averages. This area is located approximately $\frac{3}{4}$ of a mile east of the proposed project and includes existing NC 119. While this area will not have direct impacts from the project, there are indirect and cumulative effects, which are discussed in Section 4.4. Despite these statistics, and particularly due to the diversity of communities within the Census Block Group 0212.03-1, where the largest number of persons below the poverty level (477) is recorded, the potential for effects to low-income populations is considered throughout the demographic study area.

In general, environmental justice populations will experience the impacts documented throughout the FEIS to the extent that they occur in the areas where these populations are located. Section 4.1.2.4 includes a discussion that focuses on impacts to environmental justice populations that have the potential to be disproportionately high and adverse, or that affect the extent to which these populations will share equally in the benefits of the proposed action. These impacts include direct and/or indirect community cohesion, accessibility, displacement, economic, visual, and noise impacts.

No-Build Alternative. It is anticipated that no disproportionately high and adverse impacts would occur to minority and/or low-income populations with the No-Build Alternative. Roads in the study area would be congested and many roadways would fail to serve the future traffic demand under the No-Build Alternative. Traffic congestion would continue to rise to inconvenient levels for many communities in and around Mebane. For the minority community of West End, the No-Build Alternative would fail to meet identified community concerns including lack of connections to Mebane and abundance of dead-end streets.

Detailed Study Alternatives. Because the relocation impacts and other types of community-related impacts are similar for the Preferred Alternative and Alternatives 8 and 10, no differences are expected between the alternatives in terms of potential environmental justice impacts.

As described in Chapter 4, the direct impacts to low-income and minority populations have been largely avoided, and at the same time, the project has been enhanced to facilitate the sharing of project benefits by low-income and minority populations. The direct impacts such as relocations will affect some low-income and minority residents, but given that relocation policies require the provision of safe, sanitary, and suitable replacement housing, and given that relocation opportunities within the communities appear to be readily available, the relocation impacts do not appear to be disproportionately high and adverse to low-income and/or minority residents. Similarly, the project is not expected to result in disproportionately high and adverse impacts to the visual environment

within the White Level community as compared to the visual impacts that would be experienced throughout the project corridor.

The benefits of the project include accessibility and safety improvements and potential economic development opportunities. The project includes additional roadway improvements outside the corridor to enhance the accessibility benefits to the West End community. The other project benefits are anticipated to be available to and shared by both environmental justice and non-environmental justice populations in the study area.

Overall, within the NC 119 Relocation project corridor, the proposed project is not expected to result in disproportionately high and adverse impacts to minority and/or low-income populations in terms of community cohesion, accessibility, displacements, relocations, economic development, visual effects, or noise. Coordination with low-income and minority residents in the study area has resulted in the avoidance of such impacts. The NCDOT will continue to coordinate with low-income and minority residents in the study area, as well as St. Luke's Christian Church, throughout the project.

The extensive coordination with resource agencies, local officials, and communities throughout the project study area, including Fieldstone, West End, Woodlawn, Mill Creek, and White Level, resulted in NCDOT eliminating some of the alternatives that were being considered and making adjustments to other alternatives to avoid and minimize to the extent possible the potential impacts of the proposed project to the human, natural, and physical environments within the study area.

Input obtained from the coordination with residents in the study area was used throughout the evaluation of project alternatives. Three alternatives that passed through the West End community (Alternatives 4, 5, and 7) were eliminated from consideration (see Chapter 2). Additional project alternatives were developed that passed to the west of the West End community, including the Preferred Alternative and Alternatives 8 and 10. These alternatives also include the realignment of SR 1997 (Corridor Road) to connect with SR 1973 (Tate Avenue), which will improve the accessibility of the West End community to the Mebane Arts and Community Center and provide a connection with SR 1970 (Roosevelt Street). In addition, a grade separation over SR 1963 (Holt Street) was included to avoid fragmentation of the West End community. The current alternatives also provide a signalized intersection at the relocated NC 119 and SR 1972 (Smith Drive).

In addition to actions specific to the NC 119 Relocation project, NCDOT responded to several of the other issues presented by the West End community during the public involvement process. NCDOT participated in discussions between the West End community and the City of Mebane, which culminated in WERA obtaining several US Environmental Protection Agency (USEPA) grants, including an Environmental Justice Collaborative Problem-Solving (CPS) Cooperative Agreement grant. A result of this grant was the completion by the City of Mebane of the installation of sewer lines on three streets in the West End community, which provide 40 homes with water and sewer services. In addition, NCDOT completed the grading and paving of SR 1950 (Allen Baynes Road) in the West End community in April 2006 and also completed the grading and paving of SR 1969 (Madison Street) in 2004.

Throughout the development of this document, public involvement has been encouraged. Local government officials, civic organizations, neighborhood groups, and interested citizens were

informed of the progress of the project through workshops, newsletters, Steering Committee meetings, and small group meetings. Other outreach methods included one-on-one meetings, surveys, a project website, and a project hotline (see Chapter 8).

S.5.2 Economic Effects

A new roadway project such as the NC 119 Relocation can have both positive and negative impacts on the economy of an area. The analysis of the potential economic impacts of the Detailed Study Alternatives, including the Preferred Alternative, is related to the expected growth in the industrial and commercial sectors that could result from improved access to the North Carolina Industrial Center (NCIC) and other similar types of properties in the area, as well as the additional traffic capacity provided by the proposed project. In addition, it is anticipated that increased state and local tax revenues would be generated in the study area during the construction phase of the proposed project, thereby providing additional financial support for public programs that aid low-income persons.

It is expected that the project will result in net economic benefits to the Mebane area in terms of increases in employment, income, and tax revenues generated by increased development within the study area. No disproportionately high and adverse impacts to minority and/or low-income populations in terms of economic development would be expected as a result of the proposed project.

S.5.3 Utilities

Major existing utilities within the study area include electrical transmission towers and lines, water mains, sanitary sewer lines, natural gas lines, and fiber optic cable. During the final design stage of the project, all utility providers would be contacted and coordinated with to ensure that the proposed design and construction of the new project would not substantially disrupt service. Utility impacts are summarized as follows:

- **Electrical Power Transmission** - The project study area contains two major electrical transmission line easements operated and maintained by Duke Power. All Detailed Study Alternatives, including the Preferred Alternative, cross the transmission line easements.
- **Water and Sewer Facilities** - Most of the project study area is serviced by the City of Mebane's Public Utilities Department. All three of the Detailed Study Alternatives, including the Preferred Alternative, would cross existing water and sewer lines owned by the City of Mebane's Public Utilities Department; however, disruption of water service is not expected to occur as a result of the proposed project. In addition, an Orange-Alamance Water System, Inc., water tower near the Craftique Furniture Company will require relocation.
- **Natural Gas Service** - Natural gas service lines owned by the Public Service Company of North Carolina (PSNC) are located within portions of the project study area; however, the Detailed Study Alternatives, including the Preferred Alternative, are not expected to impact consumer gas service.
- **Fiber Optic Cable** - Bellsouth maintains a fiber optic cable easement in the project study area. All Detailed Study Alternatives, including the Preferred Alternative, cross the fiber optic cable easement.

- Railroads - The Detailed Study Alternatives, including the Preferred Alternative, would cross the North Carolina Railroad (NCRR) near the intersection of US 70 and SR 1963 (Holt Street) as a bridge overpass. In addition, all of the Detailed Study Alternatives, including the Preferred Alternative, propose the closure of the existing at-grade railroad crossing west of the proposed project in the vicinity of SR 1963 (Holt Street), SR 1976 (Lake Latham Road), and US 70.

S.5.4 Cultural Resources

S.5.4.1 Historic Architectural Resources

There are four properties within the Area of Potential Effects (APE) determined to be eligible for listing or listed on the National Register of Historic Places (NRHP). Only one of the eligible sites (the Cates Farm) is anticipated to be affected by the proposed project. Alternative 8 would not require the acquisition of right-of-way from the Cates Farm. However, the Preferred Alternative and Alternative 10 would require the acquisition of right-of-way from the Cates Farm.

The proposed project would not require the acquisition of any right-of-way from Cook's Mill, the Dr. W.N. Tate Farm, or House "K." Moreover, House "K" would not be affected because it lies approximately 0.75 miles north of the project terminus. Because of the rolling topography and wooded areas along the project alignment, Cook's Mill and the Dr. W.N. Tate Farmhouse would effectively be visually screened from the project.

S.5.4.2 Archaeological Resources

The common corridor of the Preferred Alternative and Alternatives 8 and 10 cross archaeological Site 31AM392, located on an upland flat on the Davis property, which is north of and adjacent to the Craftique Furniture Company property on the east side of SR 1949 (Edgewood Church Road). Preliminary archaeological test excavations of this site revealed the eroded nature of the ridge toe. The site has little potential to yield any information important to history or prehistory and does not meet the criterion for listing on the NRHP. Therefore, no additional archaeological work is recommended at this site (see letter from HPO dated January 4, 2005, in Appendix B).

The common corridor of the Preferred Alternative and Alternatives 8 and 10 also cross archaeological Site 31AM395, located on a ridgetop just west of SR 1951 (Woodlawn Road). Due to the heavily deflated nature of the site, it is recommended as being not eligible for the NRHP (Legacy Research Associates, 2009). Therefore, no additional archaeological work is recommended at this site.

The Office of State Archaeology (OSA) commented that Cook's Mill (31AM369**), deemed eligible for listing on the NRHP under Criterion B, C, and D, should be avoided (see memo from HPO dated January 27, 2003, in Appendix B). The Preferred Alternative and Alternatives 8 and 10 avoid this property. The Preferred Alternative and Alternatives 8 and 10 also avoid Site 31AM394 near SR 1951 (Woodlawn Road), which is recommended as being eligible for the NRHP. Therefore, no further archaeological work is expected for this project.

S.5.5 Visual Impacts

S.5.5.1 Areas Common to Detailed Study Alternatives

For commercial development along highways, visibility is a precursor to access and is often an indicator of potential economic success. Just north of SR 1980 (Holmes Road), the Detailed Study Alternatives, including the Preferred Alternative, are proposed to be constructed on new alignment (Figure S.2). This new roadway brings greater visibility to a shopping center by the traveling public, as well as to the commercial buildings currently fronting SR 1962 (Third Street Extension). Businesses west of the proposed roadway would gain visibility from NC 119 along with enhanced access from the proposed Realigned Third Street Extension/Realigned Fifth Street intersection. Businesses east of the corridor would also gain visibility from NC 119, but with indirect access, via Realigned Third Street Extension in the vicinity of the US Post Office.

Further north is Realigned Third Street Extension, linking the eastern segment of SR 1962 (Third Street Extension) with the proposed roadway in the vicinity of the US Post Office. Just north of Realigned Third Street Extension is the Fieldstone subdivision along the east side of the proposed roadway. The view residents will encounter to the west as they walk through the subdivision will change from a wooded area with a pond to that of the relocated NC 119. Beyond this area, electrical transmission lines pass over NC 119 near the SR 1972 (Smith Drive) intersection, as well as south of SR 1917 (White Level Road).

The Detailed Study Alternatives, including the Preferred Alternative, will pass over SR 1963 (Holt Street), the North Carolina Railroad (NCR) tracks, and US 70. This bridge would be highly visible from US 70 and adjacent areas, including the West End community. This will be a change from the undeveloped viewshed currently to the west of the community. The proposed bridge and roadway will relocate several residences along the east side of SR 1949 (Edgewood Church Road); however, for those residences that will not be relocated, the proposed bridge and roadway will expose the back yards of these homes to the traveling public. For residents of SR 1949 (Edgewood Church Road), they will now be bounded to both the south and east by major arterial roadways (US 70 and NC 119, respectively). In addition, the proposed NC 119 roadway will be elevated as a result of the proposed grade separation, increasing its visibility to area residents. This will be a change from the undeveloped viewshed currently to the east of their homes.

East of the proposed bridge, a connector road is proposed to provide access to US 70. This access road would go between the Craftique Furniture Company to the west and St. Luke's Christian Church along James Walker Road to the east, exposing the back yards of these properties and the side of the church. Residents of James Walker Road will also be bounded by US 70 to the south and by NC 119 to the west, and their view to the west will change from that of undeveloped lands to the proposed roadway.

S.5.5.2 Areas Specific to Detailed Study Alternatives

Alternative 8 is the western-most Detailed Study Alternative. In the northbound direction, the traveling public views a woodlands area with some open fields and pastures. A bridge is proposed to cross Mill Creek but the narrowness, recessed floodway, and vegetated banks probably prevent it

from being visible from the roadway. The viewshed transitions to more open fields as users continue north. Alternative 8 would have its greatest visual impacts on residents along SR 1921 (Mebane Rogers Road), who would encounter a change from fields to the proposed facility. Residents of the Cates Farm historic property will not be able to see the proposed facility from any of the buildings on site.

The Preferred Alternative is the middle Detailed Study Alternative. In the northbound direction, the traveling public views a woodlands area with some open fields and pastures. This alternative would have an open view of the Cates Farm buildings while being visible from the farmhouse near the tree line. Residents of the Cates Farm historic property will see the proposed facility to the west of the farm house.

Alternative 10 is the eastern-most Detailed Study Alternative. In the northbound direction, the traveling public views a woodlands area with some open fields and pastures. This alternative would have a close view of the Cates Farm buildings and would be clearly visible from the farmhouse as it would run through the middle of open lands. Residents of the Cates Farm historic property will have a substantial change in their viewshed under this alternative.

All three alternatives include a realignment of SR 1951 (Woodlawn Road) to tie into proposed NC 119 south of where existing SR 1951 (Woodlawn Road) would intersect the proposed roadway. The road would pass through open fields adjacent to the tree line to intersect with the proposed roadway.

All three alternatives include a realignment of existing NC 119 near the end project terminus that would connect existing NC 119 south towards town with the proposed roadway and north to provide access to existing subdivisions. The road would pass through open fields adjacent to the tree line to intersect with existing NC 119.

Also part of the NC 119 Relocation project is the connection of SR 1997 (Corrigidor Road) with SR 1973 (Tate Avenue) and SR 1970 (Roosevelt Street). SR 1973 (Tate Avenue) currently dead-ends at the maintenance yard. An extension of SR 1970 (Roosevelt Street) would intersect SR 1973 (Tate Avenue) from the east. This area currently consists mainly of undeveloped woodlands.

S.5.6 Air Quality

S.5.6.1 Air Quality Analysis

An air quality analysis was performed to estimate the maximum one-hour carbon monoxide (CO) concentrations caused by projected vehicular traffic along the preliminary engineering designs within the Detailed Study Alternatives, including the Preferred Alternative. Concentrations of CO were determined using USEPA-approved models and were compared to National Ambient Air Quality Standards (NAAQS) for construction and design year periods.

Comparison of the predicted carbon monoxide concentrations with the National Ambient Air Quality Standards (NAAQS) indicates no exceedances of these standards in 2005, 2015, or 2025. Therefore,

none of the Detailed Study Alternatives, or the Preferred Alternative, is anticipated to create an adverse micro-scale effect on air quality in the project area.

S.5.6.2 State Implementation Plan (SIP) Consistency

Both the Clean Air Act (CAA) and TEA-21 (Transportation Equity Act for the 21st Century) require conformity between a proposed transportation system and the SIP. The transportation conformity regulations are intended to ensure that a state does not undertake federally funded or approved transportation projects, programs, or plans that are inconsistent with the state's obligation to meet and maintain the NAAQS. Metropolitan Planning Organizations (MPOs) must show that expected emissions from their transportation system are within the mobile source emission budgets in the applicable SIP. Transportation projects must come from conforming transportation plans/programs, and conforming transportation plans/programs must come from conforming SIPs.

The project is located in Alamance County, which has been determined to comply with the National Ambient Air Quality Standards. The proposed project is located in an attainment area; therefore, 40 CFR Parts 51 and 93 are not applicable. This project is not anticipated to create any adverse effects on the air quality of this attainment area.

S.5.6.3 Mobile Source Air Toxics

For each of the Detailed Study Alternatives, including the Preferred Alternative, the amount of Mobile Source Air Toxics (MSATs) emitted would be proportional to the vehicle miles traveled (VMT), assuming that other variables such as fleet mix are the same for each alternative. The VMT estimated for each of the Detailed Study Alternatives, including the Preferred Alternative, is slightly higher than that for the No-Build Alternative, because the additional capacity increases the efficiency of the roadway and attracts rerouted trips from elsewhere in the transportation network. This increase in VMT would lead to higher MSAT emissions for the action alternative along the highway corridor, along with a corresponding decrease in MSAT emissions along the parallel routes. The emissions increase is offset somewhat by lower MSAT emission rates due to increased speeds; according to EPA's MOBILE6 emissions model, emissions of all of the priority MSATs except for diesel particulate matter decrease as speed increases. The extent to which these speed-related emissions decreases will offset VMT-related emissions increases cannot be reliably projected due to the inherent deficiencies of technical models.

Because the estimated VMT under each of the Detailed Study Alternatives, including the Preferred Alternative, are the same, it is expected there would be no appreciable difference in overall MSAT emissions among the various alternatives. Also, regardless of the alternative chosen, emissions will likely be lower than present levels in the design year as a result of USEPA's national control programs that are projected to reduce MSAT emissions by 57 to 87 percent between 2000 and 2020. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the USEPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in nearly all cases.

The relocation of the roadway contemplated as part of the project alternatives will have the effect of moving some traffic closer to nearby homes, schools and businesses; therefore, under each alternative there may be localized areas where ambient concentrations of MSATs could be higher under the Detailed Study Alternatives, including the Preferred Alternative, than the No-Build Alternative. The localized increases in MSAT concentrations would likely be most pronounced along the roadway sections that would be built near the Fieldstone community, residences located along the western boundary of the West End community, and near the Woodlawn community near SR 1921 (Mebane Rogers Road) under all of the Detailed Study Alternatives, including the Preferred Alternative. However, the magnitude and the duration of these potential increases compared to the No-Build Alternative cannot be accurately quantified due to the inherent deficiencies of current models.

The NCDOT is not aware of any sensitive receptors (e.g., nursing homes, child care centers, hospitals, etc.) located along the proposed alignments for the Detailed Study Alternatives, including the Preferred Alternative. Therefore, the MSAT effects would be equivalent for all of the alternatives.

S.5.7 Noise

Under Title 23 CFR Part 772, Alternatives 8 and 10 would incur the most noise impacts with 11 residences and 1 business impacted. The Preferred Alternative would impact 10 residences and 1 business. The maximum extent of the 72-dBA noise level contour is 72.3 feet from the center of the proposed roadway. The maximum extent of the 67 decibels on the A-weighted scale (dBA) noise level contour is 111.7 feet from the center of the proposed roadway. This information should assist local authorities in exercising land use control over the remaining undeveloped lands adjacent to the roadway within local jurisdiction. For example, with the proper information on noise, the local authorities can prevent further development of incompatible activities and land uses with the predicted noise levels of an adjacent highway.

Eight of the twelve receptors affected by Alternatives 8 and 10 and eight of the eleven receptors affected by the Preferred Alternative that approach or exceed noise abatement criteria for both Categories B and C experience a noise level increase of less than 5-dBA. When real-life noises are heard, it is possible barely to detect noise level changes of 2-3 dBA. A 5-dBA change is more readily noticeable.

There are four substantial noise level impacts anticipated by this project by the selection of Alternatives 8 or 10. The Preferred Alternative has three anticipated substantial noise level impacts. The predicted noise level increases for this project range up to +18 dBA.

The Highway Traffic Noise/Construction Noise Analysis for the NC 119 Relocation project indicated that the majority of the impacted receptors would be located primarily in the southern portion of the project study area, near the I-85/40 interchange. While full control of access is being proposed at this interchange, the impacted receptors are scattered on either side of existing NC 119 in this area. In addition, several of these receptors are anticipated to be relocated or are businesses and are not as concerned with noise as visibility to the traveling public. Additional impacted receptors are scattered throughout the project study area in the vicinity of US 70 and SR 1921 (Mebane Rogers Road). After the selection of the Preferred Alternative, noise impacts were

re-evaluated. It was determined that the alignment for the Preferred Alternative, location and number of residential receptors, and proposed control of access remain relatively unchanged since completion of the initial noise investigation.

Traffic noise impacts are an unavoidable consequence of transportation projects, especially in areas where there are not traffic noise sources. All traffic noise impacts were considered for noise mitigation. Based on these preliminary studies and subsequent noise re-evaluation after selection of the Preferred Alternative, traffic noise abatement is not recommended, and no noise abatement measures are proposed.

S.5.8 Hazardous Waste Sites

Based on the field reconnaissance survey, two facilities with the possibility for underground storage tanks (USTs) were identified along all of the Detailed Study Alternatives, including the Preferred Alternative. If any potential hazardous materials/waste sites cannot be avoided during the avoidance and minimization stage of the project, further assessments of the properties will be conducted and the results will be reported in the Record of Decision (ROD). These assessments will evaluate the properties for specific types and amounts of hazardous materials and will include right-of-way acquisition recommendations. Based on current knowledge, it is not expected that any of these sites would preclude the construction of any of the Detailed Study Alternatives, including the Preferred Alternative. Once right-of-way plans are complete, final investigations for hazardous materials/waste sites would be conducted according to those plans.

S.5.9 Soils and Mineral Resources

S.5.9.1 Soils

Forty-three different soil types are present in the Detailed Study Alternatives, including the Preferred Alternative. The five soil types that make up over 55% of the Detailed Study Alternatives, including the Preferred Alternative, are GaB2, GaC2, GaD, HdB2, and TaB2. The five primary soils within the Detailed Study Alternatives, including the Preferred Alternative, have similar properties. The suitability of these soils as roadfill ranges from fair to poor. This is an indication that the roadbed may need to be undercut, removing several inches of the soil, and replacing it with a more suitable soil. These soils generally have a high risk of corrosion for both uncoated steel and concrete. To prevent corrosion, an epoxy-coated steel may be needed. The shrink/swell potential of these soils ranges from low to moderate.

Of the remaining soils in the Detailed Study Alternatives, including the Preferred Alternative, all have low to moderate shrink/swell potential, with the exception of the B horizon of the Orange soil series, which has a high shrink/swell potential. In soils of high shrink/swell potential, surcharging the roadbed may be required. To surcharge the roadbed, fill dirt would be brought in and laid on top of the roadbed for an extended period of time. The fill dirt would cause the soil underneath to settle. Then the fill dirt would be removed and paving could begin. Each of the Detailed Study Alternatives, including the Preferred Alternative, impacts approximately 8.3 acres of Orange type soils.

The soil types found along the Preferred Alternative within the water supply watershed critical area include Cd, GaB2, GaC, GaC2, GaD2, GaE, GcD, HdB2, ObB2, ObC2, and We. These soils generally have a high risk of corrosion for both uncoated steel and concrete. To prevent corrosion, an epoxy-coated steel may be needed. The shrink/swell potential of these soils ranges from low to moderate, with the exception of the B horizon of the Orange soil series, which has a high shrink/swell potential. Soil types Cd, GcD, HdB2, ObB2, ObC2, and We are considered to be poor for use as either borrow or topsoil material. As stated above, the engineering properties of these soils may require the use of undercut techniques during road construction. However, based on a review of the soil properties, it is not anticipated that the soil types within the water supply watershed critical area would provide unique challenges to the construction of the Preferred Alternative.

S.5.9.2 Mineral Resources

Currently, there are no mines within one mile of the project study area. The mineral resources of the study area are most commonly used as aggregate, which is readily available at other sites throughout the state. It is unlikely that the proposed roadway would limit the development of study area resources for that purpose should they become an economically viable product for the area.

S.5.10 Prime and Important Farmland

As required by the Farmland Protection Policy Act (FPPA) of 1981, coordination with the Natural Resources Conservation Service (NRCS) for this project was initiated by submittal of Form AD-1006, Farmland Conversion Impact Rating. This coordination effort served as the basis for determining the farmland impacts of the Detailed Study Alternatives, including the Preferred Alternative. The NRCS responded by completing their portions of this form and providing a relative value of farmland that may be affected (converted) by the proposed project. None of the proposed Detailed Study Alternatives, including the Preferred Alternative, resulted in a total site assessment score greater than 160 points. Therefore, in accordance with the FPPA, no mitigation for farmland loss is required for the project.

The amount of Prime and State Important farmland converted varies slightly among each of the alternatives. Alternative 10 has the lowest acreage of Prime and State Important farmland impacts (approximately 150 acres), while Alternative 8 and the Preferred Alternative would impact approximately 153 acres.

In general, the Detailed Study Alternatives, including the Preferred Alternative, would have some impact on the agricultural activities in the project study area; however, the total acreage of farmland that would be acquired for the project (150 to 153 acres) is not considered to be substantial as compared to the overall agricultural activity in Alamance County (240,623 farmable acres, of which 179,301 acres are active farmland as defined in the Farmland Protection Policy Act of 1981).

S.5.11 Water Resources

S.5.11.1 Major Drainage Structures

Each Detailed Study Alternative, including the Preferred Alternative, crosses a number of streams and drainages for which bridges, box culverts, or pipe culverts would be required. Table S.2 summarizes the number of crossings for the Preferred Alternative and Alternatives 8 and 10. Alternative 8 has the greatest number of crossings (18), while the Preferred Alternative and Alternative 10 have the fewest (16) (Figure S.4). All hydraulic structures would be designed such that the proposed structures would not substantially increase upstream flooding and would not increase the flood hazard potential of the existing floodplain. No channel relocations are anticipated based on the preliminary engineering designs for any of the Detailed Study Alternatives, including the Preferred Alternative; however, if channel relocations are required in the final design, they would be designed according to the most recent guidelines for open channels and would match the existing channel as closely as possible.

- A spanning (three-sided) bottomless culvert will be investigated at major stream crossing Site 2 (Unnamed Tributary to Mill Creek [UT14]) if the site conditions permit it. Additionally, natural channel design techniques will be investigated and pursued in the area of the culvert for stabilization purposes. The standard sedimentation and erosion control measures for the installation of culverts will be followed and all measures to improve/maintain the condition/stability of UT14 will be utilized. The use of a bottomless culvert requires conditions where footings are put on bedrock. Geotechnical Engineering typically performs foundation test borings during the final design phase of a project.

S.5.11.2 Stream Impacts

The length of impacted perennial stream channels for the preliminary engineering design of each Detailed Study Alternative, including the Preferred Alternative, as of February 2007 is shown in Table S.2. Alternative 8 has the greatest number of stream impacts (3,454 linear feet), while the Preferred Alternative has the least amount (3,178 linear feet). Anticipated surface water impacts were calculated based on the length of each stream within the estimated construction limits. Additional areas outside the project study area might be indirectly affected due to changes in water levels and siltation from construction activities; however, impacts to these areas were not calculated.

The NCDOT began evaluating the project corridor for suitable on-site mitigation locations in August 2008. If on-site mitigation locations are infeasible or insufficient to mitigate all project impacts, mitigation will be provided by the NC Ecosystem Enhancement Program (NCEEP) through their Memorandum of Agreement with the NCDOT and the US Army Corps of Engineers (USACE). The NCDOT will continue to coordinate with NCDWQ, USACE, and USEPA regarding mitigation through the Section 404/NEPA Merger Process.

S.5.11.3 Floodplains and Floodways

Both Alamance County and the City of Mebane are participants in the National Flood Insurance Regular Program. Table S.2 provides information regarding the area and length of the floodways

and 100-year floodplains impacted by the proposed preliminary engineering designs within each Detailed Study Alternative, including the Preferred Alternative. All of the Detailed Study Alternatives cross the 100-year floodplains of Mill Creek and MoAdams Creek, where detailed flood studies have been performed. Due to stream meanders and minor variations in stream width, Alternative 10 crosses a wider floodplain and floodway of Mill Creek than Alternative 8 or the Preferred Alternative. Alternative 8 has the lowest impacts in terms of acres of floodplain and floodway, while the Preferred Alternative has the least impacts in terms of linear feet of floodplain traversed. However, NCDOT has recommended construction of a bridge for the crossing of Mill Creek for all three alternatives. Therefore, no substantial difference in impacts between the three alternatives is expected within the 100-year floodplains.

S.5.11.4 Water Supply Watershed Critical Area

The centerline for Alternative 8 and the Preferred Alternative cross the water supply watershed critical area (WCA) of the Graham-Mebane Reservoir. Construction of Alternative 8 and the Preferred Alternative would add 5.78 acres and 4.10 acres of impervious surface within the WCA, respectively. The centerline for Alternative 10 is located completely outside of the WCA. Construction of Alternative 8 would require no realignment of SR 1921 (Mebane Rogers Road). However, construction of the Preferred Alternative and Alternative 10 would require a section of SR 1921 (Mebane Rogers Road) to be realigned to accommodate its proposed intersection with NC 119. This realignment for the Preferred Alternative and Alternative 10 would add 1.04 and 1.27 acres of impervious surface within the WCA, respectively. Therefore, the total impervious surface of the Detailed Study Alternatives within the WCA would be: Alternative 8 – 5.78 acres; Preferred Alternative – 5.14 acres; and Alternative 10 – 1.27 acres.

S.5.12 Biotic Communities

S.5.12.1 Terrestrial Plant Communities

There are three distinct terrestrial communities within the project study area. These include Oak-Hickory Forest, Secondary Pine Forest, and Maintained/Disturbed communities. Anticipated terrestrial community impacts are based upon the construction limits of the preliminary designs as of February 2007 and April 2009 (Woodlawn Road realignment). The estimated impacts are presented in Table S.2. Alternative 8 has the greatest impact in terms of forested acres (72.9 acres), while Alternative 9 has the least impact (65.1 acres).

S.5.12.2 Terrestrial Wildlife

Impacts to wildlife would include habitat fragmentation, loss of potential nesting and foraging areas, and displacement of wildlife population. Along new location sections of the Detailed Study Alternatives, including the Preferred Alternative, movement between habitats on one side of the road to the other would become more dangerous for many large and medium sized mammals such as deer, raccoon, rabbit, and opossum. Smaller mammals such as mice and squirrels, as well as reptiles and amphibians, are also expected to suffer increased mortality along the new alignment due to land clearing and traffic operations.

Impacts to forested areas generally represent the most valuable impacts in terms of wildlife habitat. Of the three proposed alternatives, the Preferred Alternative would have the least impacts to wildlife because it has the least amount of forested habitat. Alternative 8 would have the most impacts to forested habitat.

Migratory Birds

New location projects such as the NC 119 Relocation project can have effects on migratory bird populations, including habitat loss, habitat degradation, and habitat fragmentation. Each of the Detailed Study Alternatives, including the Preferred Alternative, passes through areas of developed land, farm fields, and some forested areas. However, these alternatives do not split large areas of undisturbed land. As stated above, the Preferred Alternative would have the least impacts to wildlife because it has the least amount of forested habitat.

S.5.13 Aquatic Communities

Resident aquatic species may be temporarily displaced during construction. However, impacts are expected to be minor and temporary. A bridge is proposed over Mill Creek for each Detailed Study Alternative, including the Preferred Alternative, which would be designed to avoid or minimize placement of structure foundations within these waters.

Other impacts to aquatic species that could occur as a result of the project include changes in water temperature and stormwater flow. Removal of stream-side vegetation during construction could increase exposure of the stream to sunlight, increasing water temperature. Other locations where bridges are constructed could experience a decrease in water temperature as a result of shading. Increases in impervious surfaces could lead to higher stormwater flows in stream channels. These impacts are expected to be minor and temporary in nature due to the limited amount of direct overall change in the surrounding areas and the commitment to implement Best Management Practices (BMPs) during construction.

S.5.14 Jurisdictional Issues

Section 404 of the Clean Water Act (CWA) requires regulation of discharges into “Waters of the United States.” Although the principal administrative agency of the CWA is the USEPA, the USACE has major responsibility for implementation, permitting, and enforcement of provisions of the Act. The USACE regulatory program is defined in 33 CFR Parts 320-330.

As shown in Table S.2, all of the Detailed Study Alternatives, including the Preferred Alternative, impact 0.249 acres of wetlands. In addition to the direct impacts within the right-of-way of the preliminary engineering designs, other adverse impacts to wetlands and aquatic sites associated with project construction could include direct or indirect hydrologic impacts resulting from the alteration of drainage patterns. The concentration of overland flow into pipes and the potential increases in stormwater runoff could lead to downstream channel incision and consequent wetland hydrology alterations. In addition to permanent alterations, temporary adverse impacts also may occur, such as temporary pond dewatering and stream diversion during the construction of bridges and culverts, and temporary clearing and filling associated with underground utility relocation and construction

access. Based on the assessments made in this document, it is likely that a Section 404 Individual Permit (IP) requiring mitigation will be required.

S.5.15 Protected Species

There are no species with federal status of Endangered (E), Threatened (T), Proposed Endangered (PE), or Proposed Threatened (PT) in the project study area; therefore, no impacts to these species are anticipated for any of the Detailed Study Alternatives, including the Preferred Alternative. There are Federal Species of Concern (FSC) listed for Alamance County, but none have been found within one mile of the project study area.

S.5.16 Wild and Scenic Rivers

No federally designated, state designated, or National River Inventory waters occur within the project study area.

S.5.17 Indirect and Cumulative Effects (ICEs)

S.5.17.1 Potential Impacts of Other TIP Projects in the Vicinity

There are several roadway improvement projects listed in the NCDOT 2009-2015 TIP that are intended to address traffic improvement needs within the Mebane area. Immediately north of the proposed NC 119 Relocation project is TIP Project No. R-3105, which is the proposed widening of NC 119 between SR 1917 (White Level Road) in Alamance County and NC 62 in Caswell County; this project is currently unfunded. TIP Project No. U-2546 is the proposed widening of US 70 to a multi-lane roadway between the Haw River Bypass and Mebane city limits; this project is not yet funded. TIP Project No. I-4918 includes pavement repair along I-85/40 from NC 54 (Milepost 148), west of Mebane, to the Orange County Line (Milepost 154). This project is under construction. In addition, the SR 1007 (Mebane Oaks Road) project, formerly TIP Project No. U-3445, widened the existing roadway to five lanes between I-85/40 and Fifth Street, as well as the I-85/40 bridge. This project was completed in 2005.

If TIP Project Nos. U-2546 and R-3105 are ultimately constructed, there is the potential for cumulative effects with the West End and White Level communities. The West End community is located immediately south of TIP Project No. U-2546 and the White Level community is located along NC 119 both east and west of TIP Project No. R-3105. Due to the presence of the NC Railroad just south of US 70 in the vicinity of the West End community, it is likely that US 70 would be widened to the north, thereby avoiding effects to the West End community. However, the widening of NC 119 in Alamance County has the potential to result in additional relocations, noise effects, and natural and cultural resource effects within the White Level community. These effects would be described in the environmental planning document for TIP Project No. R-3105, if the project is ultimately funded.

S.5.17.2 Potential for Land Use Changes

With the construction of a new highway through developable land south of US 70, there is a high potential for the project to induce land use changes in this portion of the study area that would be

primarily industrial and commercial uses along with some in-fill of residential uses; this development is consistent with the City’s land use and growth management plans for this area. It is expected that vacant land parcels adjacent to the proposed NC 119 Relocation corridor will be fully developed with medium to high density mixed uses such as industrial, commercial, and residential developments, as indicated in the City’s land use plans. Due to the urbanizing character of the southern portion of the study area, local planning officials anticipate that increased development will continue in this area regardless of whether the proposed project is constructed. However, the proposed project would likely accelerate the rate of change in land uses and development.

By contrast, the construction of the NC 119 Relocation project within the northern portion of the study area (north of US 70), is not expected to result in major land use changes and future growth and is generally expected to follow existing development patterns. The majority of the area north of US 70 is located in the water supply watershed critical area (WCA) of the Graham-Mebane Reservoir or Balance of Watershed (BOW) overlay districts and development would be restricted by state and local regulations that limit densities and types of land uses in the area. Therefore, substantial changes in land use patterns are not anticipated for the northern portion of the study area with or without the proposed project. This area is expected to remain as low density residential, agricultural, and open space uses. One exception to this forecast is the planned development of a Neighborhood Activity Center in the vicinity of the intersection of the NC 119 Relocation project with the existing NC 119. The City’s land use plan identifies this future intersection as a small-scale mixed use development that would serve local neighborhoods.

For the indirect and cumulative effects analysis, the study area was divided into 10 sub-areas as delineated in Figure S.5. Table S.4 is a summary of the potential for land use changes and the potential for indirect or induced growth that would occur within each sub-area as a result of the NC 119 Relocation project. The potential or probability of the proposed project to cause indirect and cumulative effects ranges from low to high within each sub-area based on the qualitative factors that enable or contribute to changes in the use of land and the pattern of development in each sub-area.

Table S.4
Summary of Potential for Land Use Changes
Related to Indirect and Cumulative Effects of NC 119 Relocation Project

Sub-area	Area (sq. mi.)	Change in Accessibility	Forecasted Growth	Land Supply	Availability of Water/Sewer	Public Policy	Overall
Mebane Central	1.2	Moderate	Low to Moderate	Low to Moderate	Available	High	Low to Moderate
Mebane South	2.1	High	High	Moderate	Available	High	High
Mebane North	1.5	High	Moderate	Moderate	Partially Available	Moderate	Moderate
North ETJ	2.8	Moderate to High	Low to Moderate	Moderate	Not Available	Low to Moderate	Low to Moderate

Sub-area	Area (sq. mi.)	Change in Accessibility	Forecasted Growth	Land Supply	Availability of Water/Sewer	Public Policy	Overall
North	23.4	Low	Low	Low	Not Available	Low	Low
West ETJ	0.7	Moderate	Moderate	Moderate	Not Available	Low to Moderate	Moderate
Southwest ETJ	2.0	Moderate to High	High	Moderate	Partially Available	High	Moderate to High
West	1.6	Low to Moderate	Low	Low	Not Available	Low	Low to Moderate
Interstate Corridor	2.3	Moderate to High	High	Moderate	Partially Available	High	High
Orange County	6.1	Low	Low	Low	Not Available	Low	Low

S.5.17.3 Potential for Water Quality Impacts

As part of the analysis of ICEs associated with the proposed NC 119 Relocation project, a qualitative assessment was also conducted of the potential for water quality impacts that could result from the expected land use changes and future development induced by the project.

The potential for the project-induced growth and land use changes to occur within the northern portion of the study area (north of US 70) is considered to be low to moderate due to the development restrictions within the watershed overlay districts. Therefore, it is estimated that the potential for the project to adversely impact water quality due to induced development would be low to moderate within the northern portion of the study area. In addition, most of the northern portion of the study area is not planned to be served by municipal water and sewer services, which would further limit future growth and development in close proximity of the WCA.

In general, the induced growth and land use changes that are likely to occur are in the southern portion of the study area, which is outside of the water supply watershed overlay districts. The sub-areas most likely to experience land use changes as a result of the proposed project are south of US 70: Mebane South, Southwest ETJ, and Interstate Corridor. These sub-areas represent approximately 14 percent of the entire ICE study area. Expected land use changes would include primarily industrial and commercial uses along with some in-fill of residential uses. All of the Detailed Study Alternatives, including the Preferred Alternative, are common in this area; therefore, potential indirect effects on water quality are the same among the alternatives.

Some impacts to wetlands are likely as a result of project-induced development south of US 70. However, it is difficult to estimate the specific acreage of wetlands likely to be impacted by development. Wetlands identified within the project study area are shown in Figure S.4.

Increases in impervious surfaces from project-induced development also may have a negative effect on water quality in the project study area south of US 70. Impervious surfaces can prevent or redirect recharge and affect the amount of surface runoff. This may result in increased sediment and

nutrient loading to rivers and streams. Some of these effects can be expected regardless of whether the project is constructed, as continued development is expected with or without the project.

Potential measures to mitigate the water quality impacts associated with project-induced growth are discussed in Section 4.4.11.3. Additional information regarding the potential for water quality impacts as an indirect and cumulative effect of the project is available in the *Final Indirect and Cumulative Effects* (RS&H, 2006c) report appended by reference and available at the NCDOT.

S.5.17.3 Potential for Air Quality Impacts

The project level air quality analysis for the proposed NC 119 Relocation project (Section 4.2.1) incorporates indirect or cumulative impacts. On the project level, changes in air quality concentrations are dependent on traffic volumes. The traffic volumes used in the air quality analysis incorporate existing and future land use in the region and the subsequent trips that would be generated.

These predicted volumes are essentially maximized by the amount of reasonable and foreseeable future development based on the availability and type of land use and/or zoning, regardless of whether or not any development actually comes to fruition. As a result, the project level air quality analysis already incorporates a full hypothetical build-out scenario.

S.5.17.4 Property Values

The analyses conducted over recent years by various planning and transportation agencies as to the long-term impact of highway transportation projects on property values indicate that the extent and magnitude of these types of impacts vary greatly depending upon the nature of the project area. Evidence suggests that highway projects can increase nearby property values by providing greater accessibility within the area. In general, greater impacts would occur where densities are higher, travel-time savings are significant, and a region is experiencing a high level of population and employment growth. However, although accessibility is important, there are numerous factors that influence the location decisions of individuals and businesses, including costs of development, access to and quality of services and amenities, community characteristics, distance to urban centers, and governmental regulations and incentives.

The construction of the NC 119 Relocation project would change the context of the surrounding properties and could cause changes in the surrounding property values. In general, the industrial and commercially zoned land that is in close proximity to the proposed NC 119 Relocation project is likely to increase in value based on improved accessibility to a major roadway facility and shorter travel times to major destinations such as the I-85/40 corridor and commercial areas in Mebane. The tendency toward new development or intensified development is generally greatest in the vicinity of interchanges where there is good access to the roadway.

Based on the improved accessibility that would be provided by the NC 119 Relocation project to the industrial and commercially zoned areas south of US 70, it is likely that industrial and commercial parcels in this area would experience the largest increases in property values, particularly properties in close proximity to I-85/40. However, as stated earlier, there are several other factors apart from

accessibility that influence property values, and because the factors change over time, it is difficult to accurately predict these changes in a quantitative manner.

S.5.17.5 Potential Mitigation Measures

Comprehensive Transportation Planning. NCDOT works in coordination with local governments and the MPO to develop Comprehensive Transportation Plans (CTPs), a multi-modal plan that identifies the existing and future transportation system, including highways, public transportation, rail, bicycle, and pedestrian facilities to serve the anticipated travel demand. The CTP, which includes the NC 119 Relocation project, is being developed which would strengthen the connections between the area's transportation plan, adopted local land development plan, and community vision.

The CTP includes community consensus on future transportation needs required to support anticipated growth and development. A CTP is a mutually adopted legal document between the state and a metropolitan planning organization, municipality, or county. Once adopted by the NCDOT, a CTP represents the state's concurrence with the locally identified transportation needs.

In addition to the enforcement of the local policies and regulations that relate to land use and development within the study area, there are various access management techniques and policies that can be implemented through coordination with the NCDOT to effectively control or direct growth and development along highway corridors. For example, the limitation of direct driveway access points and roadway intersections as proposed along the NC 119 Relocation project should minimize or eliminate unplanned developments along the corridor and facilitate the types and densities of land uses as envisioned by the local governments.

Regional and Local Planning. Local land use policies and zoning regulations are the most effective tools for use in avoiding or minimizing potentially adverse induced land use impacts as a result of implementation of transportation projects. In addition to the water supply watershed ordinances and regulations enforced by the State of North Carolina, Alamance and Orange counties, and the City of Mebane, the local governments have adopted land use policies and guidelines and zoning ordinances to control the densities and types of development that are allowed to occur within the study area. The local policies and guidelines that apply to the study area are defined in the City of Mebane 2010 Land Development Plan (2001) and the Alamance County Destination 2020 Strategic Plan (2003).

Water Quality Mitigation. In terms of mitigation of potentially adverse water quality impacts related to the project-induced growth, it appears that there are appropriate and sufficient state and local land use controls and development regulations in place to, if properly enforced, avoid and minimize potential indirect and cumulative impacts to water quality in the study area. The existing zoning ordinances and regulations pertaining to the protection of the water supply watershed within the study area limit development to low density, non-urban types of land uses. Enforcement of these regulatory controls should minimize the potential of the project to adversely impact water quality as a result of indirect or cumulative effects of the project.

In addition, most of the northern portion of the study area is also not planned to be served by municipal water and sewer services which would further limit future growth and development in the areas in close proximity of the WCA.

Mitigation measures specific to potential water quality impacts associated with the proposed project will be included in the US Army Corps of Engineers Section 404 Permit requirements, Section 401 Water Quality Certification Permit, and the NCDOT *Best Management Practices for Protection of Surface Waters* (NCDOT Hydraulics Unit, 1997).

S.6 UNRESOLVED ISSUES OR AREAS OF CONCERN

In 1999, the West End Revitalization Association (WERA) filed a complaint with the US Department of Justice under Title VI of the 1964 Civil Rights Act and Executive Order 12898: Environmental Justice against the City of Mebane, area transportation groups, and NCDOT. WERA claimed that these agencies had discriminated against the West End community regarding the NC 119 Relocation project, the lack of basic amenities (e.g., water, sewer, paved streets), the redlining of African American communities from the right to vote, housing and economic discrimination, and physical barriers of discrimination. The US Department of Justice referred the complaint to the appropriate federal agencies with jurisdiction over the individual allegations. With respect to the allegations regarding the NC 119 Relocation project, the complaint was referred to the FHWA Office of Civil Rights. The Office of Civil Rights did not respond to the complaint because FHWA, as the lead federal agency for the NC 119 Relocation project, had not yet taken any action or made any decision regarding the project. The DEIS served as an official draft evaluation of the predicted impacts of various possible project alternatives on the human and natural environments within the study area. However, the signing of this FEIS does not constitute final approval of the project by FHWA; such approval will occur when the Record of Decision (ROD) is signed.

As described in Section 4.1.2.4 of this document, the proposed project is not expected to result in disproportionately high and adverse impacts to minority and/or low-income populations in terms of community cohesion, accessibility, displacements, relocations, economic development, visual effects, or noise. Furthermore, NCDOT conducted a significant public involvement effort to ensure that all members of the Mebane community were included in the project development process. These efforts are described in Section 8.2 of this document, and included three workshops, six newsletters, four Steering Committee meetings, and numerous small group meetings. Other outreach methods included one-on-one meetings, surveys, a project website, and a project hotline. In addition, NCDOT retained the Wills Duncan Group, Inc. (WDG), to conduct a community facilitation program for the NC 119 Relocation project. This program was intended to increase citizen involvement and identify the most important issues regarding the proposed project from the perspective of the various communities within the study area. The WDG facilitated several rounds of community meetings in the study area during the period of February through June of 2004.

S.7 ACTIONS REQUIRED BY OTHER FEDERAL AND STATE AGENCIES

Construction of the NC 119 Relocation project would result in several activities requiring environmental regulatory permits from state and federal agencies. A list of these permits, organized by issuing agency, is provided below. The NCDOT would obtain all necessary permits prior to construction.

S.7.1 Permits

S.7.1.1 USACE Section 404 Permit

A permit from the USACE is required for any activity in water or wetlands that would discharge dredged or fill materials into Waters of the United States and adjacent wetlands. To obtain permit approval, impacts to wetlands must be mitigated through avoidance, minimization, and compensation measures in accordance with the Memorandum of Agreement between the USEPA and the Department of the Army Concerning the Determination of Mitigation Under the Clean Water Act Section 404(b)(1) Guidelines (February 1990). Additional policy and guidance has been established through An Interagency Agreement Integrating Section 404/NEPA (May 1997), which is usually referred to as the Section 404/NEPA Merger Agreement.

Authority. Federal Pollution Control Act Amendments of 1972 and Section 404 of the Clean Water Act of 1977. Regulations promulgated in 33 CFR Part 323.

S.7.1.2 US Fish and Wildlife Service Section 404 Permit Review

The US Fish and Wildlife Service's (USFWS) responsibilities include review of Section 404 permits. The USFWS provides recommendations to the USACE on how impacts to fish and wildlife resources and habitats can be minimized.

Authority. Endangered Species Act of 1973, Section 7 and Fish and Wildlife Coordination Act. Regulations promulgated in 16 U.S.C. 661-667d.

S.7.1.3 North Carolina Department of Environment and Natural Resources (NCDENR) – Division of Water Quality Section 401 Water Quality Certification

Any activity which may result in discharge to Waters of the United States requires a certification that the discharge will be in compliance with applicable state water quality standards. An application for a USACE Section 404 permit is considered an application for a water quality certification.

Authority. North Carolina General Statute 143, Article 21, Part 1. Regulations promulgated in 15A NCAC 2H and 2B.

S.7.1.4 National Pollutant Discharge Elimination System (NPDES) Permit

A permit is required for projects involving sewer systems, treatment works, disposal systems, and certain stormwater runoff that could result in a discharge to surface waters. The State has the authority to administer the national NPDES program for projects in North Carolina.

Authority. North Carolina General Statute 143, Article 21, Part 1. Regulations promulgated in 15A NCAC 2H.0100.

S.7.1.5 NCDENR – Division of Land Quality Soil and Erosion Control Plan

Persons conducting land-disturbing activity shall take all reasonable measures to protect all public and private property from damage caused by such activities. Pursuant to GS 112A-57(4) and 113A-54(d)(4), an erosion and sedimentation control plan must be both filed and approved by the agency having jurisdiction.

Authority. North Carolina Administrative Code, Title 15A. Department of Environment and Natural Resources Chapter 4. 15A NCAC 04B .0101

S.7.1.6 NCDENR – Division of Air Quality Burn Permit

Any burning done during the construction of the proposed project will be done in accordance with applicable local laws and ordinances and regulations of the North Carolina SIP for air quality in accordance with 15 NCAC 2D.0520.

Authority. Regulations promulgated in 15 NCAC 2D.0520.

S.7.2 Subsequent Actions

The approval of this FEIS does not complete the project implementation process. The following is a summary of actions, events, and studies to be completed prior to project construction. Coordination with resource agencies will be maintained throughout the entire process. The following studies and actions will be completed to advance the project through the Section 404/NEPA Merger process.

- Once right-of-way plans are complete, final investigations for hazardous materials/waste sites would be conducted according to those plans.
- The preliminary designs will be refined and will include efforts to further minimize environmental impacts, specifically to streams and wetlands.
- The *Documentation of Section 106 Finding of Adverse Effect* has been forwarded by FHWA to the Advisory Council on Historic Preservation (ACHP). In addition, a Memorandum of Agreement (MOA) between the SHPO, ACHP, and FHWA/NCDOT is being prepared in accordance with CFR Section 800.6(a)(1), which includes a description and evaluation of any proposed mitigation measures.

The FEIS was prepared based on efforts to further minimize environmental impacts, as listed above. The ROD will be prepared based on the results of the items listed above, as well. The FEIS will be circulated for public and agency review. In addition, agency concurrence with the FEIS will be pursued according to the Section 404/NEPA Merger process. After approval of the FEIS and Record of Decision (ROD), a Design Public Hearing will be held to receive public comments on the preliminary design for the Preferred Alternative. A newsletter announcement of the Design Public Hearing and all other subsequent newsletters associated with the project will be published.

The final roadway design plans will be prepared, taking into consideration all public and agency comments received on the preliminary designs and FEIS. The following studies will be conducted as a part of the final design process.

- Drainage and hydrological studies will be conducted to identify and design major drainage structures, evaluate groundwater resources to ensure that measures are taken to prevent groundwater contamination, and design hazardous spill protection measures at stream crossings within ½ mile of the water supply watershed critical area of the Graham-Mebane Reservoir during final design of the Preferred Alternative.
- A spanning (three-sided) bottomless culvert will be investigated at major stream crossing Site 2 (Unnamed Tributary to Mill Creek [UT14]) if the site conditions permit it; additionally, natural channel design techniques will be investigated and pursued in the area of the culvert for stabilization purposes.
- Traffic control plans will be developed to facilitate access during the construction phase.
- Surveys for wells within and adjacent to the proposed right-of-way limits will be conducted.
- Geotechnical investigations will be conducted to recommend techniques and materials to overcome any soil limitations along the preferred alternative.
- Required permits pertaining to foundation test borings will be obtained prior to beginning the construction phase of the project.
- Project right-of-way limits will be finalized.
- Service road studies will be conducted to determine if access can be provided to residences and businesses whose access will be precluded due to the construction of the preferred alternative.

Other actions which must be completed prior to the start of project construction include, but are not limited to, the following:

- Preparation of an erosion control plan incorporating the NCDOT *Best Management Practices for Protection of Surface Waters*.
- Coordination with municipalities and utilities for relocation and reconfiguration of utility systems.
- Identification of horizontal and vertical geodetic control monuments within the proposed right-of-way and notification to the National Geodetic Survey at least 90 days prior to construction regarding the relocation of any monuments.
- Implementation of the Relocation Assistance Program.
- Approval of all required permits, including a State Stormwater Permit, and certifications as outlined in Section 4.10.1.

S.8 SECTION 6(F) AND 4(F) RESOURCES

S.8.1 Section 6(f)

None of the Detailed Study Alternatives, including the Preferred Alternative, would impact Section 6(f) resources.

S.8.2 Section 4(f)

There is one resource within the Detailed Study Alternatives, including the Preferred Alternative, which is protected under Section 4(f) of the Department of Transportation Act. This resource is the Cates Farm, a historic property listed on the NRHP under Criterion A (Agriculture) for the importance of its dairy operation within the agricultural context of Alamance County, as developed for the property's period of significance (1905-1947), and under Criterion B for its association with Charles F. Cates, founder of the Cates Pickle Manufacturing Company and a leader in business, civic, and agricultural affairs. The study area contains a few publicly-owned recreational lands, but none of these lands are within the boundaries of the Detailed Study Alternatives, including the Preferred Alternative.

The Preferred Alternative of the proposed project would require the acquisition of right-of-way from the Cates Farm (Figure S.6). Approximately 12.6 acres of land would be acquired of the approximately 100 acres listed on the NRHP. An additional 4.6 acres of the farm would be isolated from the remaining historic property. The Preferred Alternative was developed to minimize the land taken and separated from the Cates Farm while also minimizing the crossing of the critical area of the Graham-Mebane Reservoir water supply watershed.

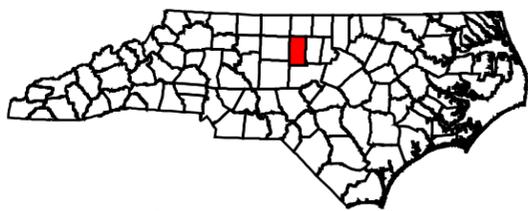
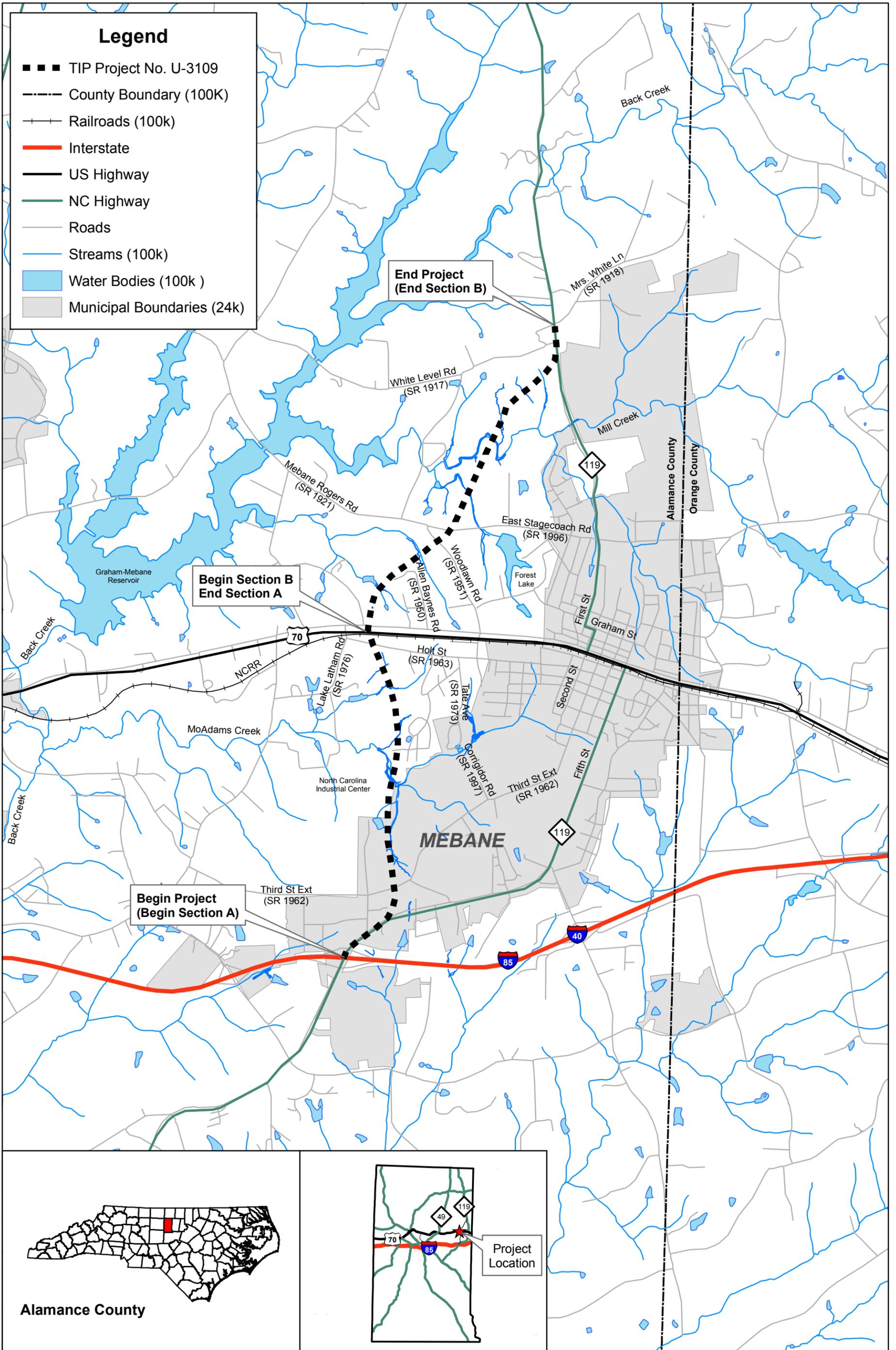
For the Preferred Alternative, the proposed roadway is anticipated to be visible and audible from the farmhouse. However, it would not require the removal of any structures associated with the Cates Farm. The North Carolina State Historic Preservation Office (HPO) determined that the Preferred Alternative would have an "adverse effect" on the property in their concurrence form dated June 6, 2002, which is included in Appendix B. The concurrence form, dated August 21, 2007, confirms the HPO's previous findings and is included in Appendix B.

Several alignments that avoid the Cates Farm were studied during the project planning process. These alternatives required the acquisition of right-of-way from one or more historic properties in the area, had significant relocations of residences or businesses, impacted the West End community, or crossed the water supply watershed critical area of the Graham-Mebane Reservoir. As a result, the only avoidance alternative carried forward is Alternative 8. This alternative does not require the acquisition of right-of-way from the Cates Farm, Cook's Mill, the Dr. W.N. Tate Farm, or House "K." Because of the rolling topography and wooded areas along the project alignment, Alternative 8 would be visually screened from the Cates Farm. The HPO concurred that Alternative 8 would have "no effect" on the property in their concurrence form dated June 6, 2002, which is included in Appendix B. The concurrence form, dated August 21, 2007, confirms the HPO's previous findings and is included in Appendix B.

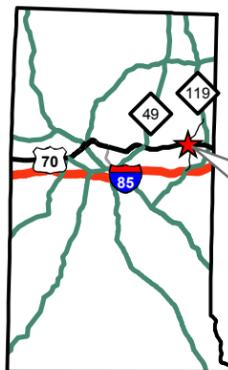
Alternative 8 would impact the water supply watershed critical area of the Graham-Mebane Reservoir. Approximately 1.0 mile of this alternative lies within the boundaries of the WCA of the Graham-Mebane Reservoir. In comparison, 0.7 miles of the Preferred Alternative lies within the WCA of the Graham-Mebane Reservoir.

Legend

- ■ ■ TIP Project No. U-3109
- County Boundary (100K)
- +— Railroads (100k)
- Interstate
- US Highway
- NC Highway
- Roads
- Streams (100k)
- Water Bodies (100k)
- Municipal Boundaries (24k)



Alamance County



Project Location



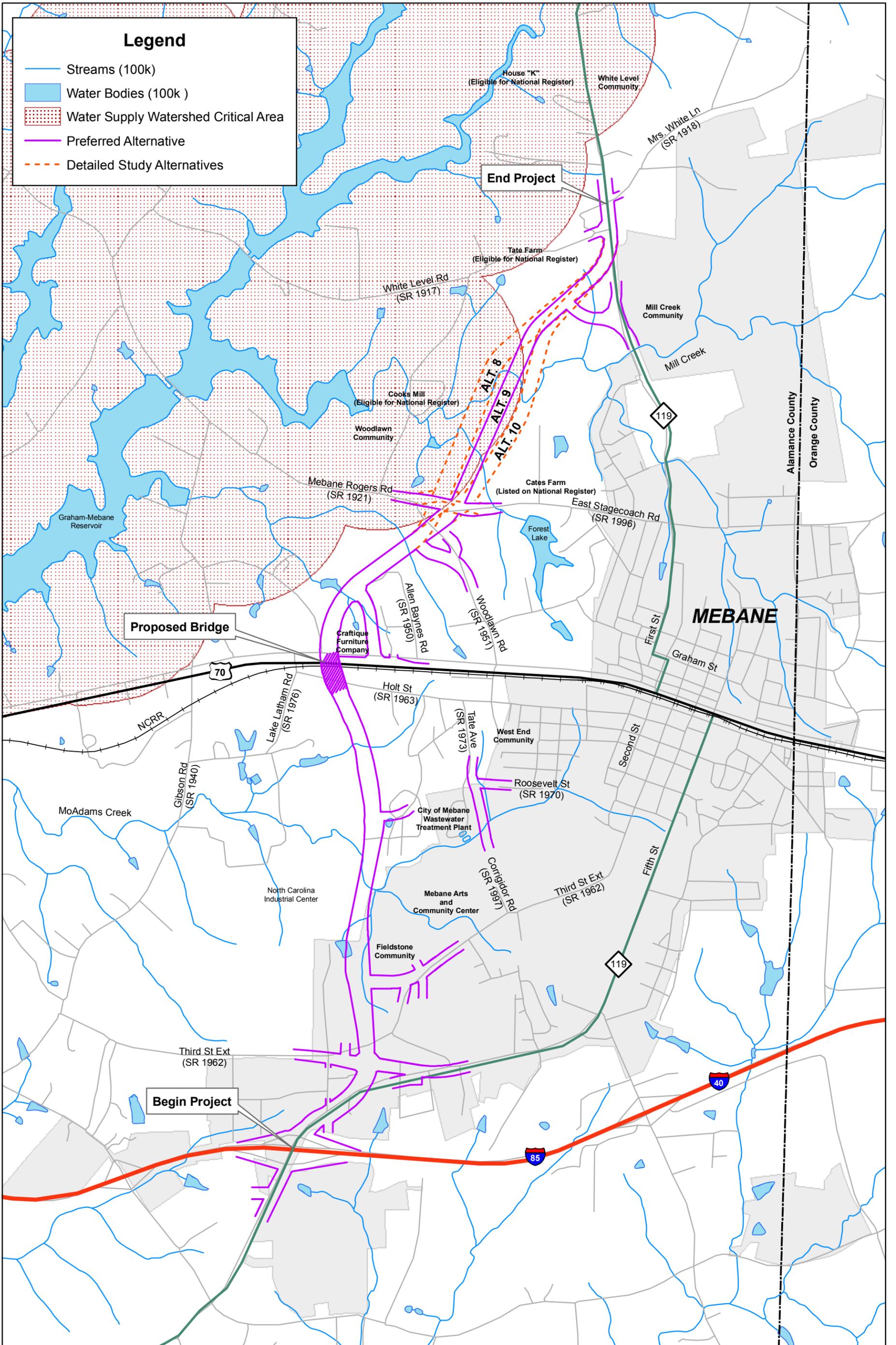
North Carolina Department of Transportation
 Project Development & Environmental Analysis Branch
 Proposed Relocation of NC 119 from I-85/40 to South of SR 1918
 Mebane, Alamance County
 TIP Project No. U-3109



Figure S.1
Project Vicinity

Legend

- Streams (100k)
- Water Bodies (100k)
- Water Supply Watershed Critical Area
- Preferred Alternative
- Detailed Study Alternatives



North Carolina Department of Transportation
 Project Development & Environmental Analysis Branch
 Proposed Relocation of NC 119 from I-85/40 to South of SR 1918
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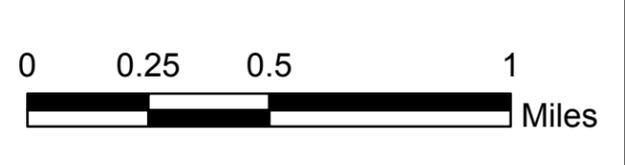
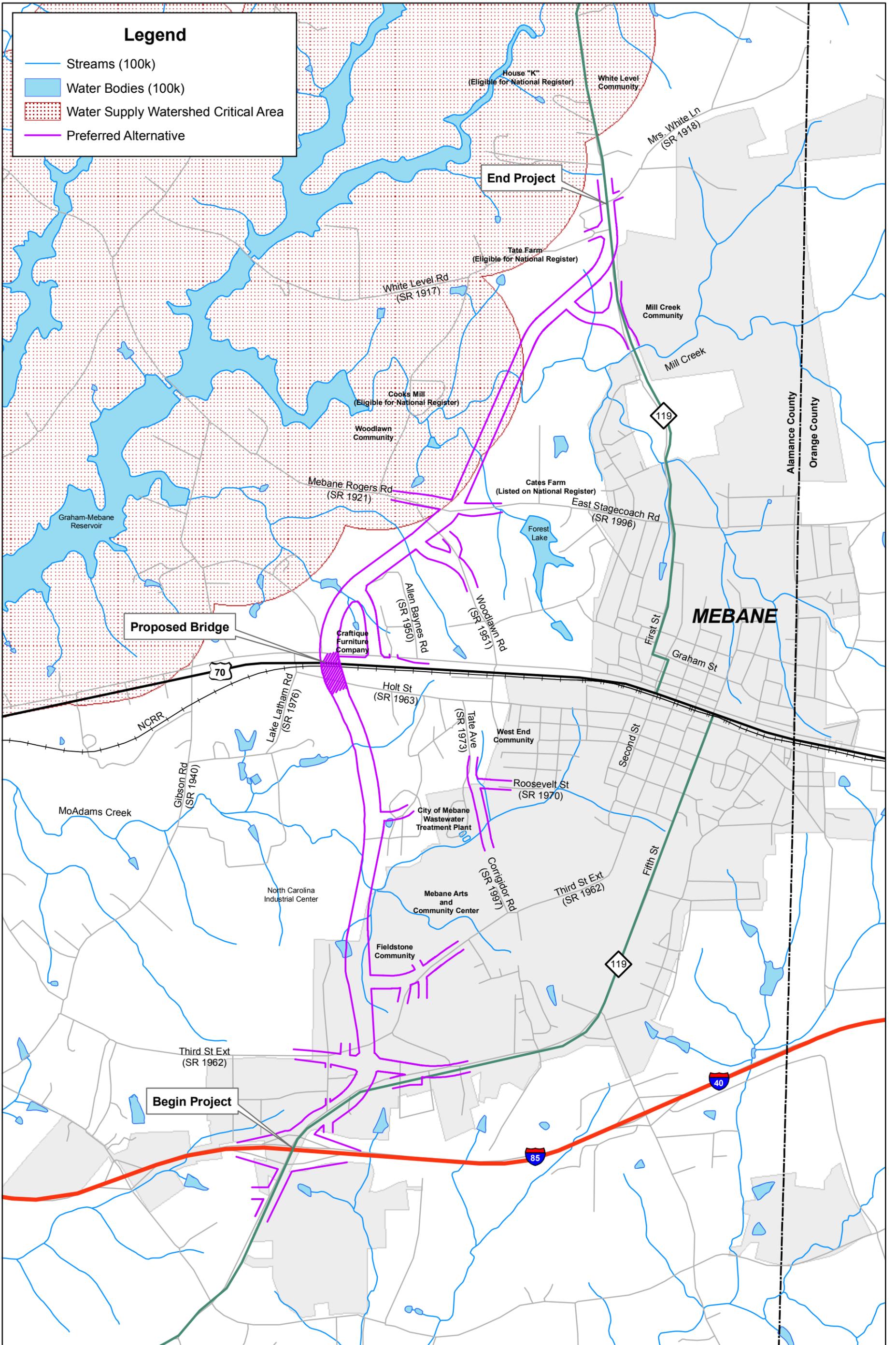


Figure S.2
 Detailed Study Alternatives

Legend

- Streams (100k)
- Water Bodies (100k)
- Water Supply Watershed Critical Area
- Preferred Alternative



North Carolina Department of Transportation
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 Proposed Relocation of NC 119 from I-85/40 to South of SR 1918
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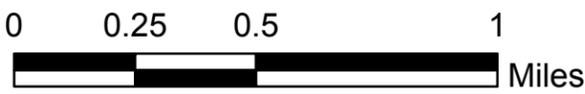
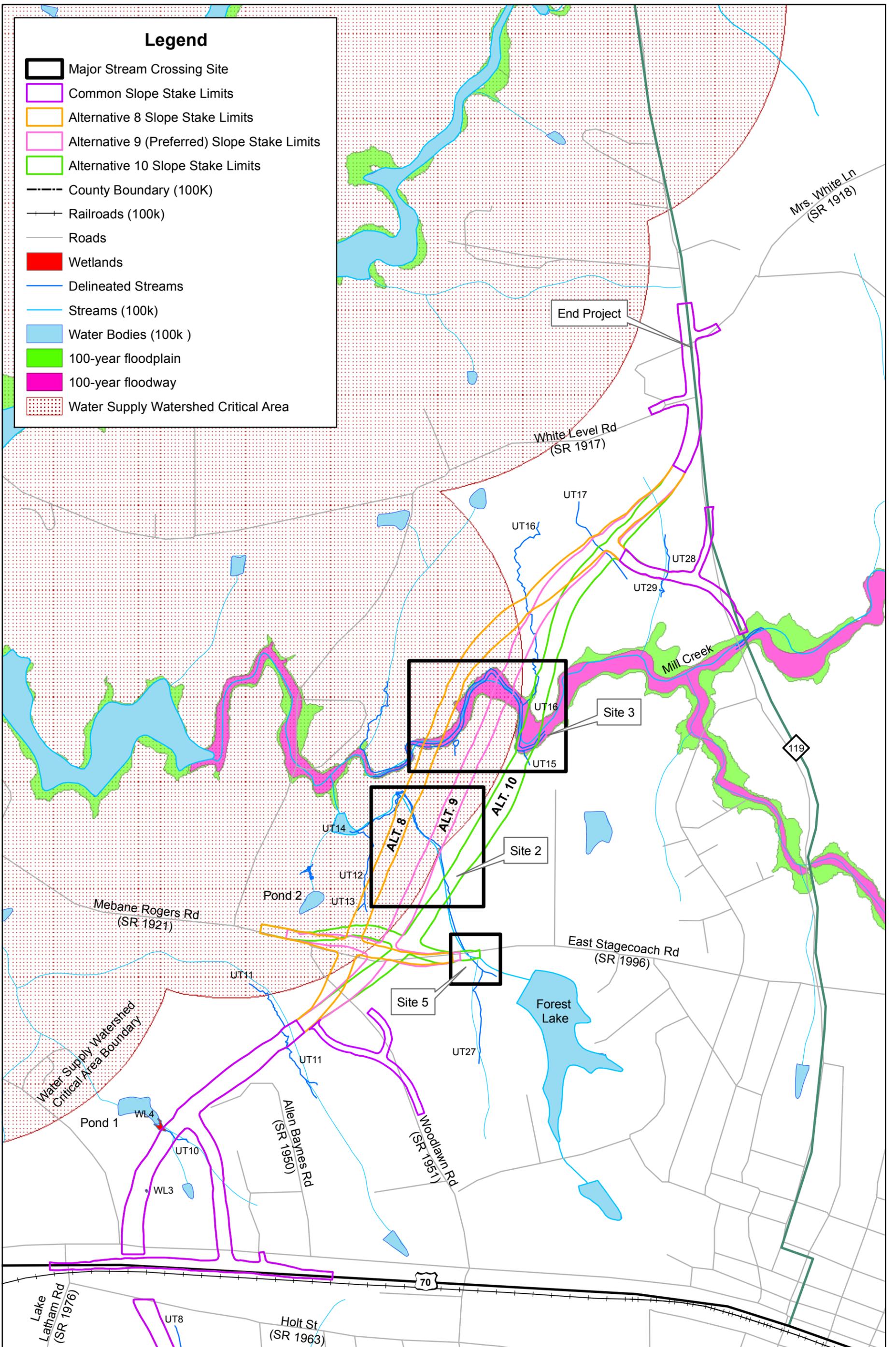


Figure S.3
 Preferred Alternative



North Carolina Department of Transportation
 Project Development & Environmental Analysis Branch
 Proposed Relocation of NC 119 from I-85/40 to South of SR 1918
 Mebane, Alamance County
 TIP Project No. U-3109

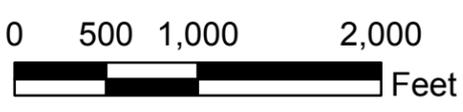
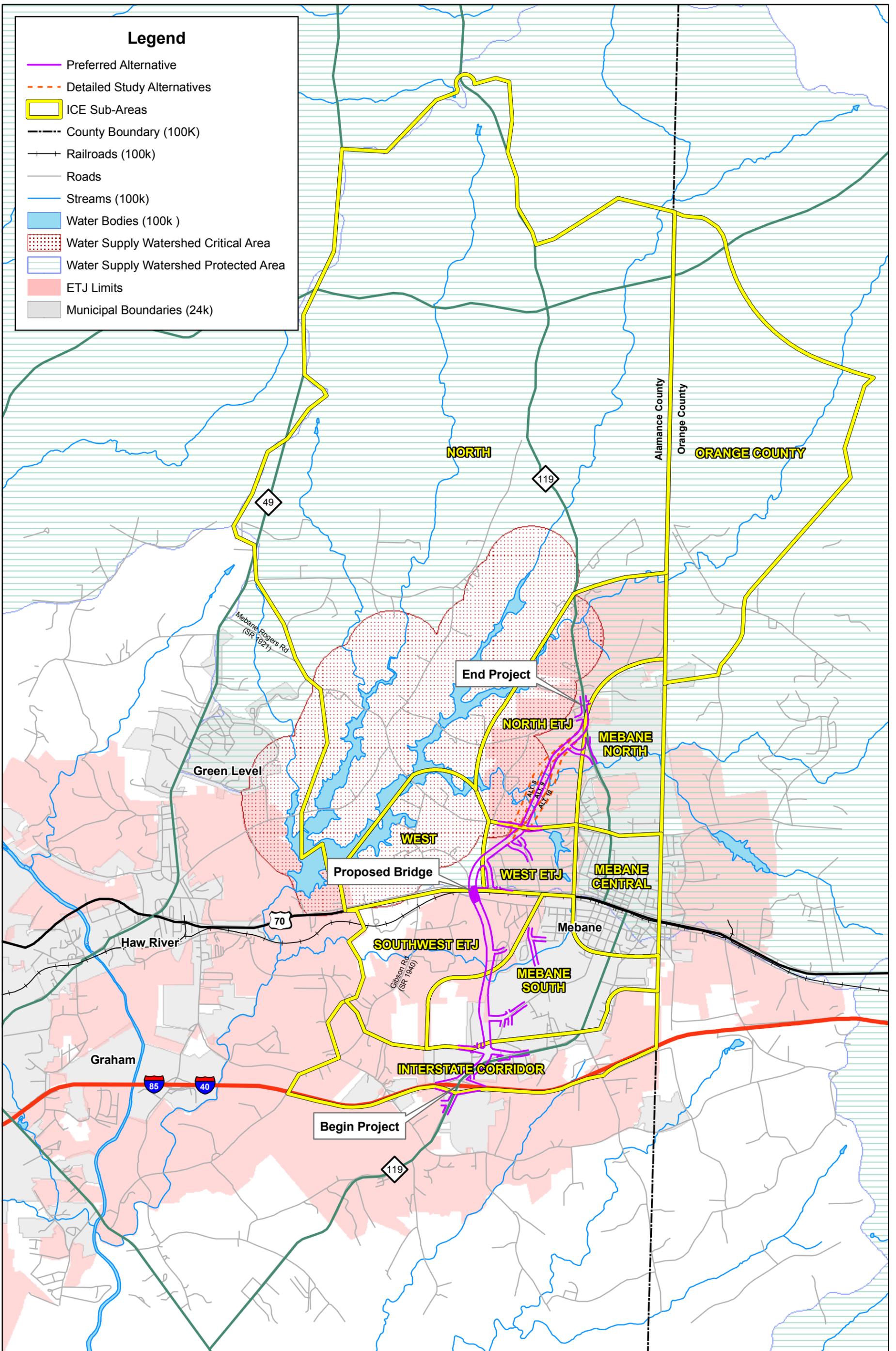
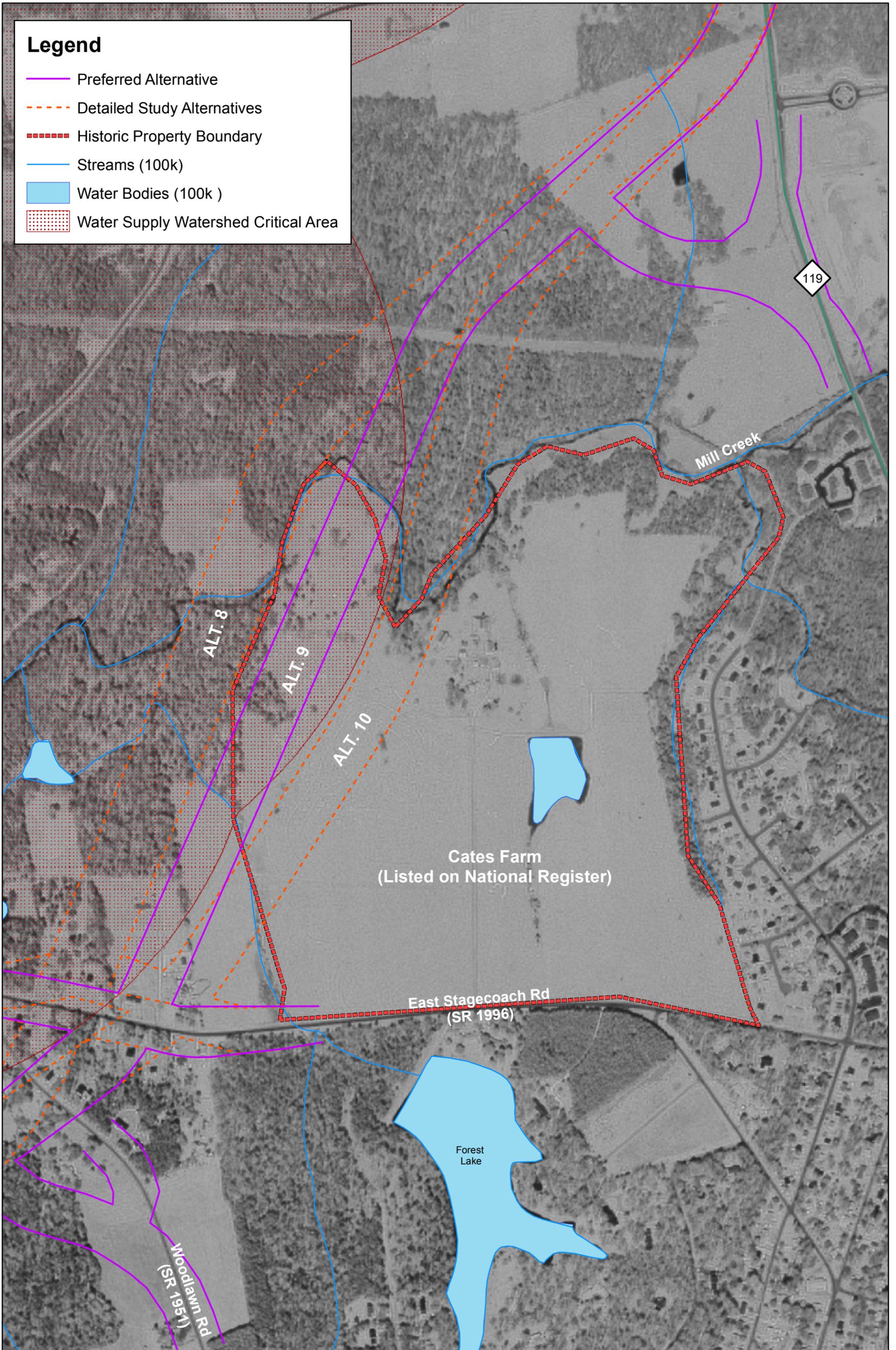


Figure S.4
Water Resource
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 Sheet 2 of 2



Legend

- Preferred Alternative
- - - Detailed Study Alternatives
- - - Historic Property Boundary
- Streams (100k)
- Water Bodies (100k)
- Water Supply Watershed Critical Area



North Carolina Department of Transportation
Project Development & Environmental Analysis Branch
Proposed Relocation of NC 119 from I-85/40 to South of SR 1918
Mebane, Alamance County
TIP Project No. U-3109



Figure S.6
Detailed Study Alternatives
in the Cates Farm Area

PROJECT COMMITMENTS

PROJECT COMMITMENTS

NC 119 RELOCATION

From I-85/40 to South of SR 1918 (Mrs. White Lane)
Mebane, Alamance County

WBS Element 34900.1.1

Federal Aid Project No. STP-119(1)

State Project No. 8.1470901

TIP PROJECT NO. U-3109

In addition to the standard Section 404 Individual Permit Conditions, any Section 404 Special Conditions, Regional Conditions, State Consistency Conditions, NCDOT's Guidelines for Best Management Practices for Protection of Surface Waters, General Certifications, and Section 401 Conditions of Certification, the following special commitments have been agreed to by NCDOT:

Project Development & Environmental Analysis Branch / Right of Way Branch

- The NCDOT will continue to coordinate with St. Luke's Christian Church throughout the project and work with the church to develop a detailed plan on the timing and means of the relocation prior to right-of-way acquisition.

Project Development & Environmental Analysis Branch / Highway Division 7 Office

- This project involves an environmentally sensitive area, identified on the preliminary design plans. No earthwork, staging, or storage of any kind should occur within this environmentally sensitive area.

Hydraulics Unit / Roadway Design Unit

- Investigate a spanning (three-sided) bottomless culvert at major stream crossing Site 2 (Unnamed Tributary to Mill Creek [UT14]).

Hydraulics Unit

- Hazardous spill protection measures will be provided at stream crossings within ½ mile of the water supply watershed critical area of the Graham-Mebane Reservoir during final design of the Preferred Alternative.
- Coordinate with the NC Floodplain Mapping Program (FMP), the delegated state agency for administering the Federal Emergency Management Agency's (FEMA) National Flood Insurance Program, to determine status of project with regard to applicability of NCDOT'S Memorandum of Agreement with FMP (dated 6/5/08), or approval of a Conditional Letter of Map Revision (CLOMR) and subsequent final Letter of Map Revision (LOMR).

Highway Division 7 Office

- This project involves construction activities on or adjacent to FEMA regulated streams. Therefore, the Division shall submit sealed as-built construction plans to the Hydraulics Unit upon completion of project construction, certifying that the drainage structures and roadway embankment that are located within the 100-year floodplain were built as shown on the construction plans, both horizontally and vertically.

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FINAL ENVIRONMENTAL IMPACT STATEMENT

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CHAPTER 1

1.1 INTRODUCTION

This document has been prepared in accordance with the requirements set forth in the National Environmental Policy Act (NEPA) of 1969, as amended, and the North Carolina Environmental Policy Act (NCEPA). This is an informational document intended for use by both the decision-makers and the public. As such, it represents a disclosure of relevant environmental information concerning the proposed action.

In addition, this document conforms with the Council on Environmental Quality (CEQ) guidelines that provide direction regarding implementation of the procedural provisions of NEPA, and the Federal Highway Administration's (FHWA) *Guidance for Preparing and Processing Environmental and Section 4(f) Documents* (FHWA, 1987). In its regulations implementing NEPA, the CEQ specifically permits agencies to identify preferred alternatives. According to the regulations, agencies shall "identify the agency's preferred alternative or alternatives, if one or more exists, in the draft statement and identify such alternative in the final statement unless another law prohibits the expression of such a preference" (40 CFR 1502.14[e]).

This Final Environmental Impact Statement (FEIS) identifies the Preferred Alternative for this project. However, the final selection of a preferred alternative will not be completed until after comments on this FEIS are fully evaluated. The Record of Decision (ROD) will document the final selection of the Preferred Alternative.

1.2 PROPOSED ACTION

This project addresses the proposed relocation of NC 119 from the I-85/40 interchange southwest of Mebane to existing NC 119 near SR 1918 (Mrs. White Lane) north of Mebane in Alamance County. Figure 1.1 shows the location of the project in relation to the state and Figure 1.2 depicts the project study area. Improvements to a portion of SR 1997 (Corrigidor Road) are also proposed as a part of this project and include realigning SR 1997 (Corrigidor Road) east of its existing location and connecting it to SR 1973 (Tate Avenue) in the vicinity of MoAdams Creek, the City of Mebane Wastewater Treatment Plant, and the City of Mebane Maintenance Yard. In addition, SR 1970 (Roosevelt Street) would be tied into the proposed SR 1997 (Corrigidor Road) realignment just north of the City of Mebane Maintenance Yard.

1.3 SUMMARY OF NEED FOR PROPOSED ACTION

The primary needs of the proposed action include the following:

- **Capacity Deficiencies**

Traffic flow and levels of service (LOS) on most segments of NC 119 in and around the project study area are projected to reach undesirable levels of service by the year 2030. According to the travel demand model for the Burlington-Graham Urban Area, existing NC 119 would not serve the anticipated future traffic for the year 2030. Additional information regarding the transportation network in the Mebane area and level of service (LOS) definitions is included in Section 1.9.

Since the early 1990s, the Mebane area has experienced rapid growth due to its proximity to both the Triangle (Raleigh, Durham, and Chapel Hill) and Triad (High Point, Greensboro, and Winston-Salem) areas. Existing NC 119 currently experiences congestion along portions of the roadway and at major intersections during peak periods of travel. In 2005, there were two locations along the existing NC 119 corridor where traffic demand either approached or exceeded the capacity of the roadway (Level of Service [LOS] E or F). These areas included the NC 119 intersections with the I-85/40 ramps and with US 70. The increase in traffic associated with the projected growth for the Mebane area is expected to substantially exceed the capacity of existing NC 119 by the year 2030. The projected traffic volumes along existing NC 119 represent a 130 to 200 percent increase in traffic growth over the next 25 years.

With the predicted increase in traffic volumes, congestion at intersections along the existing NC 119 corridor is expected to increase if nothing is done to improve area travel conditions. At three of the unsignalized intersections analyzed along the existing NC 119 corridor, traffic flow on the cross streets is currently exceeding the capacity limits of these intersections. Three of the signalized intersections analyzed along the existing NC 119 corridor currently have at least one movement that is approaching the intersection capacity (LOS E or F) during at least one peak period of the day. Two other signalized intersections are currently operating at LOS D, with little capacity available to absorb additional traffic.

The urban-type development typical along NC 119 includes frequent driveway entrances. This allows turning movements that hinder traffic flow. Turning traffic, mixed with through traffic, is highly undesirable from the standpoint of traffic safety and efficiency of the roadway.

- **Lack of connectivity within the local community**

Existing NC 119 is routed through the City of Mebane on Fifth Street, US 70, Third Street, Graham Street, and First Street. Currently, there is no access control along

existing NC 119 in the project area and the roadway is densely developed with numerous driveways and some commercial uses. Congestion and queues are anticipated to occur on existing NC 119 due to local use mixing with through traffic, making it difficult for residents along existing NC 119 to access their homes. There is no connectivity among several highly-traveled routes - SR 1921 (Mebane Rogers Road), US 70, SR 1962 (Third Street Extension), and I-85/40 - in close proximity to the Mebane central business district.

- **Lack of efficient north-south routes through Mebane due to development patterns**

Existing NC 119 is a two-lane roadway that travels through neighborhoods as well as downtown Mebane, causing through traffic to make several turns and stops through town. The roadway is routed through the City of Mebane on Fifth Street, US 70, Third Street, Graham Street, and First Street. It runs concurrent with US 70 through downtown Mebane, with the Norfolk Southern Railroad to the south and the commercial district located to the north and south. A more direct and efficient north-south option for commuters to reach the areas west and north of Mebane is needed. In addition, the existing route has at-grade crossings with the Norfolk Southern Railroad, which runs parallel to US 70 through Mebane and is part of the future Southeast High Speed Rail (SEHSR) study corridor. NC 119 (Fifth Street) crosses the railroad at its intersection with US 70. Currently, all railroad crossings in downtown Mebane are at-grade, which not only results in traffic delays for vehicles when a train occupies the tracks, including emergency vehicles, but also poses a safety risk for the traveling public as they cross the rail corridor.

The existing land use north of the City of Mebane and east of NC 119 is zoned residential and recreational. Because of the lack of efficient north-south routes through downtown Mebane and its proximity to the Triangle and Triad, commuter traffic from people working outside of Alamance County trying to reach I-85/40 is overwhelming the existing roadway network in Mebane's Central Business District (CBD).

1.4 PURPOSE OF PROPOSED ACTION

The primary purposes of the proposed action include the following:

- **Reduce traffic congestion in downtown Mebane**

Needs Addressed: Existing and projected deficiencies in levels of service along existing NC 119 cause substantial travel delay by decreasing travel speeds, increasing the potential for accidents, and contributing substantially to the inefficient operation of motor vehicles.

- **Improve access to the local area**

Needs Addressed: Currently, there are few circumferential roads in Mebane. Pressure on the downtown street system is anticipated due to NC 119's circuitous route through town.

Local use mixing with through traffic on NC 119 causes motorists to experience increased delays. Congestion related to through traffic makes it difficult for residents along NC 119 to access their homes. Connectivity among several highly-traveled routes - SR 1921 (Mebane Rogers Road), US 70, SR 1962 (Third Street Extension), and I-85/40 - in close proximity to the Mebane central business district is lacking. Access within the local community, including the North Carolina Industrial Center (NCIC) located between I-85/40 and US 70, is limited. In addition, all railroad crossings in Mebane are currently at-grade, which can cause varying traffic delays for vehicles, including emergency vehicles, when a train occupies the tracks.

- **Provide Alamance County a primary north-south route**

Needs Addressed: The Alamance County Urban Area does not have many direct, north-south routes that access the I-85/40 corridor. The circuitous routing of NC 119 through the City of Mebane and between I-85/40 and northern Alamance and Caswell Counties, which causes through traffic to make several turns and stops through town, diminishes this segment's ability to accommodate through-trips in need of a north-south connector. Lack of a supporting link to both I-85/40 south of Mebane and US 58 in southern Virginia hinders the movement of goods in the area.

1.5 PROJECT DESCRIPTION

1.5.1 Project Setting

Alamance County is geographically situated in the central portion of North Carolina. The project site lies within the north-central portion of the Piedmont Physiographic Province, more specifically within the Southern Outer Piedmont and Carolina Slate Belt Ecoregion transition (Griffith et al., 2002). The topography of Alamance County is characterized as mostly level. The City of Mebane is located primarily near the eastern border of Alamance County, but extends eastward into Orange County and is approximately 678 feet above sea level.

NC 119 begins at NC 54 in Alamance County and extends northward. The road crosses into Virginia as it exits Caswell County, where it becomes VA 119. The road was initially numbered as NC 103 in the 1920s, and was renumbered NC 119 in the early 1940s. The road was extended into Virginia in 1958 and has remained unchanged since that time (NC Roads, 2006). The road is classified as a major collector in the NCDOT classification system. This route is primarily used by traffic traveling between I-85/40 in Mebane and Caswell County to the north. This portion of NC 119 also serves through traffic from NC 49, which carries traffic from both Person and Orange Counties to NC 54 south of I-85/40 into Orange County. After intersecting with NC 54, NC 119 ends at Swepsonville Road, which accesses the proposed Alamance Parkway and continues south by way of NC 87 to Chatham County, NC 49 to Randolph County, or NC 62 to Guilford County. NC 119 also serves local traffic accessing businesses and residences along the road.

The project study area is more than five miles long and extends from the I-85/40 interchange southwest of Mebane to existing NC 119 near SR 1918 (Mrs. White Lane) north of Mebane in

Alamance County (Figure 1.2). The project study area lies west of the downtown area of Mebane and within the Extraterritorial Jurisdiction (ETJ) of the City, which extends, as much as one mile from the City limits in some places. The proposed NC 119 Relocation project travels through a mostly undeveloped, semi-rural landscape with scattered residential areas. The southern portion of the project study area between I-85/40 and US 70 is bordered by a developing industrial park, low to medium-density residential developments, agricultural uses, and vacant land. Surrounding existing NC 119 at the I-85/40 interchange are hotels, commercial establishments, and light industrial businesses. The northern portion of the project study area between US 70 and SR 1918 (Mrs. White Lane) is located in a semi-rural area of scattered residential properties, agricultural uses, and vacant land. Traveling northeast on NC 119, land uses remain predominantly residential along existing NC 119, but become less dense north of US 70 toward SR 1918 (Mrs. White Lane). Some commercial and light industrial uses occur in the vicinity of US 70 and SR 1996 (East Stagecoach Road), increasing in density as NC 119 nears the City of Mebane.

The City of Mebane includes a traditional commercial downtown surrounded by single-family homes. The City developed mostly linearly with a north-south orientation, influenced largely by I-85/40 which has been a catalyst for industrial and commercial development on the south side of town. Residential development, primarily in single-family subdivisions, has also occurred more on the south side of town due to better regional accessibility in this area. In recent years, the City has annexed properties on the south side of I-85/40. The Mebane city limits extend northward along NC 119 to SR 1918 (Mrs. White Lane).

The increased regional mobility created by the widening of the I-85/40 corridor from west of Hillsborough in Orange County to Greensboro has placed the Mebane area in an attractive situation for development. Alamance County is the mid-point between the rapidly urbanizing Triad and Triangle areas and, as a result, has evolved into a “bedroom community” for workers that travel to these areas for employment, shopping, and other activities

1.5.2 History of Project

A *Community Impact Assessment Report* (NCDOT, 1998), *Community Impact Assessment* (Wilbur Smith Associates, 2003), and a *Final Community Impact Assessment* (RS&H, 2006a) were prepared for the proposed project and are appended by reference.

The proposed relocation of NC 119 first appeared in the Alamance County Urban Area Thoroughfare Plan (now referred to as the Burlington-Graham Urban Area Thoroughfare Plan) adopted in April 1990 and amended in July 1994. The Thoroughfare Plan was developed by the NCDOT’s Transportation Planning Branch in cooperation with the City of Mebane and Alamance County.

The NCDOT added the proposed project to the State Transportation Improvement Program (TIP) in 1992 at the request of the Transportation Advisory Committee (TAC) of the Alamance County Urban Area. Relocation of NC 119 in Mebane is included in the NCDOT’s 2009-2015 TIP as two segments: TIP Project U-3109A and U-3109B. TIP Project U-3109A extends from the existing I-85/40/NC 119 interchange to north of US 70. TIP Project U-3109B extends from north of US 70 to existing NC 119 south of SR 1918 (Mrs. White Lane).

Planning and environmental studies began on the proposed relocation of NC 119 in the winter of 1994. A scoping meeting, as well as a meeting with staff from the City of Mebane and Alamance County was held by NCDOT. The result of these meetings was an environmental study area comprised of several potential alignment corridors for the relocation of NC 119. All of the alternatives identified would bypass Mebane on the west side of the town.

In response to the Alamance County Urban Area Thoroughfare Plan published in the Times-News Newspaper in October 1994 and concerns about potential impacts to the West End community, the West End Revitalization Association (WERA) was formed by local residents. The vision of WERA is to maintain sustainable historic Black/African American communities through environmental protection, preservation, stabilization, and planned development.

Citizens Informational Workshops were scheduled by the NCDOT in 1995 and 1996. The purpose of the first Citizens Informational Workshop was to present the project study area to the public and involve the public in the project planning process. A result of this meeting was the expansion of the project study area to include alternatives that would avoid the Cates Farm historic property and include communities on SR 1920 (Cooks Mill Road) and SR 1917 (White Level Road). The purpose of the second Citizens Informational Workshop was to present the expanded project study area to the public, provide a status of the proposed project, and get additional comments. In 1996, several small group meetings were held in various communities in the project study area, including West End, to get more input from residents and identify ways to minimize community impacts.

By March 1997, all supporting documentation for the Environmental Assessment (EA) was complete with the exception of traffic noise and air quality assessments. The EA was anticipated to be completed in the summer of 1997. The same month, a “Stop the Bypass” meeting was held where local residents suggested an eastern route for the relocation of NC 119.

In the spring of 1997, at the request of several citizens, the NCDOT studied alternatives that would relocate NC 119 to the east side of Mebane connecting to either Mattress Factory Road or Buckhorn Road. Both east-side alternatives would cross US 70 and Lebanon Road and intersect NC 119 north of SR 1918 (Mrs. White Lane). A memorandum dated April 15, 1997 was prepared by the NCDOT to summarize the reasons that a west-side NC 119 relocation would be more beneficial than an east-side bypass. The NCDOT did not recommend the eastern alternative based on future traffic models, the need for access for the planned industrial park west of Mebane, and the magnitude of impacts to the environment, residents, and businesses.

In late 1998, the NCDOT held several meetings with FHWA to discuss the Cates Farm and Craftique Furniture Company, as well as concerns of the West End community (sewer, dead end and unpaved streets, limited access, and concerns about future widening of US 70). The public involvement process for this project was also discussed at these meetings. In addition, NCDOT met with the North Carolina State Historic Preservation Office (HPO) and the Cates Farm Executor to discuss preservation and development of Cates Farm.

In early 1999, the WERA filed a complaint with the US Department of Justice under Title VI of the 1964 Civil Rights Act and Executive Order 12898: Environmental Justice against the City of

Mebane, area transportation groups, and the NCDOT. The WERA claimed that these agencies had discriminated against the West End community regarding the NC 119 bypass, the lack of basic amenities (water, sewer, paved streets), the redlining of Black/African American communities from the right to vote, housing and economic discrimination, and physical barriers of discrimination. Also during this time, the NCDOT met with HPO, the Cates Farm Executor, and FHWA to discuss proposed development of a portion of Cates Farm.

Beginning in the spring of 1999, the NCDOT held several meetings with residents of the West End, Woodlawn, and downtown Mebane communities, as well as the City of Mebane. Among the items discussed at these meetings were defining the boundaries of the West End community; mitigation and enhancements for the NC 119 Relocation project (presented by WERA); discussions of the alternatives being studied and issues and concerns raised by the West End community residents; impacts to the Cates Farm and the water supply watershed critical area of the Graham-Mebane Reservoir; and annexation of the West End community. Specific requests by WERA included moving the roadway alignment to the west of the West End community, installation of sewer and water amenities, improved accessibility to the larger Mebane area (e.g., removal of dead-end streets and paving of unpaved streets), and annexation of the West End community by the City of Mebane. Summaries from these meetings are included in Chapter 8 (Agency Coordination and Public Involvement) of this document.

In early 2000, the NCDOT held several meetings with FHWA, the Cates Farm Executor, John Kavanagh Company, and Remax Realty to review the study report on Cates Farm prepared by the executor and to review development plans for the northern portion of the Cates Farm.

In the summer of 2000, the NCDOT held additional meetings with residents of the West End community and the City of Mebane, as well as St. Luke's Christian Church. Among the items discussed at these meetings were possible mitigation measures in the West End community and impacts the church could expect from the proposed relocation of NC 119. In late 2000, NCDOT held several meetings with State and Federal environmental and regulatory resource agencies to discuss and agree on the purpose and need of the project and to seek agreement on the alternatives to be studied in detail in the document. Details regarding these meetings are included in Chapter 8 of this document.

In the summer of 2001, the first "Committee to Promote Highway 119 Connector" meeting was held. This committee, composed of citizens from throughout the Mebane area, including Mebane City Council members, was established to facilitate the timely construction of the proposed NC 119 Connector. The committee understood the importance of having local political support in an effort to create a "political voice" to advance progress on the NC 119 Connector. The committee discussed three key historical/environmental issues associated with the project: the West End community, the water supply watershed critical area of the Graham-Mebane Reservoir, and the Cates Farm.

In late 2002, the NCDOT issued the first newsletter for the NC 119 Relocation project to provide updated information about the project. Also during this time, one-on-one interviews were conducted with project area residents to determine what effects the relocation of NC 119 would have on the local communities and to evaluate how the project would affect their quality of life. Meetings were

also held with the West End community, the City of Mebane, and a representative of the Woodlawn community to gather information on the history of the NC 119 project. Soon after the one-on-one interviews were conducted, 425 local residents signed a petition opposing the relocation of NC 119, which was submitted to NCDOT in July 2003.

In the summer of 2003, a second project newsletter was issued that showed the location of the NC 119 Relocation alternatives under study as well as a summary of the history of the project and the schedule of future milestones for the project. A Citizens Information Workshop was also held during this time to show the detailed study alternatives to the public and to get citizens' input. In late 2003, the FHWA Office of Civil Rights was contacted to determine the current status of the complaint submitted in 1999 by the WERA. The Office of Civil Rights indicated that the complaint was not accepted because the NCDOT had not taken any action regarding the NC 119 project and that no decision had been made by NCDOT that would warrant a Title VI complaint. During this time, the NCDOT decided that an Environmental Impact Statement (EIS) would be prepared for the project rather than an EA.

During 2004, the NCDOT retained the Wills Duncan Group, Inc., (WDG) to conduct a community facilitation program for the NC 119 Relocation project. This program was intended to increase citizen involvement and identify the most important issues regarding the proposed project from the perspective of the various communities within the study area. Through these dialogues, NCDOT aimed to make certain that the community's issues and concerns were identified, heard, and addressed.

The WDG facilitated several rounds of community meetings in the study area during the spring of 2004. These meetings and workshops were held in each of the communities most affected by the relocation project including the Fieldstone/3rd and 5th Street corridor, West End, Woodlawn, Mill Creek, and White Level. The purpose of these meetings was to review the information available about the project and to help further develop constructive dialogues with neighborhoods, businesses, elected officials and other concerned citizens. Surveys were conducted within each of the communities as to their support or opposition to the NC 119 project. The results are summarized in Chapter 8 of this document. In addition, WDG conducted one-on-one interviews with local officials, community leaders, and other stakeholders/citizens to gather information about the communities' concerns, perceived problems, and desires related to the NC 119 project.

In June 2004, the NC 119 Relocation Steering Committee was formed. The committee is a diverse group of citizens representing the neighborhoods and the business community of the Greater Mebane area. The Steering Committee was formed to assist the NCDOT in increasing citizen participation in the transportation decision making process and to identify the most important issues regarding the project from the perspective of the local communities. The Steering Committee and citizens from the communities within the project study area met with the NCDOT several times, including twice in 2004 and once in 2006 and 2008, to discuss the NC 119 project as well as create a vision of what they would like the Mebane area to look like in the future. Refer to Chapter 8 of this document for a summary of the meetings. In late 2004, NCDOT distributed the third project newsletter, which provided an update on the progress of the project to the public, as well as the current status of project activities.

In 2005, the NCDOT completed project data collection and began analysis. In early 2006, the NCDOT completed several technical reports and project information was compiled and incorporated into the DEIS. The NCDOT also held meetings with State and Federal environmental and regulatory resource agencies during this time to discuss and agree on bridge locations and lengths for each of the Detailed Study Alternatives. The NCDOT held meetings with State officials, as well as Alamance and Caswell County officials during this time. In addition, NCDOT held several meetings in mid-2006 with the City of Mebane, Remax Realty, and 1st American to discuss plans and review updated plans for the development of the Cates Farm property. The fourth project newsletter also was issued in mid-2006. In late 2006, NCDOT representatives met with Fleming Engineering and Sasser Construction to discuss the proposed project.

In early 2007, NCDOT representatives met with Commercial Carolina/Cushman and Wakefield to discuss development of the property near the US Post Office on SR 1962 (Third Street Extension). The NCDOT met with the North Carolina Industrial Center (NCIC), the Cates Farm Executor, and Remax Realty to discuss the proposed improvements and status of the proposed project in late 2007. In addition, the DEIS was approved and the fifth project newsletter was issued.

In early 2008, a Pre-Hearing Open House and Corridor Public Hearing were held to provide an opportunity for the public to offer verbal and written comments on the proposed alternatives for the project and the information presented in the DEIS. In addition, the NCDOT met with citizens from the White Level community to discuss the community's concerns regarding the proposed project. In mid-2008, the NCDOT held a meeting with State and Federal environmental and regulatory resource agencies to discuss and agree on the Preferred Alternative, as well as measures to avoid and minimize impacts to streams and wetlands. The sixth project newsletter was issued in late 2008.

NCDOT representatives held one-on-one meetings with homeowners and businesses, including Craftique, in January and March 2009 to provide an update on the status of the project and to discuss access concerns.

To date, NCDOT has taken several actions in response to input obtained during the public involvement process. These include removal of project alternatives that pass through the West End community; the addition of alternatives that pass to the west of the West End community; the realignment of SR 1997 (Corrigidor Road) to connect with SR 1973 (Tate Avenue), which will improve the accessibility of the West End community to the Mebane Arts and Community Center, and providing a connection with SR 1970 (Roosevelt Street); addition of a grade separation over SR 1963 (Holt Street); and a signalized intersection at the relocated NC 119 and its proposed intersection with SR 1972 (Smith Drive). NCDOT also participated in discussions between the West End community and the City of Mebane regarding installation of sewer lines. In addition, NCDOT completed the grading and paving of SR 1950 (Allen Baynes Road) in the West End community in April 2006 and also completed the grading and paving of SR 1969 (Madison Street) in 2004.

In response to public input received during the Public Hearing, a signal warrant analysis was performed at the NC 119 and SR 1918 (Mrs. White Lane) intersection. Based on the traffic data collected, the NC 119/SR 1918 (Mrs. White Lane) intersection does not meet any of the volume warrants and therefore, does not warrant a traffic signal at this time. In addition, NCDOT studied a new alignment to relocate the intersection of SR 1951 (Woodlawn Road) and proposed NC 119

south of where existing SR 1951 (Woodlawn Road) would intersect proposed NC 119. This realignment provides right-in/right-out access from SR 1951 (Woodlawn Road) onto the proposed NC 119. Minor design revisions to facilitate access to various properties and minimize impacts to other properties were also studied in response to public input.

According to the NCDOT 2009-2015 TIP, right-of-way acquisition is scheduled to begin in fiscal year 2011 for Part A of the project (I-85/40 to north of US 70), with construction of this segment scheduled to begin in fiscal year 2013. Right-of-way acquisition and construction for Part B of the project (north of US 70 to SR 1918 [Mrs. White Lane]) is currently unfunded. Mitigation is scheduled to begin in fiscal year 2012 for this project.

1.6 SYSTEM LINKAGE

1.6.1 Existing Road Network

The transportation system within the project study area, specifically in the downtown Mebane area, is predominantly a grid system, representing the town's core area (Figure 1.2). NC 119 is a two-lane roadway that travels through neighborhoods as well as downtown Mebane and is the primary north-south route within the project study area. It is routed through the City of Mebane on Fifth Street, US 70, Second Street, Graham Street, and First Street. This route is primarily used by traffic traveling between I-85/40, Mebane, Alamance County, and Caswell County to the north. NC 119 in Alamance County also serves the dual functions of providing the primary regional north-south route between I-85/40 south of Mebane and US 58 in southern Virginia as well as providing north-south access to downtown Mebane.

Interstate 85/40 is the primary east-west travel route through Alamance County. US 70 travels parallel to I-85/40 through most of the county. These roads provide access to the Triad area to the west and the Triangle area to the east. In addition, SR 1921 (Mebane Rogers Road)/SR 1996 (East Stagecoach Road) runs east/west through the project study area. The existing road network is shown in Figure 1.3.

Primary north-south routes through Alamance County include NC 49, NC 62, and NC 87, all primarily two-lane roads. Regionally, the multi-lane routes to Virginia are US 29 out of Greensboro and US 501 out of Durham. From Mebane, NC 119 and NC 86 are the two-lane roads that provide northern access to Caswell County and Danville, Virginia.

1.6.2 Commuting Patterns

According to 2000 US Census Bureau data, about 25 percent of the Alamance County work force traveled outside the county for employment. The major destinations for employment outside of Alamance County are to the west in Guilford County (46 percent), east to Orange County (25 percent), and further east to Durham County (8 percent).

The length of time spent commuting provides insight into the distances that residents travel in order to find employment opportunities. In the project area, the majority of commuters (48 percent) travel between 10 to 29 minutes to their work destination and 31 percent travel between 30 to 59 minutes.

Only three percent of commuters travel more than 60 minutes to their work. The highest percentage of commuters (35 percent) traveling less than 10 minutes to their workplace are located south of US 70 between existing NC 119 and the Orange County line.

Approximately 97 percent of the commuters in the project study area use an automobile to travel to work and the majority of these travelers travel alone. Approximately two percent work at home and one percent use public transportation or walk for their work trips.

In 2000, approximately 25 percent of homeowners in Alamance County had one vehicle available. Approximately 43 percent had two vehicles, 20 percent had three vehicles and 8 percent had four or more vehicles available. Among residents that rent their homes, 48 percent had one vehicle available. Of those residents who were employed, 82 percent used their vehicles to drive to work alone, while another 14 percent carpooled usually with one or two other people. Less than two percent walked or rode a bicycle to work and less than one percent of residents used some other form of transportation, including public transportation, or walked to get to work.

1.6.3 Modal Interrelationships

Other modes of travel including railroad, air service, and transit are integral parts of the region's transportation system.

1.6.3.1 Railroads

The rail corridor through the project study area is owned by the North Carolina Railroad (NCR); however, the track is leased to Norfolk Southern Railway (NS) and runs from Greensboro to Raleigh. This rail corridor parallels US 70 (Center Street) through downtown Mebane and is part of the proposed Southeast High Speed Rail (SEHSR) from Washington, DC, to Charlotte. Currently, NC 119 (Fifth Street) has an at-grade crossing of the railroad at US 70. There are currently 12 trains that operate daily over this section of railroad (NCDOT Rail Division, 2009a). Four of those are AMTRAK passenger trains (Carolinian and Piedmont) that travel at a maximum speed of 79 miles per hour (mph). Two additional passenger trains will be added in the fall of 2009, bringing the total passenger trains to 6 per day. The remaining existing trains are freight that travel at a maximum speed of 50 mph. There is currently only one track in this location (NCDOT Rail Division, 2005). Since 2002, the NCDOT has been involved in an ongoing program with CSX and Norfolk Southern to provide railroad improvements between Greensboro and Raleigh. The efforts would provide over \$43 million in railroad improvements including improving passing sidings, installing traffic control and communication systems, and providing curve improvements. These improvements would improve train performance and reliability, reduce congestion and delays on the railroad, and improve capacity of the rail system while reducing the overall travel time through the area (NCDOT Rail Division, 2009b). The nearest AMTRAK station to the project area is in the City of Burlington. Additional stations are located in Greensboro and Durham, North Carolina (AMTRAK, 2006). From October 2007 through April 2008, ridership on the Carolinian and Piedmont increased more than 22 percent (197,126 total travelers). Due to this increase in passenger demand, a third train was purchased to serve the Charlotte to Raleigh corridor (State of North Carolina Office of the Governor, 2008).

1.6.3.2 Airports

The Burlington-Alamance Regional Airport (BARA) is located approximately 10 miles southwest of the project study area and is ranked in the top three general aviation airports in North Carolina. The North Carolina Division of Aviation has classified Burlington as a “Business Class” airport (Long Range Transportation Plan for Burlington-Graham Metropolitan Planning Organization [LRTP], 2004). Burlington Alamance Regional Airport is a medium-sized, general aviation facility with charter service all across the continental United States and into South America. Two international airports (Raleigh-Durham International Airport [RDU] and Piedmont Triad International Airport [PTI]) are located approximately forty miles southeast and west of the project study area, respectively. RDU, located in Wake County, had approximately 180 daily departures to 36 cities in January 2009 and provides passenger and parcel service to destinations worldwide (RDU, 2009; Triangle Business Journal, 2009). PTI, located in Greensboro, Guilford County, had approximately 66 daily departures (air carrier) in January 2009 and provides passenger and cargo service worldwide (Triangle Business Journal, 2009). PTI is a multi-model cargo facility with virtually all major trucking lines operating terminals near the airport (PTI, 2009). Interstate 40 is the primary route used to access these facilities from the project study area. There are two small airports in the vicinity of the project study area that are open to the public, Hurdle Field Airport in Mebane and Horace Williams Airport in Chapel Hill. Hurdle Field Airport is adjacent to the project study area near I-85/40 and provides alternative air travel options, predominantly charter jet services and charter flights. Horace Williams Airport, located southeast of the project study area, is maintained and operated primarily for NC Area Health Education Centers (AHEC) Medical Air Operations and University of North Carolina purposes. No commercial operation is conducted on the airport grounds except those operated or authorized by the university (UNC, 2009). In addition, the Danville Regional Airport is located in southern Virginia along the North Carolina border, approximately 33 miles north of the project study area. It is one of the leading general aviation airports on the east coast (Danville Regional Airport, 2009).

1.6.3.3 Transit

Public transportation in Alamance County is provided by the Alamance County Transportation Authority (ACTA). The ACTA provides transportation for the elderly, disabled, and general public residing in Alamance County. The Authority utilizes vans and buses that are ADA equipped, including wheelchair lifts, to assist persons with specialized needs and offers service throughout the county and to Durham, Chapel Hill, and Greensboro. The authority responds to requests for transportation and operates as a dial-a-ride program (ACTA, 2008). The authority also offers a non-emergency travel service (NETS) for riders requiring same-day transportation for medical service. NETS fares are substantially cheaper than other non-emergency medical transportation services provided by ambulances.

In addition, a *Public Transit Feasibility Study – Final Report* was prepared and submitted to the Burlington-Graham Urban Area (Burlington-Graham Metropolitan Planning Organization, 2006). This study evaluates the feasibility of operating a regularly scheduled public transportation program within the Burlington-Graham urban area, including coordination with existing services provided by ACTA and Piedmont Authority for Regional Transportation (PART). The study covers the Burlington-Graham urbanized area and its member jurisdictions, including Mebane.

The nearest Greyhound bus station to the project study area is located in Graham (314 W. Harden Street). Other stations are located in Burlington, Greensboro, and Durham (Greyhound Lines, Inc., 2008). Mebane Taxi Service (111 N. Third Street and 201 N. Fourth Street, Mebane) and other businesses located near Mebane offer taxi service in the project study area.

1.6.4 Bicycle and Sidewalk Accommodations

The section of existing NC 119 from the I-85/40 interchange to SR 1918 (Mrs. White Lane) is not a designated statewide bike route, nor does it correspond to a Bicycle TIP Project, nor are there independent bicycle or pedestrian projects planned for this corridor (NCDOT Division of Bicycle and Pedestrian Transportation, 2007). However, existing NC 119 is crossed several times by various Alamance County bike routes. In addition, two Alamance County local bike routes cross the proposed corridor; Route 74, the Perimeter Route, circles the county and crosses the corridor at SR 1921 (Mebane Rogers Road) and Route 70, the Urban Route, runs between Mebane, Graham, Burlington, and Elon and crosses the corridor at SR 1963 (Holt Street). The realignment of a portion of SR 1921 (Mebane Rogers Road) associated with two of the Detailed Study Alternatives would continue to accommodate bicyclists. However, bicyclists would encounter a new intersection along SR 1921 (Mebane Rogers Road) at the proposed corridor. A bridge is being proposed over the railroad, US 70, and SR 1963 (Holt Street), which would not alter the bicycle route in this area.

According to the City of Mebane Planning Director, there are an increasing number of cyclists in the area and the City would like to encourage bicycling as an alternate mode of transportation in the City (NCDOT Division of Bicycle and Pedestrian Transportation, 2007). The use of 4-foot wide paved shoulders along the proposed four- and six-lane typical sections, as well as the striping of the curb and gutter sections to allow 14-foot wide outside lanes, will be investigated during the final design phase of the project. Additional bicycle accommodations may also be investigated during the final design phase, including a 4-foot offset on both sides of any bridges that are constructed, as well as the installation of bicycle-safe grates for safety.

During preliminary discussions between the City of Mebane and NCDOT Division of Bicycle and Pedestrian Transportation regarding sidewalks along the proposed roadway, the City of Mebane requested to have sidewalks incorporated into the project. The 5-foot sidewalks would be incorporated along the curb and gutter typical roadway cross-section which extends from the beginning of the project to south of the Fieldstone subdivision and US Post Office. According to NCDOT's Pedestrian Policy Guidelines (2001), the City enters into a municipal agreement with the NCDOT to incorporate new sidewalks into the project. Existing sidewalks removed during project construction are replaced by the NCDOT. The NCDOT uses a cost-sharing approach to demonstrate the commitment of the City and the NCDOT to pedestrian transportation. The City must commit to supplying a 20 percent match of the installation cost of the new sidewalk. The percentage of the match is based on the population of the municipality and ranges from 50 percent for Cities with over 100,000 people to 20 percent for populations less than 10,000 people (such as Mebane).

1.7 SOCIAL AND ECONOMIC CONDITIONS

The information included in the following sections is appended from the *Final Community Impact Assessment* (RS&H, 2006a) prepared for the proposed project, unless otherwise noted.

1.7.1 Population Trends

Mebane is located in the eastern portion of Alamance County, which is located in the eastern Triad area. Alamance County has a total area of approximately 430 square miles. There are nine municipalities in the county, of which Burlington is the largest and the City of Graham is the county seat (Burlington/Alamance County, 2009).

Since 1950, Alamance County has experienced a 101 percent increase in its population. The fastest growth occurred between 1950 and 1960 and between 1990 and 2000. From 1950 to 1960, the County's population grew from 71,220 to 85,674 (20.3 percent increase) and from 1990 to 2000 the County's population grew from 108,213 to 130,800 (20.9 percent increase). As of July 2007, the North Carolina Office of State Budget and Management estimated the population of Alamance County at 143,154 persons (North Carolina – Office of State Budget and Management, 2008).

Out of the 100 counties in North Carolina, Alamance County has the 18th highest total population. Projections for 2000 to 2010 show Alamance County's population increasing by 13.3 percent to reach a population of 148,192. North Carolina's population is expected to increase by 18.1 percent between 2000 and 2010 to reach a population of 9,502,904 (North Carolina – Office of State Budget and Management, 2008). As of July 2007, the population of the City of Mebane was estimated at approximately 9,187 residents, according to the North Carolina – Office of State Budget and Management.

1.7.2 Economic and Infrastructure Data

Tourism in Alamance County generated an economic impact of \$140.84 million in 2007, a 7.24 percent increase from the year 2006 (NC Department of Commerce, 2008). In 2007, Alamance County ranked 25th in tourism among North Carolina's 100 counties according to the North Carolina Department of Commerce.

Within the project study area, the US Census reports that percentages of households within each of the income levels is similar to the county and the State with the exception of the income levels greater than \$50,000 per year which is slightly higher for the project study area than for the county or State. The two largest annual income groups within the project study area are the households with annual earnings of \$50,000 to \$90,000 (33 percent) and the households with annual earnings of less than \$20,000 (24 percent) (US Census Bureau, 2000). Most of the project study area has median incomes equal to or greater than the county and State.

Traditionally, the manufacturing industries have been the predominant type of private sector employment for the local economy within the project study area; however, the manufacturing sector has experienced some decline during the past decade. The manufacturing and government sectors employ the greatest number of persons in the project study area with 23 percent of the workforce in each of these sectors. This is similar to the employment characteristics of the State; however, Alamance County has a somewhat higher percentage (28 percent) in the manufacturing sector.

The North Carolina Industrial Center (NCIC) is a 600-acre mixed use development site (including commercial, industrial, office, distribution, and manufacturing) located north of the existing NC 119

and I-85/40 interchange. The NCIC currently houses seven manufacturing and distribution facilities. Construction is underway for the expansion of Phase 1 of the NCIC, while future Phases 2 and 3, in addition to the remaining balance of Phase 1, are all planned to be developed in accordance with the NCIC's approved Master Plan.

Of the 10 largest manufacturing businesses in Alamance County, five are located in the Mebane area. Of the 10 largest non-manufacturing employers in Alamance County, one is located in the Mebane area. The third largest employment sector is the Finance, Insurance, and Real Estate industry with 15 percent share of the employment in the project study area. The industry sectors with the lowest percentages of workforce are the sectors of agriculture, wholesale trade, and construction.

According to information compiled by the City of Mebane, the total number of jobs created within the Mebane area since 2002 is estimated to be approximately 576, with an additional 1,200 jobs anticipated to be created in the near future based on non-residential development proposals currently being reviewed by the City. The current major private employers within the project study area are manufacturing-related and include: General Electric Corporation; GKN Automotive, Inc.; Kidde Co.; Gold Toe Moretz; Meadwestvaco Consumer Packaging; Liggett Vector Brands; AKG of America; and Armacell (Alamance County Chamber of Commerce, 2008). The North Carolina Employment Security Commission reports that the unemployment rate during 2007 for Alamance County was 5.1 percent which is slightly higher than the State unemployment rate of 4.7 percent.

Located in the vicinity of the project study area are two elementary schools, a middle school and a high school. E. M. Yoder Elementary (located at Clay and Charles Street) and South Mebane Elementary (located on SR 1962 [Third Street]) house the K-5 students. Woodlawn Middle School and Eastern Alamance High School serve grades 6-12 and are located northwest of the City on SR 1921 (Mebane Rogers Road).

The City of Mebane's existing water distribution system serves most of the area within the City's existing municipal limits. The Graham-Mebane Lake Water Treatment Plant has increased its daily capacity to 12 million gallons per day (MGD) to serve the City and new development in the area. According to the 2010 Land Development Plan for the City of Mebane, the City's existing water supply and treatment plant appears adequate to accommodate a moderate amount of growth over the next 10 years.

The City of Mebane currently has a wastewater treatment plant capacity of 2.5 million gallons per day (MGD) located on SR 1997 (Corrigidor Road). Between July 2007 and June 2008, the City treated an average of 1.0 MGD, or less than half of its sewage treatment capacity (City of Mebane, 2008b). With an average of about 1.5 MGD in excess wastewater treatment capacity, the City can continue to provide excellent sewer service to existing customers, while accommodating a small to moderate amount of new development over the next ten years according to the 2010 Land Development Plan.

Mebane's wastewater collection system serves most of the area within existing city limits and a few industrial properties along I-85/40 within the City's ETJ. There have been recent extensions of sewer service in areas located west of the City limits within the West End community with funds

provided through federal programs. Phases 1 and 2 of the extensions of sewer service to this area have been completed.

1.8 TRANSPORTATION AND LAND USE PLANS

1.8.1 NCDOT Transportation Improvement Program

Table 1.1 lists the projects in the Mebane area that are included in the North Carolina Department of Transportation's (NCDOT) 2009-2015 State Transportation Improvement Program (TIP). Figure 1.4 shows the general locations of these projects.

**TABLE 1.1
Projects in the Vicinity of Mebane
2009-2015 TIP**

Project Number	Description	Proposed Improvement	Projected Schedule
U-3109	NC 119 Relocation in Mebane, I-85/40 to South of SR 1918 (Mrs. White Lane)	Construct multi-lane facility on new location; 4.2 miles	
	<u>U-3109 Section A</u> - I-85/40 to North of US 70		Right-of-way acquisition scheduled to begin in fiscal year 2011; construction to begin in fiscal year 2013
	<u>U-3109 Section B</u> - North of US 70 to South of SR 1918 (Mrs. White Lane)		Unfunded
R-3105	NC 119 from South of SR 1917 (White Level Road) in Alamance County to NC 62 in Caswell County	Widen NC 119 in Alamance County to SR 1901 and construct a connector to NC 62 on new location; 10.0 miles	Unfunded project
U-2546	US 70 in Mebane from Haw River Bypass to Mebane City Limits	Widen to multi-lanes; 4.6 miles	Unfunded project
I-4918	I-85/40 from NC 54 (Milepost 148) in Alamance County to west of SR 1114 (Buckhorn Rd) in Orange County (Milepost 154)	Pavement repair; 8.3 miles	Under construction

Source: NCDOT Program Development Branch, 2009

As shown in the table, there are currently two projects that pertain to NC 119 identified in the NCDOT 2009-2015 TIP. TIP Project No. U-3109 is the relocation of NC 119 between I-85/40 and SR 1918 (Mrs. White Lane) and has been divided into two sections. Section A extends from I-85/40 to north of US 70 and Section B extends from north of US 70 to south of SR 1918 (Mrs. White Lane). Funding for Section A has been appropriated for planning, right-of-way acquisition, and

construction; however, Section B is currently unfunded. Immediately north of the proposed NC 119 Relocation project is TIP Project No. R-3105 which is the proposed widening of NC 119 between SR 1917 (White Level Road) in Alamance County and NC 62 in Caswell County; this project is currently unfunded.

There are additional roadway improvement projects listed in the NCDOT 2009-2015 TIP that are intended to address traffic improvement needs within the Mebane area. TIP Project No. U-2546 is the proposed widening of US 70 to a multi-lane roadway between the Haw River Bypass and Mebane city limits; this project is not yet funded. TIP Project No. I-4918 includes pavement repair along I-85/40 from NC 54 (Milepost 148), west of Mebane, to the Orange County Line (Milepost 154). This project is under construction. In addition, the Mebane Oaks Road project, formerly TIP Project No. U-3445 widened the existing roadway to five lanes between I-85/40 and Fifth Street, as well as the I-85/40 bridge. This project was completed in 2005 and is intended to alleviate congestion on the southeastern side of Mebane near I-85/40. These projects would improve travel conditions and accessibility within the project study area as well as local traffic circulation in the Mebane vicinity.

1.8.2 Transportation Plans

Burlington-Graham Urban Area Transportation Plan

The City of Mebane is a member of the Burlington-Graham Metropolitan Planning Organization (MPO), which adopted in 2004 a Transportation Plan Update 2005 – 2030 (LRTP, 2004). The plan has a 25-year planning horizon and identifies existing and projected deficiencies in the region's thoroughfare system which includes the existing NC 119 roadway in Mebane.

The Burlington-Graham MPO Thoroughfare Plan, an element of the overall Transportation Plan Update, identifies proposed roadway improvement projects for the region including the proposed NC 119 Relocation project. The following is a list of roadway improvement projects included in the Vision Plan of the Burlington-Graham MPO Thoroughfare Plan that are located within or near the project study area; however, these projects do not have specific funding allocations.

- US 70 – a 4.6-mile road-widening project (from 2-lane to 5-lane section) from NC 49 east to Charles Street in Mebane; TIP No. U-2546.
- North East Mebane (NC 119) Bypass – a new 2-lane, 2.3 mile facility from existing US 70 north to NC 119.
- South Mebane Cross Town Connector – a new 2-lane, 2.6 mile facility from Mattress Factory Road west to the new NC 119 Western Mebane Bypass.
- Fifth Street Extension – a new 2-lane, 0.3-mile facility from Third Street north to East Stagecoach Road.
- Brown Street Extension – a new 2-lane, 0.3-mile facility from Fifth Street west to First Street.
- Eighth Street Extension – a new 2-lane, 0.2-mile facility from Mebane Eye Road south to Mebane Oaks Road.
- NC 119/Fifth Street – a 2.1-mile road-widening project along NC 119 (from 2-lane to 5-lane), from I-85/40 south to Hawfields Road.

- Gibson Road – a 0.9-mile road-widening project along Gibson Road (from 2-lane to 4-lane), from Third Street Extension to Trollingwood Road.
- West Stagecoach Road – a 1.2-mile road-widening project along West Stagecoach Road (from 2-lane to 4-lane), from Cooks Mill Road east to NC 119.

2010 Land Development Plan – City of Mebane

The Transportation Systems Plan element of the 2010 Land Development Plan for the City of Mebane identifies the proposed NC 119 Relocation project as a priority roadway improvement project for the Mebane area and states the following (City of Mebane, 2001):

“Construction of the proposed NC 119 Bypass around the western edge of Mebane will have a significant impact on the City’s land development patterns. Large amounts of vacant land zoned for industrial uses will receive prime access to this new roadway facility over the next ten years. Access needs to be carefully managed to preserve the proposed function of the thoroughfare, and to preserve the community’s small town character and quality of life as growth occurs. In addition, proposed thoroughfare corridors designated on the Thoroughfare Plan and Vision Plan need to be protected from encroachment by new land development.”

The Transportation Systems Plan goals address safety, accessibility and mobility, congestion, and alternative transportation modes for the Mebane area. One of the City’s transportation goals that specifically address the NC 119 corridor is “to reduce through traffic in our City by completing the proposed NC 119 Bypass, and other proposed projects listed on the Thoroughfare Plan and Transportation Improvement Program.”

The proposed NC 119 Relocation project is identified as a planned project in both the land use and transportation plans for Alamance County and the Mebane area, and is consistent with the policies contained in the State, regional, and local transportation plans.

1.8.3 Local Land Use Plans

2010 Land Development Plan – City of Mebane

The City of Mebane is the planning and zoning authority for the project study area of the proposed NC 119 Relocation project. The Mebane City Council adopted the 2010 Land Development Plan in June 2001. The primary purpose of the plan is to guide the community in making land development decisions and to help provide for the orderly growth and development of the City. The plan concludes that Mebane’s supply of land “appears adequate to meet its needs for land development over the next ten years.” According to the plan, approximately one-third (37 percent) of the vacant or under-utilized land in Mebane’s planning jurisdiction is subject to watershed development constraints and stream buffer requirements. However, the remaining vacant and excess land contains relatively few development constraints.

The 2010 Land Development Plan for the City of Mebane identifies the City and its surroundings as being subdivided into smaller community planning areas based on established neighborhood areas

and drainage patterns. The proposed NC 119 Relocation project traverses the Central Mebane, North Mebane, and West Mebane planning areas as designated by the City of Mebane. Following is a summary of the existing land use conditions as stated in these small area plans.

There is a limited amount of vacant land within the Central Mebane Planning Area (Mebane's central business district [CBD]) and much of it is in relatively small tracts, compared to other surrounding planning areas. The northern portion of the planning area (north of US 70) is located within either the water supply Watershed Critical Area (WCA) or the Balance of Watershed (BOW) overlay districts, and therefore subject to the City's watershed regulations, including requiring stream buffers to be maintained along creeks and streams. All of the North Mebane Planning Area is within the Graham-Mebane Reservoir water supply watershed protected area, and therefore, subject to regulatory land development constraints. All of the West Mebane Planning Area is located within the MoAdams Creek drainage basin and downstream of the City's existing wastewater treatment plant. A majority of the land in the West Mebane Planning Area is vacant. With the exception of the 100-year floodplain along MoAdams Creek, this large area of vacant land east of SR 1940 (Gibson Road) is relatively free of environmental constraints and excellent economic development potential.

1.9 TRAFFIC OPERATIONS ANALYSIS

1.9.1 Existing Roadway Characteristics

The existing NC 119 facility, also known as Fifth Street, within the project study area is a two-lane, two-way major collector roadway, consisting of two 12-foot lanes with curb and gutter through town. Access to NC 119 is provided at numerous locations, through predominantly unsignalized intersections and residential and commercial driveways. There is no control of access along NC 119 in the project study area at this time.

1.9.2 Existing No-Build Traffic Conditions

1.9.2.1 Existing Traffic Volumes

The existing Annual Average Daily Traffic Volumes (AADT) were developed using the *Project Traffic Forecasts – NC 119 Relocation* (Ko & Associates, 2003). A *NC 119 Relocation Travel Analysis Report* (RS&H, 2006b) was prepared for the proposed project and is appended by reference. Figure 1.5 presents the baseline average daily traffic (ADT) volumes for the year 2005 for NC 119 and major intersecting roads. Existing traffic volumes on NC 119 range from 3,000 ADT along Second Street to 19,200 ADT between I-85/40 and SR 1980 (Holmes Road).

During the evening peak hour, about 60 percent of the traffic travels north on NC 119, away from I-85/40. Between I-85/40 and US 70, about six percent of the average daily traffic is trucks. Along US 70, about five percent of the average daily traffic is trucks, which decreases to three percent along NC 119 north of US 70.

1.9.2.2 Existing Levels of Service

The effectiveness of a roadway segment in serving traffic demand is measured in terms of level of service. Level of service (LOS) is a qualitative measure of traffic conditions and driver perception. It is based on such factors as speed, travel time, maneuverability, interruptions, comfort, convenience, and safety. The LOS is defined with letter designations from A through F, which can be applied to both roadway segments and intersections. LOS A represents the best operating conditions and LOS F represents the worst. In urban areas, a level of service of D or better is considered acceptable. A level of service of C or better is desirable in rural and suburban areas where trip lengths are longer. Table 1.2 describes the traffic conditions generally associated with each LOS designation.

**TABLE 1.2
Level of Service Classifications and Conditions**

Level of Service (LOS)	Traffic Flow Conditions
A	Free flow operations. Vehicles are almost completely unimpeded in their ability to maneuver within the traffic stream. The general level of physical and psychological comfort provided to the driver is still high.
B	Reasonably free flow operations. The ability to maneuver within the traffic stream is only slightly restricted and the general level of physical and psychological comfort provided to the driver is still high.
C	Flow with speeds at or near free flow speeds. Freedom to maneuver within the traffic stream is noticeably restricted and lane changes require more vigilance on the part of the driver. The driver notices an increase in tension because of the additional vigilance required for safe operation.
D	Speeds decline with increasing traffic. Freedom to maneuver within the traffic stream is more noticeably limited. The driver experiences reduced physical and psychological comfort levels.
E	At lower boundary, the facility is at capacity. Operations are volatile because there are virtually no gaps in the traffic stream. There is little room to maneuver. The driver experiences poor levels of physical and psychological comfort.
F	Breakdowns in traffic flow. The number of vehicles entering the highway section exceeds the capacity or ability of the highway to accommodate that number of vehicles. There is little or no room to maneuver. The driver experiences poor levels of physical and psychological comfort.

Source: Transportation Research Board, 2000

The levels of service along existing NC 119 (2005 and 2030) were estimated using Highway Capacity Software 2000, which is based on the methodologies of the Highway Capacity Manual (Transportation Research Board, 2000). In addition, SYNCHRO was used to analyze the operational capacity of the signalized intersections within the project study area.

A transportation facility is considered to be operating at capacity when it is just able to accommodate the traffic demand. Once the traffic demand exceeds the facility's capacity (LOS E), excessive delays occur.

It should be noted that the urban street LOS is influenced by both the signal densities on the roadway and by the intersection control delay. That is, even if the signals on a segment work at average to acceptable levels of service, the urban street LOS may indicate a poor LOS because of medium to high signal densities (i.e., more than two signals per mile). On the other hand, urban streets with low signal densities can provide average to acceptable levels of service, even if the signalized intersections on either end of that segment operate at unacceptable LOS (E or F). Within the project study area, signalized intersections control the capacity and govern the level of service provided to the motoring public due to their close spacing. Essentially, the capacity of NC 119 is limited to the capacity of its busiest intersection.

At intersections without signals, LOS is evaluated for left-turning traffic from the main road and for all traffic on the minor street. It should be noted that the unsignalized intersection capacity analysis is extremely conservative. That is, if traffic on an approach is predicted to flow at LOS F (over capacity), then the intersection should be monitored to determine if a traffic signal or other intersection improvements are needed. In some cases, gaps in the traffic stream created by upstream and downstream signals will enable traffic at nearby unsignalized intersections to flow with little or no delay. This condition may not be reflected in the technical analysis.

The present levels of service for the roads in the project study area were determined based on the year 2005 roadway and lane configurations and the year 2005 traffic volumes. To determine and evaluate the capacity conditions of the existing roadway network in the project study area, mainline capacity analyses were performed for the following arterials:

- NC 119 (Fifth Street) between I-85/40 and US 70
- US 70 between Fifth Street and Second Street
- First Street (NC 119) in the vicinity of SR 1996 (East Stagecoach Road)

The arterial capacity analyses for the 2005 existing conditions shows that the NC 119 (Fifth Street) corridor as a whole functions at LOS C or better throughout the day, except at two locations. In the vicinity of its intersections with I-85/40 ramps and with US 70, traffic demand either approaches or exceeds the capacity of the roadway during at least one peak period of the day (LOS E or F). In addition, the traffic flow on SR 1007 (Mebane Oaks Road) between the I-85/40 ramps and Fifth Street either approaches or exceeds the capacity of the roadway during at least one peak period of the day (LOS E or F). The overall traffic flow on US 70 between Fifth Street and Third Street functions at LOS C or better throughout the day except at one location. The traffic demand on eastbound US 70 at its intersection with Fifth Street exceeds the capacity of the roadway.

Table 1.3 summarizes the levels of service at eleven intersections along existing NC 119 based on traffic volumes for 2005 (Figure 1.5). Seven (four unsignalized and three signalized) of the eleven intersections are over capacity and have at least one movement that is approaching the intersection capacity (LOS E or F) during at least one peak period of the day (these are indicated in bold in the table). Two other signalized intersections are operating at LOS D, with little capacity available to absorb additional traffic.

**Table 1.3
Intersection Capacity Analysis
2005 Existing Conditions**

Intersection Location	Controller	Morning Peak					Evening Peak				
		Overall	EB	WB	NB	SB	Overall	EB	WB	NB	SB
NC 119 at I-85/40 EB Ramps	Signal	D	D	N/A	D	C	E	E	N/A	E	D
NC 119 at I-85/40 WB Ramps	Signal	D	N/A	D	B	B	B	N/A	D	B	B
NC 119 at Holmes Road	E-W Stop	N/A	F	N/A	B	N/A	N/A	F	N/A	B	N/A
Fifth Street at Mebane Oaks Road	Signal	D	D	B	E	D	D	C	C	E	D
Fifth Street at US 70	Signal	D	E	D	C	C	D	E	D	D	C
US 70 at Third Street	Signal	C	D	C	C	C	C	C	D	C	C
US 70 at Second Street	N-S Stop	N/A	B	N/A	N/A	E	N/A	A	N/A	N/A	C
First Street at Stagecoach Road	Signal	B	C	C	A	A	B	C	C	A	A
Mebane Oaks Road at I-85/40 EB Ramps	E-W Stop	N/A	F	N/A	N/A	B	N/A	F	N/A	N/A	A
Mebane Oaks Road at I-85/40 WB Ramps	Signal	D	N/A	D	C	D	D	N/A	D	C	D
Third Street Extension at Holmes Road	E-W Stop	N/A	N/A	F	N/A	A	N/A	N/A	F	N/A	A

Note: N/A – not applicable

1.9.3 Projected Conditions (No-Build Alternative)

1.9.3.1 Design Year Traffic Volumes

Average daily traffic volumes for the year 2030 were projected to estimate whether the roadway system would have sufficient capacity to accommodate future travel demand. The future “no-build” highway network assumed that there would be no roadway improvements to the existing transportation system beyond those projects already planned and programmed as part of the NCDOT 2009-2015 TIP, with the exception of the relocation of NC 119 (TIP Project No. U-3109). The arterials and intersections analyzed for the 2030 No-Build Alternative are the same as those analyzed for the Existing Conditions because it was assumed that no changes to the existing roadway would occur. The 2030 No-Build analysis serves as a baseline condition from which the impacts of changes in traffic patterns due to the proposed project can be measured.

The projected average daily traffic volumes in 2030 for existing NC 119 and major intersecting roads are shown in Figure 1.6. According to the travel demand model for the Burlington-Graham Urban Area, existing NC 119 would not provide adequate capacity for the anticipated traffic volumes for the year 2030. Average daily traffic (ADT) volumes on NC 119 from SR 1007 (Mebane Oaks Road) to US 70 are predicted to be between 32,000 and 36,100 which is substantially above the daily capacity of a two-lane, two-way urban street. Similar traffic congestion is also

forecasted for US 70 between Fifth Street (NC 119) and Second Street within the CBD of Mebane. The ADT for this segment of US 70 ranges from 27,200 to 31,100 which are well over the capacity of a two-lane, two-way street. North of US 70, average daily traffic volumes on NC 119 range between 7,000 and 16,300, which is more than double the 2005 ADT. North of SR 1921 (Mebane Rogers Road), average daily traffic volumes are estimated to be 23,000, which is more than three times the 2005 ADT.

1.9.3.2 Design Year Levels of Service

Table 1.4 lists the LOS for major intersecting roads along NC 119 in 2030. According to the travel demand model for the Burlington-Graham Urban Area, existing NC 119 could not provide adequate capacity for the anticipated future traffic volumes for the year 2030.

**Table 1.4
Intersection Capacity Analysis
2030 No-Build Alternative**

Intersection Location	Controller	Morning Peak					Evening Peak				
		Overall	EB	WB	NB	SB	Overall	EB	WB	NB	SB
NC 119 at I-85/40 EB Ramps	Signal	F	F	N/A	F	F	F	F	N/A	F	F
NC 119 at I-85/40 WB Ramps	Signal	F	N/A	F	F	F	F	N/A	F	F	F
NC 119 at Holmes Road	E-W Stop	N/A	F	N/A	F	N/A	N/A	F	N/A	F	N/A
Fifth Street at Mebane Oaks Road	Signal	F	D	F	F	F	F	D	F	F	F
Fifth Street at US 70	Signal	F	F	F	F	F	F	F	F	F	C
US 70 at Third Street	Signal	F	F	F	F	F	F	F	F	F	F
US 70 at Second Street	N-S Stop	N/A	C	N/A	N/A	F	N/A	F	N/A	N/A	F
First Street at Stagecoach Road	Signal	F	F	F	F	F	F	F	F	F	F
Mebane Oaks Road at I-85/40 EB Ramps	E-W Stop	N/A	F	N/A	N/A	F	N/A	F	N/A	N/A	F
Mebane Oaks Road at I-85/40 WB Ramps	Signal	F	N/A	F	F	F	F	N/A	F	F	F
Third Street Extension at Holmes Road	E-W Stop	N/A	N/A	F	N/A	B	N/A	N/A	F	N/A	B

Note: N/A – not applicable

The arterial capacity analysis conducted for the future 2030 No-Build Alternative indicates that study area roads within the project study area would be congested and many segments would fail to serve the future traffic demand. Traffic demand on all of the arterials analyzed would either approach or exceed the capacity of the roadway during at least one peak period of the day (LOS E or F).

The analysis of the 2030 No-Build traffic flow conditions along the existing NC 119 corridor indicates that congestion at intersections would worsen if there are no improvements made to the existing system. At the four unsignalized intersections analyzed along the existing NC 119 and other corridors, traffic flow on the cross streets would substantially exceed the capacity limits of these intersections. At three of these intersections, the intersection as a whole would function at LOS F during both the morning and evening peak periods of the day. At the seven signalized intersections analyzed along the existing NC 119 corridor, all the approaches at five of these intersections would exceed the capacity limits and function at LOS F during both the morning and evening peak periods

of the day. In addition, the remaining two signalized intersections as a whole would function at LOS F during both peak periods of the day.

1.10 SAFETY

Traffic accidents are often the visible result of deficiencies in the capacity and safety characteristics of a transportation facility. Moreover, they contribute to delays, congestion, and driver frustration, inducing more accidents. Thus, an examination of accident data can reveal the need to provide a more efficient and safer facility.

Table 1.5 lists the traffic accidents by type reported along an approximately 5.58-mile stretch of NC 119 from the I-85/40 interchange to SR 2005 (Landi Lane). The accident data is for the period from October 1, 2003, to September 30, 2006.

Table 1.5
2003-2006 Accident Data
Existing NC 119 – I-85/40 to SR 2005

Accident Type	Number	% of Total
Rear End - slowing/stopping	41	28.08
Angle	25	17.12
Collision – animal	13	8.90
Left Turn - same roadway	10	6.85
Left Turn - different roadway	8	5.48
Ran Off Road - right	8	5.48
Head On Collision	7	4.79
Sideswipe - same direction	6	4.11
Ran Off Road - left	6	4.11
Collision – fixed object	4	2.74
Rear End - turning	3	2.05
Sideswipe – opposite dir.	3	2.05
Right Turn – same roadway	3	2.05
Right Turn – different roads	2	1.37
Backing Up	2	1.37
Collision – movable object	2	1.37
Other Collision with Vehicle	1	0.68
Unknown	1	0.68
Railroad Train, Engine	1	0.68
TOTAL	146	100.00%

Source: NCDOT Traffic Engineering and Safety Systems Branch, 2007a

Rear-end accidents related to traffic stopping or slowing were the predominant accident type reported during the three-year period. Such accidents are typical of congested conditions and result

from drivers following too closely. Rear-end accidents are common in stop-and-go conditions and on roadways with little or no control of access and extremely high traffic volumes.

More than 17 percent of the reported accidents were angle type accidents and more than 12 percent of the reported accidents involved left-turning vehicles. These types of accidents typically occur when a driver fails to respond to changes in traffic signal phases (running red lights) or attempts to use insufficient gaps in the opposing traffic stream. These accident types are an indicator of congested conditions and represent the effect such conditions can have on driver behavior. Rear-end, left-turn, and angle accidents compose more than half of the accidents along this stretch of NC 119.

Sideswipes (6.16 percent of accidents) can also reflect driver frustration and congested conditions. The combined ran-off-the-road left and right accident type was 9.59 percent. These accidents are frequently the result of a driver attempting to avoid a collision with another vehicle and demonstrate the impact traffic congestion can have on driving conditions.

During the three-year period examined, 146 accidents were reported. Based on average daily traffic volumes during that time, accidents occurred at a rate of 261.6 per 100 million vehicle miles (MVM) of travel. This rate is lower than the statewide average of 280.39 accidents per MVM for two-lane urban NC routes for the most recent time period available (2003-2005).

One fatal accident occurred during this three-year period at a rate of 1.82 per MVM, higher than the statewide average of 0.83 per MVM. Non-fatal accidents occurred at a rate of 78.12 per 100 MVM, lower than the statewide average of 96.48 per MVM. These rates, as well as those for accidents occurring at night and on wet pavement are shown in Table 1.6.

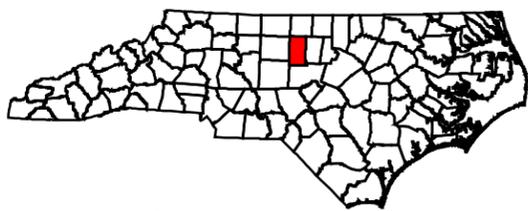
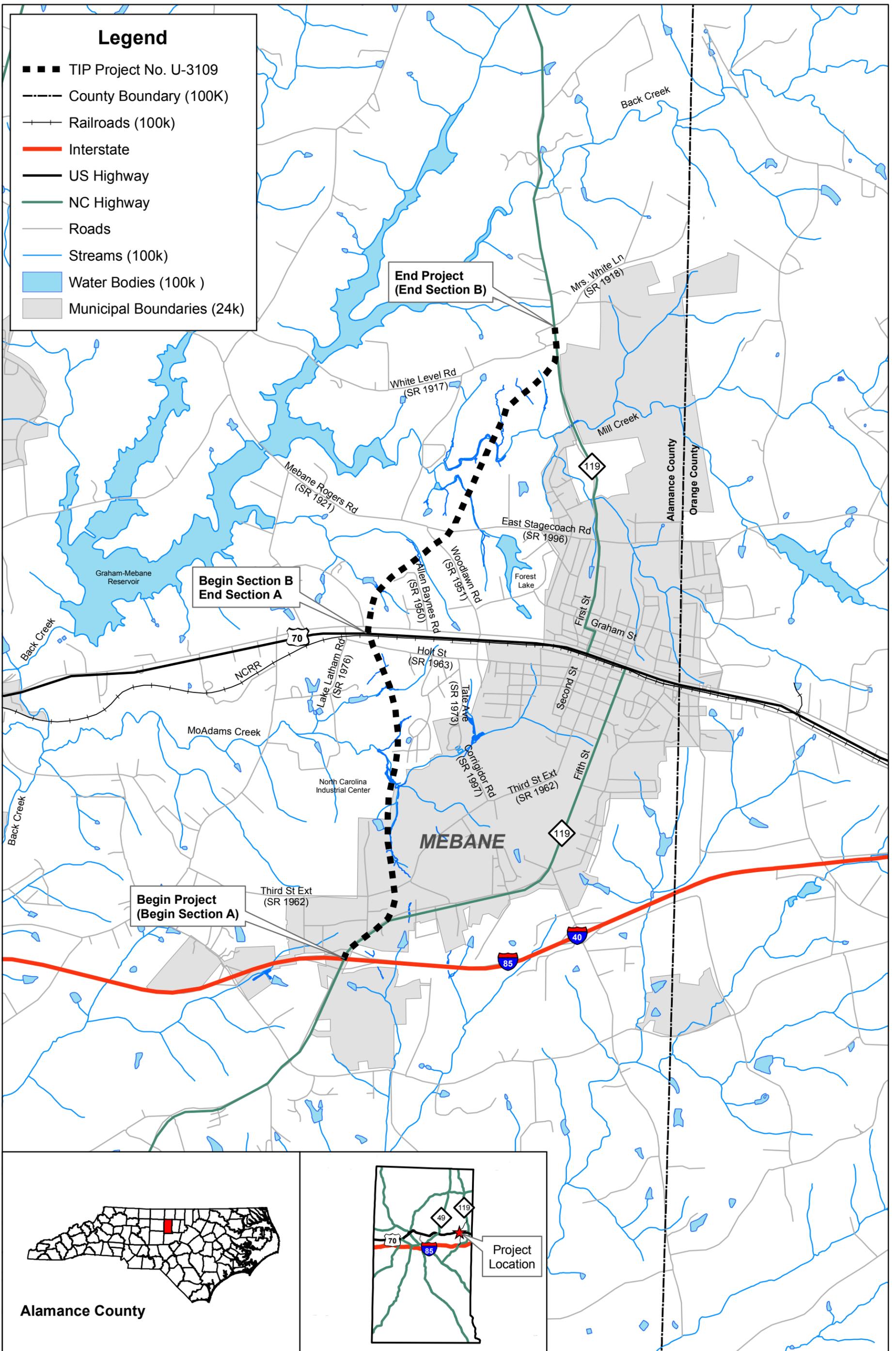
**Table 1.6
Existing NC 119 and Average Statewide Accident Rates**

Accident Type	Existing NC 119 Accident Rate per 100 MVM*	Statewide Average Accident Rate per 100 MVM**
Total Accident Rate	265.26	280.39
Fatal Accident Rate	1.82	0.83
Non-Fatal Injury Accident Rate	78.12	96.48
Night Accident Rate	47.24	55.31
Wet Accident Rate	47.24	48.52

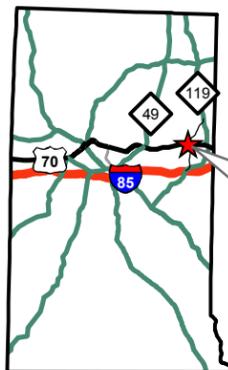
Notes: * Accident rates are expressed in accidents per 100 million vehicle miles (MVM) of travel.
 ** The Statewide Average is for urban NC Routes having 2 lanes undivided for the period 2003-2005
 Source: NCDOT Traffic Engineering and Safety Systems Branch, 2007b.

Legend

- ■ ■ TIP Project No. U-3109
- County Boundary (100K)
- +— Railroads (100k)
- Interstate
- US Highway
- NC Highway
- Roads
- Streams (100k)
- Water Bodies (100k)
- Municipal Boundaries (24k)



Alameda County



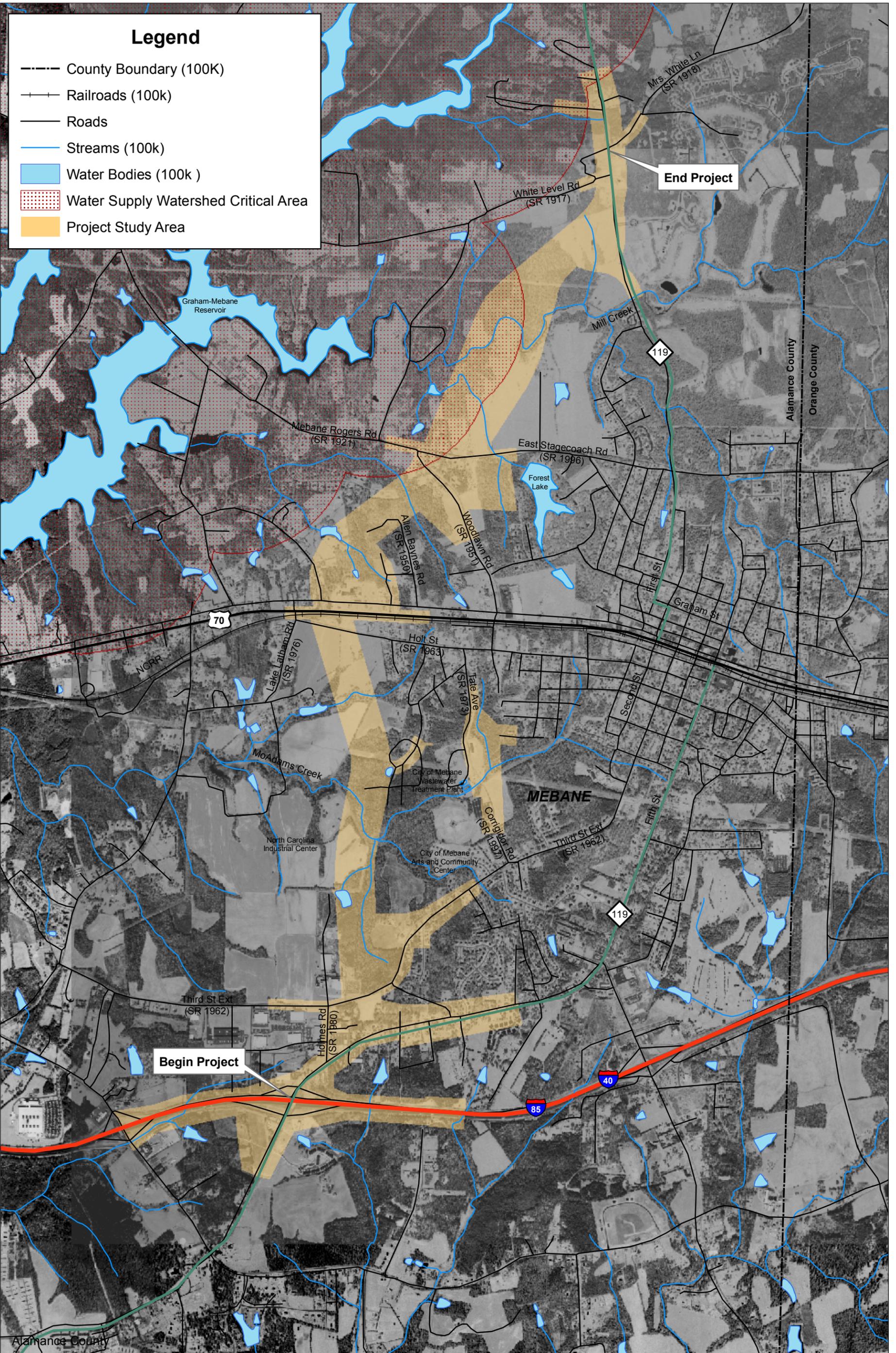
Project Location



North Carolina Department of Transportation
 Project Development & Environmental Analysis Branch
 Proposed Relocation of NC 119 from I-85/40 to South of SR 1918
 Mebane, Alameda County
 TIP Project No. U-3109



Figure 1.1
Project Vicinity



Legend

- County Boundary (100K)
- +— Railroads (100k)
- Roads
- Streams (100k)
- Water Bodies (100k)
- Water Supply Watershed Critical Area
- Project Study Area

End Project

Begin Project

Alamance County

Alamance County
Orange County



North Carolina Department of Transportation
 Project Development & Environmental Analysis Branch
 Proposed Relocation of NC 119 from I-85/40 to South of SR 1918
 Mebane, Alamance County
 TIP Project No. U-3109

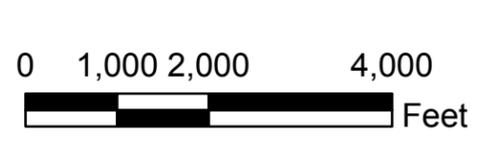
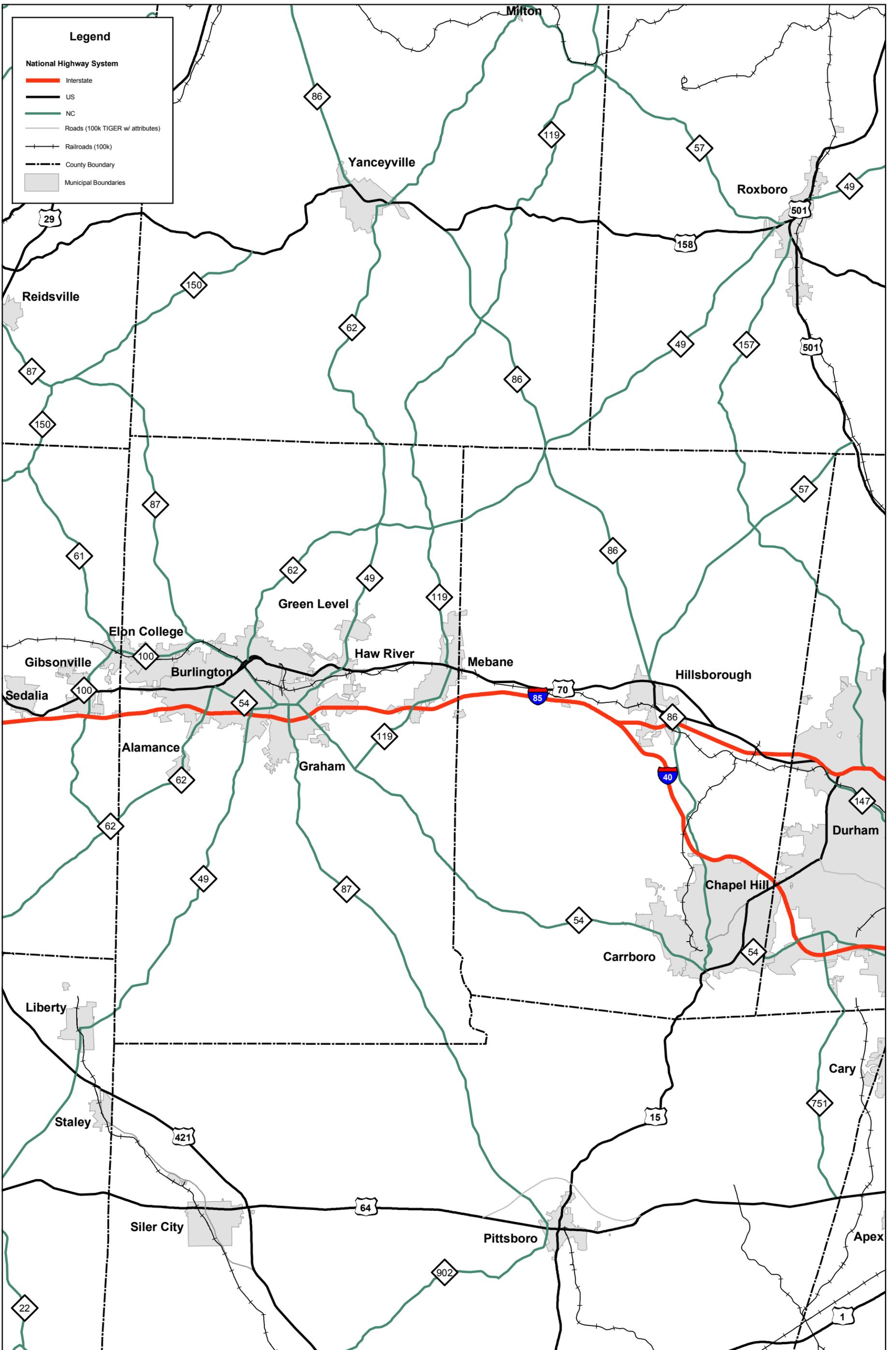


Figure 1.2
 Project Study Area



North Carolina Department of Transportation
 Project Development & Environmental Analysis Branch
 Proposed Relocation of NC 119 from I-85/40 to South of SR 1918
 Mebane, Alamance County
 TIP Project No. U-3109

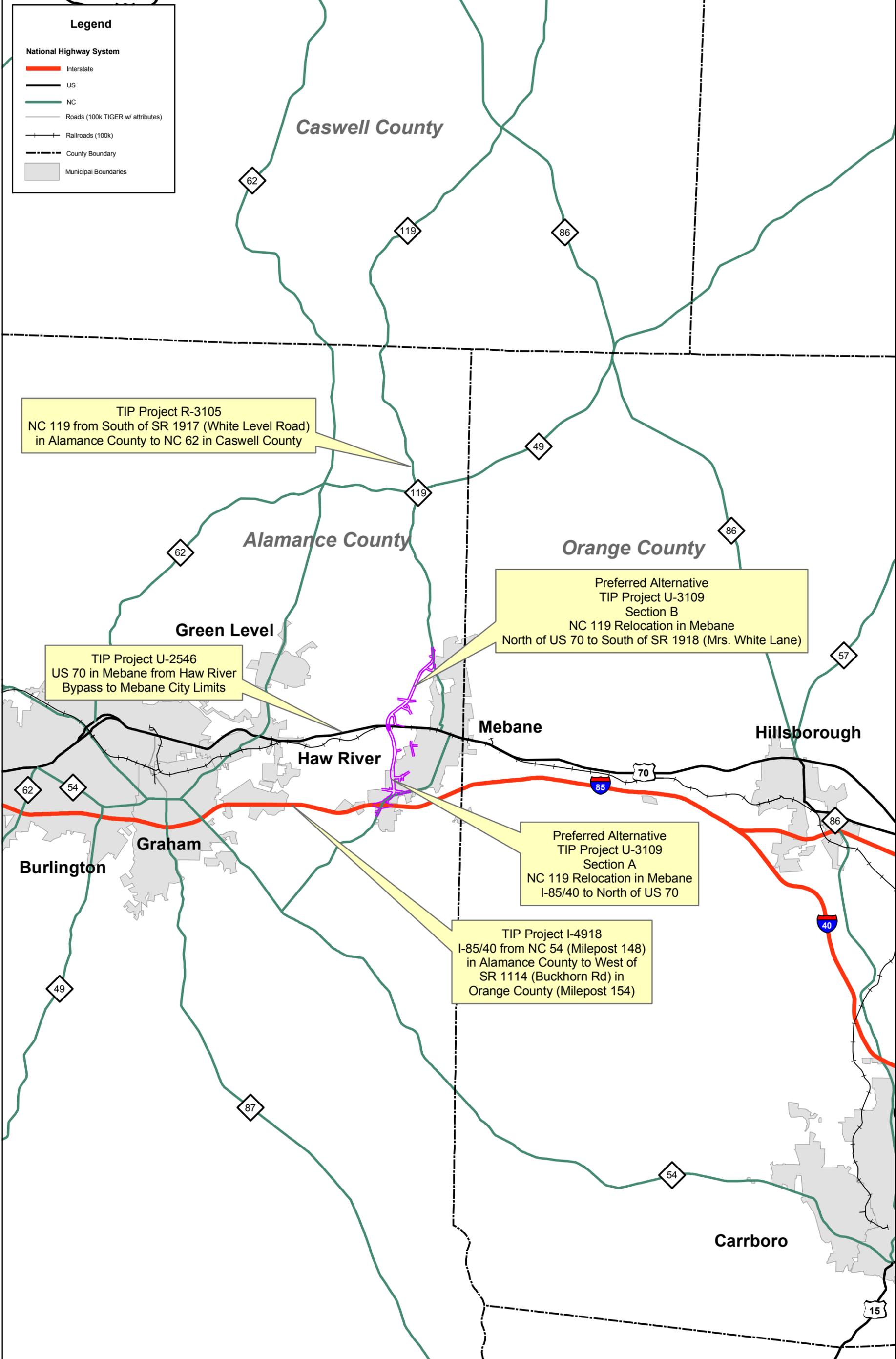


Figure 1.3
 Existing Road Network

Legend

National Highway System

- Interstate
- US
- NC
- Roads (100k TIGER w/ attributes)
- +— Railroads (100k)
- County Boundary
- Municipal Boundaries



TIP Project R-3105
 NC 119 from South of SR 1917 (White Level Road)
 in Alamance County to NC 62 in Caswell County

TIP Project U-2546
 US 70 in Mebane from Haw River
 Bypass to Mebane City Limits

Preferred Alternative
 TIP Project U-3109
 Section B
 NC 119 Relocation in Mebane
 North of US 70 to South of SR 1918 (Mrs. White Lane)

Preferred Alternative
 TIP Project U-3109
 Section A
 NC 119 Relocation in Mebane
 I-85/40 to North of US 70

TIP Project I-4918
 I-85/40 from NC 54 (Milepost 148)
 in Alamance County to West of
 SR 1114 (Buckhorn Rd) in
 Orange County (Milepost 154)



North Carolina Department of Transportation
 Project Development & Environmental Analysis Branch
 Proposed Relocation of NC 119 from I-85/40 to South of SR 1918
 Mebane, Alamance County
 TIP Project No. U-3109

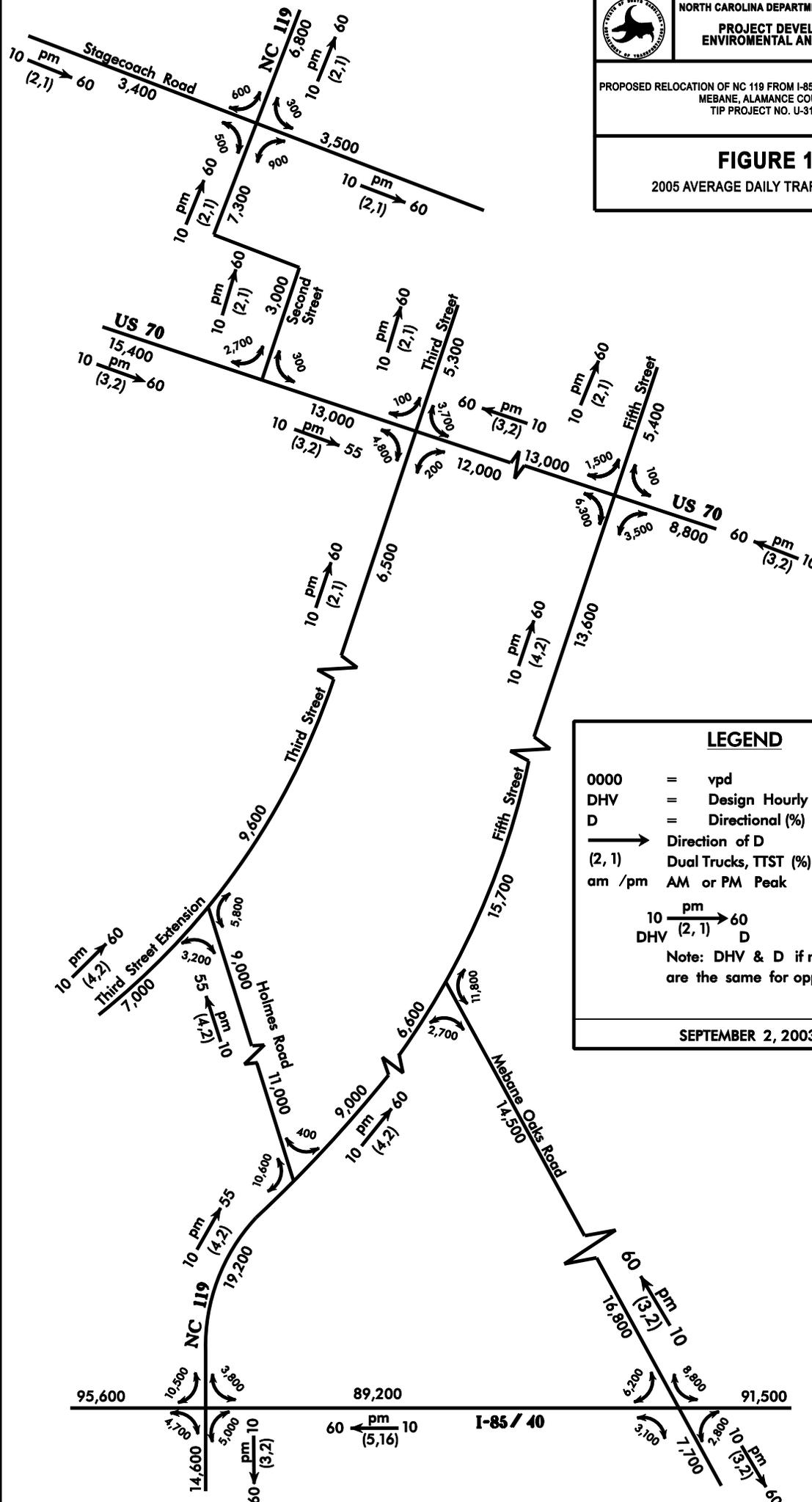


Figure 1.4
TIP Projects
Near Mebane



PROPOSED RELOCATION OF NC 119 FROM I-85 /40 TO SOUTH OF SR 1918
 MEBANE, ALAMANCE COUNTY
 TIP PROJECT NO. U-3109

FIGURE 1.5
 2005 AVERAGE DAILY TRAFFIC VOLUMES



LEGEND

- 0000 = vpd
- DHV = Design Hourly Volume (%)
- D = Directional (%)
- Direction of D
- (2, 1) Dual Trucks, TTST (%)
- am /pm AM or PM Peak

$10 \xrightarrow{\text{pm}} 60$
 DHV (2, 1) D

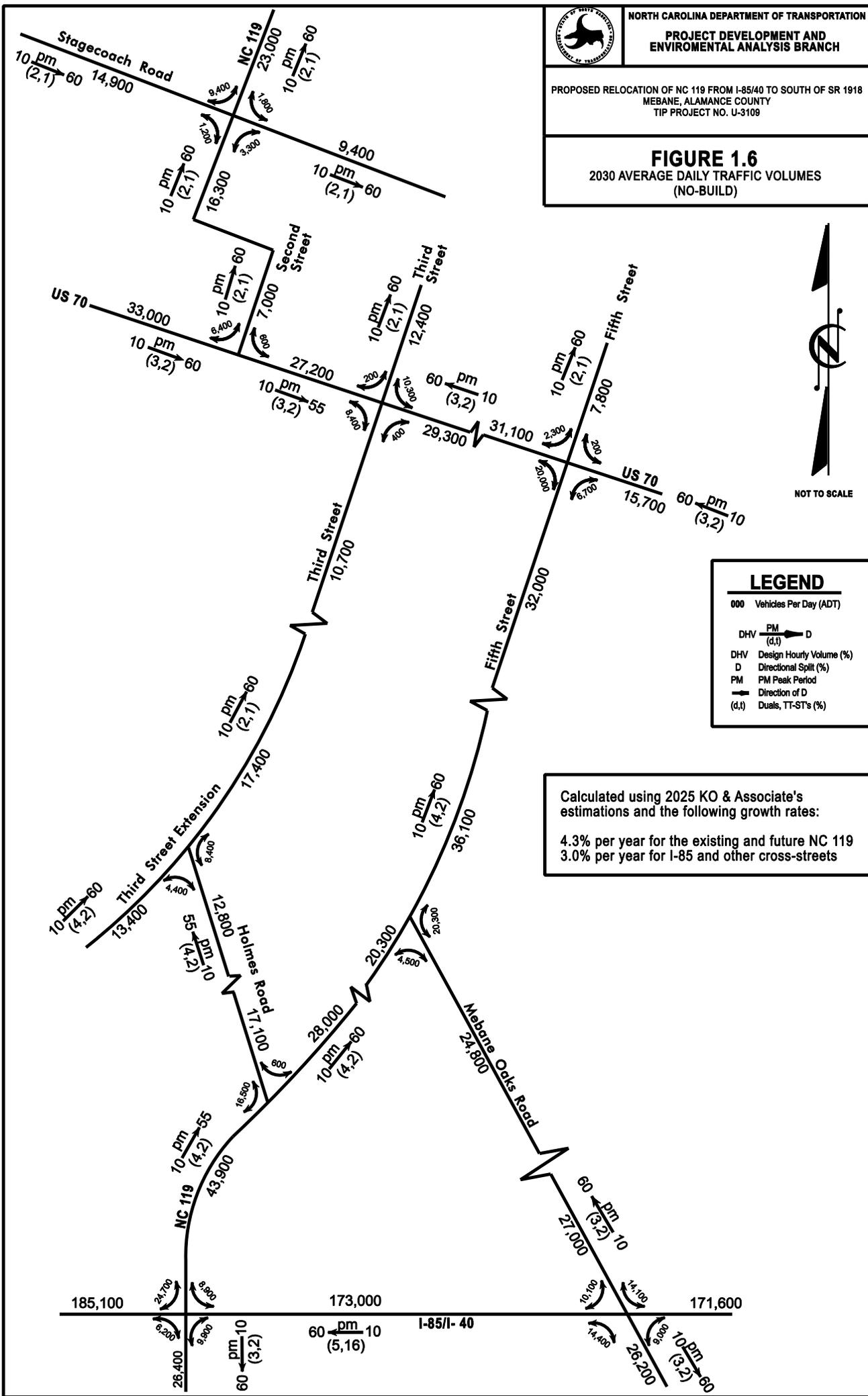
Note: DHV & D if not shown are the same for opposing leg.

SEPTEMBER 2, 2003



PROPOSED RELOCATION OF NC 119 FROM I-85/40 TO SOUTH OF SR 1918
MEBANE, ALAMANCE COUNTY
TIP PROJECT NO. U-3109

FIGURE 1.6
2030 AVERAGE DAILY TRAFFIC VOLUMES
(NO-BUILD)



CHAPTER 2

This chapter discusses alternatives considered for the proposed action. These alternatives include the No-Build Alternative, Transportation System Management (TSM) Alternatives, Mass Transit Alternative, and Build Alternatives. Each alternative is assessed with respect to its ability to meet the purpose and need of the project. This chapter also identifies the Preferred Alternative.

2.1 NO-BUILD ALTERNATIVE

The No-Build Alternative would make no improvements to existing NC 119 through the year 2030, with the exception of regular maintenance such as patching, resurfacing, regrading shoulders, and maintaining ditches. This alternative would not involve right-of-way or construction costs. There would be no short-term disruptions along the existing roadway during construction. There would be no impacts to streams, wetlands, or other natural and cultural resources, nor would there be any residential or business relocations.

However, as discussed in Chapter 1, the No-Build Alternative would not meet the purpose and need of the project. By not improving existing NC 119, there would be economic and quality of life impacts related to future roadway deficiencies. The No-Build Alternative would likely result in a number of adverse traffic impacts on the existing roadways in and around the study area. At the four unsignalized intersections analyzed along the existing NC 119 and other corridors, traffic flow on the cross streets would substantially exceed the capacity limits of these intersections by the year 2030. All seven signalized intersections analyzed along the existing NC 119 corridor are projected to operate at level of service (LOS) F during the 2030 peak traffic volume hours under the No-Build Alternative (see Section 1.9 for a definition of LOS). In addition to degraded levels of service, the length of time that congestion occurs during the morning and evening peak periods would increase on these road segments. This increased congestion would also result in a greater diversion of traffic from arterial facilities to local and collector streets as travelers seek shorter and/or less congested routes. Finally, the No-Build Alternative is not consistent with local and state transportation goals.

In July 2003, NCDOT received a petition from a Woodlawn community resident that contained 430 names, all of which opposed the NC 119 Relocation project and favored the No-Build Alternative. In accordance with the National Environmental Policy Act (NEPA) (40 CFR Section 1502.14(d)) and US Federal Highway Administration (FHWA) guidelines (FHWA, 1987), the No-Build Alternative is given full consideration and it provides a baseline condition for comparison with the improvements and consequences associated with the Detailed Study Alternatives.

2.2 TRANSPORTATION SYSTEMS MANAGEMENT (TSM) ALTERNATIVE

In some cases, transportation management alternatives can be used to improve the overall operation of an existing roadway network. Management tools include Transportation Systems Management (TSM) and Travel Demand Management (TDM) Alternatives. The following provides a discussion of these alternatives and their applicability for this project.

Transportation Systems Management (TSM) consists of adding low-cost transportation improvements to increase the capacity of an existing facility. TSM strategies typically involve minor roadway improvements that improve the operational characteristics of a facility while minimizing costs and inconvenience to motorists. There are two main types of TSM roadway improvements: operational and physical. Examples of these improvements are:

Operational Improvements

Traffic law enforcement
Turn prohibitions
Access control
Speed restrictions
Signal coordination
Signal phasing or timing changes

Physical Improvements

Addition of turn lanes
Intersection realignment
Improved warning and information signs
New signals or stop signs
Intersection geometric and signalization improvements

The TSM operational and physical roadway improvements are typically effective in solving site-specific capacity, safety, and use problems in urban areas. As described below, most of these measures are not applicable to NC 119 because of existing conditions.

Turn Prohibitions and Turn Lanes. NC 119 is a two-lane undivided roadway, which travels through a suburban environment around the I-85/40 interchange, eventually moving through the core area of downtown Mebane, which is lined primarily with residential properties. Prohibiting left turns along existing NC 119 would force residents trying to access their homes to make a left at the nearest intersection, turn around, and then continue in the opposite direction to access their home. This would decrease residents' accessibility to their homes and increase unnecessary travel movements. Adding a turn lane along existing NC 119 would require widening of the existing roadway, which would encroach upon the residential, business, and commercial development that has occurred along this route. In addition, limits on the number of driveways allowed per development or tax parcel effectively control access to the extent practicable.

Traffic Signals. All of the arterials or major streets intersecting existing NC 119 are signalized. Signalizing other minor street intersections along NC 119 is unlikely to substantially disperse the side street traffic and reduce congestion.

Intersection Geometric Improvements. There are no locations along existing NC 119 where the pavement can be restriped to provide additional lanes of sufficient length to provide substantial benefits.

Speed Restrictions and Law Enforcement. Operational measures, such as speed restrictions and increased law enforcement, are often useful in addressing some safety issues. The existing speed limit along NC 119 ranges from 45 mph at the I-85/40 interchange to 25 mph through downtown and increasing to 55 mph north of downtown. With the spacing between signalized intersections, drivers may achieve running speeds above the speed limit in some areas along existing NC 119. However, during peak hours, speed is controlled by the heavy volumes of traffic; therefore, restrictions on speed would not improve capacity along NC 119.

Improved Signage. While the addition of improved signage may aid in the navigational abilities of the traveling public, current accident patterns for NC 119 are indicative of congested conditions rather than motorists being unfamiliar with the roadway or prevailing conditions. Therefore, new and improved warning or informational signs would not be effective in solving the traffic problems and accident trends along existing NC 119.

Intersection realignments, side street improvements, additional turn lanes, and signal phasing and timing changes are the TSM actions most likely to provide any measure of congestion relief for NC 119. Yet, the amount of relief these improvements can provide is limited. In 2005, seven of the eleven intersections (four unsignalized and three signalized) along the project were over capacity and operating at LOS E or F. Two other signalized intersections were operating at LOS D, with little capacity available to absorb additional traffic. By 2030, traffic flow on the cross streets at the four unsignalized intersections analyzed would substantially exceed the capacity limits of these intersections. All of the seven signalized intersections analyzed along the existing NC 119 corridor are expected to exceed their capacity by 2030. Traffic capacity analyses are discussed in detail in Section 2.6 (Traffic Operations Analysis). While these types of improvements can provide short-term relief, providing access control and removing through traffic from Mebane's Central Business District (CBD) are needed to address long-term needs. In addition, intersection improvements alone would not satisfy the level of service component of the purpose and need for the project. Capacity analyses indicate that additional travel lanes are needed in order to achieve an acceptable level of service between the intersections in the design year. Therefore, the TSM improvement option will not adequately meet the project's purpose and need.

2.3 TRAVEL DEMAND MANAGEMENT (TDM) ALTERNATIVES

Travel Demand Management (TDM) strategies include staggered work hours, ridesharing, and high occupancy vehicle (HOV) lanes.

Staggered work hours, flex-time, or modified workweeks can be implemented by large employers along the corridor who experience congestion at their entrances or exits. Although the NC 119 corridor contains a few large businesses, it is not expected that such adjustments to work schedules would substantially reduce peak hour traffic volumes within the study area.

Of the Alamance County residents employed within the county limits, 82 percent used their vehicles to drive to work alone, while another 14 percent carpooled usually with one or two other people. The remaining employed residents walked, rode a bicycle, or used some other form of transportation, including public transportation, to get to work. A much higher carpooling participation rate would be required before ridesharing, vanpooling, and other travel demand measures would have a noticeable impact on traffic conditions along NC 119.

High-Occupancy Vehicle (HOV) lanes, usually requiring two or more passengers per vehicle, are most commonly used in heavily developed urbanized corridors, usually on controlled-access facilities, to provide an incentive for ridesharing and to facilitate efficient traffic flow. Because existing NC 119 lacks access control and has numerous signalized intersections, HOV lanes would not be practicable along this roadway.

2.4 MASS TRANSIT ALTERNATIVES

Mass Transit Alternatives would include expanding bus or rail passenger services in the Mebane area. A major advantage of mass transit is that it can provide high-capacity, energy-efficient movement in densely traveled corridors. It also serves high and medium density areas by offering a low-cost option for automobile owners who do not wish to drive, as well as service to those without access to an automobile.

Public transportation in Alamance County is provided by the Alamance County Transportation Authority (ACTA). The ACTA provides transportation for the elderly, disabled, and general public residing in Alamance County. The Authority utilizes vans and buses that are Americans With Disabilities Act (ADA) equipped, including wheelchair lifts, to assist persons with specialized needs and offers service throughout the county and to Durham, Chapel Hill, and Greensboro. The authority responds to requests for transportation and operates as a dial-a-ride program (ACTA, 2008). The authority also offers a non-emergency travel service (NETS) for riders requiring same-day transportation for medical service. NETS fares are substantially less expensive than other non-emergency medical transportation services provided by ambulances. In addition to the ACTA, the nearest Greyhound bus station to the project study area is located in Graham (314 W. Harden Street). Other stations are located in Burlington, Greensboro, and Durham (Greyhound Lines, Inc., 2008).

The advantages of these forms of mass transit are not applicable to the needs of the NC 119 project, which include providing motorists with a convenient alternative to traveling through downtown Mebane. Mass transit services are typically oriented to serving a downtown area, not avoiding it. In addition, the densities needed to support an increase in mass transit services do not exist in the project area. The City of Mebane had a population estimated at approximately 9,187 residents as of July 2007 (NC Office of State Budget and Management, 2008). The FHWA considers urbanized areas with populations greater than 200,000 as areas where mass transit alternatives should be considered (FHWA, 1987).

Transit service was not considered a viable alternative to roadway improvements that would take traffic around downtown Mebane because of the low population densities in the area. Mass transit alone would not be able to reduce projected traffic volumes along the NC 119 corridor enough to meet the purpose and need of the project. In addition, the need for connectivity within the local community and for a primary north-south route in Alamance County would not be addressed.

2.5 BUILD ALTERNATIVES

The Build Alternatives include both the “Improve Existing NC 119” alternative and several “New Location” alternatives.

2.5.1 Logical Termini / Independent Utility

The FHWA regulations (23 CFR Section 771.111(f)) outline three general principals to determine project limits. The regulations state:

In order to ensure meaningful evaluation of alternatives and to avoid commitments to transportation improvements before they are fully evaluated, the action evaluated in each Environmental Impact Statement (EIS) or Finding of No Significant Impact (FONSI) shall:

1. Connect logical termini and be of sufficient length to address environmental matters on a broad scope.
2. Have independent utility or independent significance, i.e., be usable and be a reasonable expenditure even if no additional transportation improvements in the area are made.
3. Not restrict consideration of alternatives for other reasonably foreseeable transportation improvements.

FHWA has agreed that the proposed termini of the NC 119 project and other elements meet these three criteria, as discussed below. Identified purposes of the proposed project include reducing traffic congestion in downtown Mebane due to recent growth in the area, as well as providing Alamance County with a primary north-south route. The project termini of the NC 119/I-85/40 interchange and NC 119/SR 1918 (Mrs. White Lane) intersection adequately encompass the area required to address the project scope and environmental matters.

Because the proposed project would improve mobility in the Mebane area and improve levels of service along the NC 119 corridor, it would have independent utility. In other words, it would be a reasonable transportation investment even if no additional transportation improvements are made in the area.

In addition, the proposed project would not restrict consideration of alternatives for other reasonably foreseeable transportation improvements contained in the North Carolina Department of Transportation's (NCDOT's) 2009-2015 State Transportation Improvement Program (TIP), or long-range projects identified on the area's transportation plans.

2.5.2 Design Features

2.5.2.1 Design Criteria

Design criteria are established standards and procedures that guide the establishment of roadway layouts, alignments, geometry, and dimensions. Detailed design criteria for the Build Alternatives are listed in Table 2.1. They were developed in accordance with the American Association of State Highway and Transportation Officials' (AASHTO) *A Policy of Geometric Design of Highways and Streets* (AASHTO, 2004) and the NCDOT Roadway Design Standards Manual. The design criteria are influenced by the type of roadway required to fulfill the purpose and need of the project.

**Table 2.1
Design Criteria**

Criteria	NC 119 New Location	NC 119 Improve Existing	I-85/40 Ramps	SR 1962 (Third Street Extension)	US 70	US 70 Connector Road	SR 1921 (Mebane Rogers Rd) / SR 1996 (Stagecoach Rd)
Design Speed (mph)	50	50	60 to 35	50	50	50	50
Proposed ROW Width (ft)	Variable	Variable	Variable	Variable	Variable	Variable	Variable
Control of Access	Limited***	Limited***	Full	Uncontrolled	Uncontrolled	Partial	Uncontrolled
Typical Section Type	Raised Median	Raised Median	Shoulder	Shoulder	Shoulder	Shoulder	Shoulder
Lane Width (ft)	12'	12'	16'	12'	12'	12'	12'
Median Width (ft)	30'	30'	N/A	N/A	N/A	N/A	N/A
SHOULDER WIDTH							
Median (ft)/Inside	N/A	N/A	12'	N/A	N/A	N/A	N/A
Outside w/o Guardrail (ft)	10'	10'	14'	8'	10' Berm	10'	8'
Outside w/ Guardrail (ft)	13'	13'	17'	11'	14' Berm	13'	11'
Paved (ft)	4' – 8'	4'	4'	4'	4'	4'	4'
GRADE							
Maximum	5%	5%	5%	8%	5%	5%	8%
Minimum	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%	0.3%
K VALUE*							
Sag	96	96	96	96	96	96	96
Crest	84	84	84	84	84	84	84
HORIZ. ALIGN.							
Maximum Superelevation**	.06	.06	.08	.08	.08	.08	.08
Minimum Radius (ft)	835'	835'	Variable	760'	760'	760'	760'

Notes: * Sag or Crest K = rate of change of a vertical curve at the crest of a hill or at the lowest point of a valley. Rate of allowed change dependent on design speed. Faster speeds require gentler rates of change.

** Superelevation = maximum slope from one side of a highway to the other on a curve; helps with banking.

*** Full control of access proposed at the I-85/40 interchange.

N/A denotes not applicable.

2.5.2.2 Typical Sections

Typical sections are drawings or descriptions of a roadway that define cross-sectional features such as roadway and shoulder widths. Like design criteria, typical roadway cross-sections are influenced by the type of roadway required to fulfill the purpose and need of the project. Figure 2.1 shows the proposed typical sections applicable to all of the Build Alternatives. The roadway typical section proposed near the beginning of the project varies in width due to projected traffic volumes. At the beginning of the project, a six-lane curb and gutter facility is proposed with additional turn-lanes located at the I-85/40 interchange. Continuing north from the interchange, a six-lane curb and gutter facility with a 30-foot median is proposed. The curb and gutter typical section, which extends from the beginning of the project to south of the Fieldstone subdivision and US Post Office, would include 5-foot sidewalks. Near the realignment of SR 1962 (Third Street Extension), the six-lane curb and gutter facility would transition to a six-lane shoulder section with a 30-foot median for a

short distance before transitioning again to a four-lane roadway with a 30-foot grass median in the vicinity of the Fieldstone subdivision and the US Post Office. For the remainder of the project, a four-lane roadway with a 30-foot wide grass median would be constructed on new location to the west of Mebane for all of the build alternatives. All of the proposed typical sections contain 12-foot travel lanes. The proposed right of way required for the new location section would range from approximately 150 to 300 feet in width.

2.5.2.3 Access Control

Limited control of access was studied south of US 70, except at the I-85/40 interchange where full control of access is proposed. North of US 70, limited control of access or access only at existing secondary roads (SRs) was studied for each alternative.

2.5.3 Evaluation of Preliminary Study Corridor Alternatives

The primary objective of the identification of the preliminary study corridors and the environmental screening process was to compare and evaluate corridors sharing common end points and eliminate those with fatal or prohibitive flaws, or those that had substantially more impacts when compared to other corridors. Each corridor was evaluated based on its consistency with the purpose and need of the project, as well as its potential impact to the human, cultural, and natural environments.

Preliminary study corridors were developed for the project area through an iterative process. First, land suitability maps were created highlighting man-made and natural features that make one particular area unsuitable or less desirable than another for roadway construction. Such features included churches, cemeteries, schools, residential communities, parks, known historic architectural or archaeological sites, community facilities, streams, wetlands (based on the National Wetland Inventory developed by the US Fish and Wildlife Service [USFWS]), and protected watershed areas.

Potential roadway alignments were then overlain onto the land suitability maps to avoid the sensitive features identified to the extent possible, in accordance with the design criteria listed in Table 2.1. The locations of the preliminary study corridors were coordinated with local agencies and officials, as well as State and Federal environmental and regulatory resource agencies. In addition, numerous public meetings were held in an effort to seek the public's input and incorporate it into the project planning process. The expansion of the project study area to include additional corridors that would avoid Cates Farm resulted from this public involvement process.

Discussions regarding project alternatives were part of the Merger 01 process. Merger 01 is a process to streamline the project development and permitting processes, agreed to by the US Army Corps of Engineers (USACE), North Carolina Department of Natural Resources (NCDENR), FHWA, and NCDOT and supported by other stakeholder agencies and local units of government. To this effect, the Merger 01 process provides a forum for appropriate agency representatives to discuss and reach consensus on ways to facilitate meeting the regulatory requirements of Section 404 of the Clean Water Act during the NEPA/State Environmental Policy Act (SEPA) decision-making phase of transportation projects as part of the Merger Team. The process requires that the Merger Team reach concurrence at four primary phases of project development: 1) defining the purpose of and need for the action and defining the study area; 2) defining the alternatives to be studied in detail in the environmental document; 2a) identifying the bridge locations and approximate lengths;

3) selecting the least environmentally damaging practicable alternative (LEDPA); and 4a) implementing measures to avoid and minimize impacts to the natural and human environments; 4b) review of the development of the drainage design; and 4c) review of the completed permit drawings. Once consensus is achieved on each concurrence point, the project proceeds to the next stage. Merger Team meetings for this project were held August 10, 2000, December 13, 2000, April 18, 2001, June 13, 2002, June 16, 2005, March 16, 2006, and June 19, 2008. To date, the Merger Team has reached concurrence on Concurrence Point No. 1 (Purpose and Need), Concurrence Point No. 2 (Alternatives to be Studied in Detail), Concurrence Point No. 2a (Bridge Locations and Lengths), Concurrence Point No. 3 (Least Environmentally Damaging Practicable Alternative), and Concurrence Point 4a (avoidance and minimization) of the proposed project. The Section 404/NEPA Merger Project Team Meeting Agreement dated December 13, 2000 for concurrence on the purpose and need is included in Appendix G - Part 4. The Section 404/NEPA Merger Project Team Meeting Agreement dated June 13, 2002 for concurrence on the alternatives to be studied in detail in the document is included in Appendix G - Part 4. The Section 404/NEPA Merger Project Team Meeting Agreements dated August 18, 2005 and March 16, 2006 for concurrence on the bridging alternatives is included in Appendix G - Part 4. The Section 404/NEPA Merger Project Team Meeting Agreements dated June 19, 2008, for concurrence on the LEDPA and avoidance and minimization efforts are included in Appendix G - Part 4.

During the late-90s, the preliminary study corridors were combined to create seven Preliminary Corridor Alternatives for study on this project (Figure 2.2). They were developed through an iterative process as discussed previously. These corridors were presented to the public at various meetings, specifically workshops, to get stakeholder input. These corridors were also presented for review at the Merger Team meetings. A preliminary impact assessment was conducted on the seven alternatives in order to identify the alternatives to be carried forward in the study. A comparative matrix of the seven preliminary alternatives was developed during the preliminary impact assessment and is discussed in more detail in Section 2.5.4.1. Based on input regarding the findings of the evaluation process, the Merger Team identified an additional alternative (Alternative 8) to be studied.

Through this iterative analysis process, the Merger Team was able to reduce the number of preliminary study alternatives based on various impacts related to each alternative. For Alternatives 1 and 6, impacts to the water supply watershed critical area of the Graham-Mebane Reservoir, historic properties, and the West End community resulted in these two alternatives being eliminated from further study. "Critical area" is defined as the land adjacent to a water supply intake where the risks associated with pollution are greater than in the remaining portions of the watershed. Because Alternative 2 is located almost entirely within the water supply watershed critical area of the Graham-Mebane Reservoir, it was eliminated from further study. Alternative 3 was eliminated because of its similarity with other alternatives that minimized impacts to the water supply watershed critical area of the Graham-Mebane Reservoir.

At this point, four alternatives remained under consideration to be studied in detail, Alternatives 4, 5, 7, and 8. Based on input from the communities in the project study area, the NCDOT identified two new alternatives, Alternative 9 and Alternative 10, which were both variations of Alternative 8. After further analyses and review, the Merger Team determined that Alternatives 4 and 5 impacted the West End community and passed through the water supply watershed critical area of the

Graham-Mebane Reservoir; therefore, these two alternatives were eliminated from further study. Although Alternative 7 avoided both the water supply watershed critical area and the NRHP listed Cates Farm, but impacted the West End community resulting in a high number of residential and business relocations (107 residences, and 11 businesses), the Merger Team agreed to drop Alternative 7 from further study.

Three build alternatives remained for consideration to be studied in detail in the document, Alternatives 8, 9, and 10 (Figure 2.3). A comparative matrix of the three remaining preliminary alternatives was developed during the preliminary impact assessment and is discussed in Section 2.5.4.1. The impact evaluation for Alternatives 8, 9, and 10 was performed with the latest preliminary designs, which incorporate more detailed design information than what was used to quantify impacts for the initial seven preliminary alternatives. Had Alternatives 1 through 7 been developed to the same level of detail as Alternatives 8, 9, and 10, the impacts and cost would be similar.

2.5.3.1 Other Study Corridor Alternatives Considered

Two additional alternatives were also discussed during the initial study: “Improve Existing NC 119” and an “East Side” Alternative, an alternative on the east side of Mebane. A description of each of these alternatives is included below and shown on Figure 2.2:

Improve Existing NC 119

In 2005, a functional design was prepared for improving existing NC 119 in order to compare the associated costs and impacts with the new location alternatives. The Improve Existing Alternative would widen existing NC 119 to a four-lane, median divided facility on its existing alignment along Fifth Street through downtown Mebane, providing access to major cross streets, such as SR 1921 (Mebane Rogers Road). Grade separations would be provided at SR 1963 (Holt Street), the North Carolina Railroad (NCR), and US 70 under this alternative. In addition, a proposed connector road would provide access from proposed NC 119 to US 70, similar to what is currently proposed for Alternatives 8, 9, and 10.

An investigation of the Improve Existing NC 119 Alternative revealed numerous impacts. This alternative resulted in significant residential and business relocations along existing NC 119 through downtown. In addition, this alternative, as designed, would impact a historic property, which is also a known hazardous materials site, in order to avoid several churches in the downtown Mebane area.

East Side Alternative

As a result of public input received from the community, alternatives on the east side of Mebane were also examined. In mid-1997, NCDOT investigated possible alternatives on the east side of Mebane, Figure 2.2, and compared these alternatives to the alternatives currently being studied on the west side of Mebane, Figure 2.3. NCDOT reviewed the purpose of the project, as well as land use trends, connectivity, local government support, environmental impacts, and design considerations as they pertained to both the east and west side alternatives.

Two east side alternatives were evaluated. One alternative began at the existing grade separation that carries SR 1144 (Mattress Factory Road) over I-85/40, while the other alternative began at the existing I-85/40 interchange with SR 1114 (Buckhorn Road). Both east side alternatives travel northwest crossing US 70 and SR 1306 (Lebanon Road), coming together near SR 1918 (Mrs. White Lane), east of existing NC 119, before tying into existing NC 119 approximately 1.5 miles north of SR 1918 (Mrs. White Lane).

Detailed surveys of the potential impacts of an East Side Alternative were not conducted; however, approximate impacts for the east side alternative connecting to SR 1144 (Mattress Factory Road) included the relocation of a large lumber processing plant, possible impacts to a park, and the potential for increased property impacts to homes and businesses. Between the I-85/40 interchange and SR 1303 (Washington Street), the east side alternative would be constructed along almost one mile of the existing alignment of SR 1144 (Mattress Factory Road), which is heavily developed. The East Side Alternative would also likely damage more wetlands than the west side alternatives which traverse large amounts of open farmland. This alternative may also affect Lake Michael, a public park, and pass in close proximity to residential development along SR 1306 (Lebanon Road) and SR 1307 (York Loop). The alternative that connects to SR 1114 (Buckhorn Road) would have similar environmental impacts. Although it would not likely require right-of-way from the park, this alternative would be located in close proximity to it. The businesses that would have to be relocated to construct this alternative include two service stations with underground storage tanks. This alternative would also pass near the Paisley-Rice Cabin, which is listed on the National Register of Historic Places. After a cursory review, the impacts of east side alternatives appear to be of equal or greater magnitude than those of the west side alternatives. More detailed environmental studies on the east side alternatives (like those that have been conducted on the west side alternatives) would probably reveal additional impacts.

A detailed discussion regarding why the “Improve Existing NC 119” and “East Side” Alternatives were eliminated from further study is included in Section 2.5.3.3.

2.5.3.2 East Side and West Side Alternatives Comparison

The following text compares the benefits and environmental impacts of an east side and a west side alternative.

Direct, North- South Routing

Because of the location of the SR 1114 (Buckhorn Road) interchange and the SR 1144 (Mattress Factory Road) grade separation at I-85/40, the close proximity of a city-owned recreational lake (Lake Michael) and existing development (residential, industrial, and commercial), east side alternatives would require a lengthier route that would provide less direct access to the interstate, especially to motorists desiring to travel west on I-40 or south on I-85.

A western alignment would provide a direct, north-south route to areas north of Mebane attempting to access the I-85/40 corridor, which is currently lacking in the Alamance County Urban Area.

Land Use Trends

The thoroughfare plan for Mebane was developed by NCDOT's Transportation Planning Branch in close coordination with the City of Mebane and Alamance County. By analyzing existing and future land uses and developing traffic flow models, the Transportation Planning Branch locates thoroughfares where they will provide the greatest benefits to the local and regional communities.

The City of Mebane thoroughfare plan cites the west side of Mebane as the most beneficial place for the relocation of NC 119. Local officials anticipate Mebane will experience large amounts of industrial and residential growth on the west side of the city, as indicated in the City's land use plan.

The Burlington/Graham Long Range Thoroughfare Plan Map shows a new location route proposed for the east side of Mebane in addition to TIP Project U-3109, which is shown on the west side of Mebane. However, there is currently no proposed NCDOT TIP project for the east side route.

An east side alternative would not serve the local Mebane community as well as a west side alternative since it would not pass through the areas anticipated to experience the most growth.

Connectivity

An eastern route would connect SR 1306 (Lebanon Road), US 70, and I-85/40. The east side alternative that would connect to SR 1144 (Mattress Factory Road) would provide some degree of connectivity due to its proximity to the city. However, that alternative would have a high degree of impact on existing development and Lake Michael, a public park. The SR 1114 (Buckhorn Road) alternative would lie east of Lake Michael, so far out that it would not help the local infrastructure. Thus, the SR 1114 (Buckhorn Road) alternative would only serve to move people from northern Alamance County and Caswell County traveling to destinations to the east. Local travelers and regional travelers desiring to go west would not use the east side alternative.

The western route would provide connectivity among several highly-traveled routes - SR 1921 (Mebane Rogers Road), US 70, SR 1962 (South Third Street), and I-85/40 - in close proximity to the central business district, and would thus benefit local travel.

Local Government Support

As mentioned previously, local Mebane officials anticipate large amounts of growth on the west side of Mebane. NCDOT added the proposed project to the Transportation Improvement Program in November of 1992 at the request of the Transportation Advisory Committee of the Alamance County Urban Area, which includes representatives from the City of Mebane, Alamance County, and representatives from other Alamance County municipalities.

The west side thoroughfare concept is not new. In the 1974 thoroughfare plan, a route was included that would have extended SR 1007 (Mebane Oaks Road) to the west side of Mebane and then to the north where it connected to existing NC 119 at West Graham Street. Another western route was included that connected that thoroughfare with SR 1951 (Woodlawn Road). In 1990, this alignment was revised and extended to connect with existing NC 119 north of Mebane in the vicinity of

SR 1917 (White Level Road), rather than in the downtown street grid. In 1993, the thoroughfare plan alignment was revised to begin at the existing NC 119 interchange with I-85/40, pass along the west side of Mebane, and intersect existing NC 119 north of Mebane, in the vicinity of SR 1917 (White Level Road). Each of the thoroughfare plans and the revision were adopted by both the City of Mebane and the NCDOT. Before each of the approvals, the public was given the opportunity to comment on the thoroughfare plan.

Environmental Impacts

One of the east side alternatives studied would be constructed along a portion of the existing alignment of SR 1144 (Mattress Factory Road), which is heavily developed. The roadway would lie within the water supply watershed of the Graham-Mebane Reservoir (but not within the critical area) and would likely damage more wetlands than the west side alternative which traverses large amounts of open farmland. The east side alternative may also affect Lake Michael, a public park, and would require the relocation of a large lumber processing plant. While the lumber processing plant no longer operates saw mills or cures lumber at its Mebane location, this location serves as the company's main office and retail store.

The alternative that connects to SR 1114 (Buckhorn Road) would also cross through the water supply watershed of the Graham-Mebane Reservoir and would not likely require right-of-way from the park, but would be located in close proximity to it. Among the relocations with this alignment are two service stations with underground storage tanks. This alternative would pass near the Paisley-Rice Cabin, which is listed on the National Register of Historic Places.

The west side alternative would require one or both of the following, depending on the alternative selected: land from the Cates Farm, listed on the National Register of Historic Places or pass through the water supply watershed critical area of the Graham-Mebane Reservoir. The west side alternative would also require the relocation of a church.

In conclusion, after a cursory review, it was determined that the impacts of an east side alternative appeared to be of equal or greater magnitude than those of a west side alternative.

Design Considerations

The east side alternatives would raise several design concerns. A grade separation currently exists at SR 1144 (Mattress Factory Road) and if NC 119 were routed to SR 1144 (Mattress Factory Road), an interchange would have to be built. The ramps for the interchange would be less than a mile from the existing I-85/40 interchange at SR 1007 (Mebane Oaks Road). According to the NCDOT Transportation Planning Branch, the Federal Highway Administration has denied requests to add an interchange at that location. At US 70, neither the SR 1144 (Mattress Factory Road) alternative nor the SR 1114 (Buckhorn Road) east side alternative would approach the railroad or US 70 at or near a perpendicular angle. The skewed crossings would require longer bridges than the perpendicular crossings of US 70 on the west side of Mebane. Minimizing the skew angle on a new bridge minimizes its length and cost. As with the west side alternatives, a grade separation over the rail corridor would require an interchange to provide access between the new route and US 70. In the vicinity of SR 1114 (Buckhorn Road), the railroad grade is higher than US 70, but not high enough

to provide an at-grade crossing of the new road and US 70. Extensive re-grading of US 70 and the segment of SR 1114 (Buckhorn Road) between I-85/40 and US 70 would be required if the new road were to pass under the railroad. In conclusion, because of their increased length and the design issues briefly mentioned above, the east side alternatives would likely cost more to construct than the west side alternatives.

Traffic Study

The NCDOT Transportation Planning Branch prepared a traffic forecast for the proposed project with the aid of the travel demand model that was developed for the Burlington-Graham Urban Area Metropolitan Planning Organization (MPO). The Transportation Planning Branch, working in cooperation with local planning staffs from Alamance County, the Cities of Burlington, Graham, and Mebane and the Towns of Elon, Gibsonville, Green Level, and Haw River developed the travel demand model.

The existing (2005) and future (2025) Average Daily Traffic Volumes (ADT) for the project were developed and included in the *Project Traffic Forecasts – NC 119 Relocation* (Ko & Associates, 2003). This study developed a traffic forecast for an east side alternative of Mebane.

According to the *Project Traffic Forecasts – NC 119 Relocation* (Ko & Associates, 2003), both the east side and west side alternatives of Mebane would be effective in reducing traffic on Fifth Street through Mebane, with the western route being more effective in its traffic reducing impacts to Fifth Street. Both routes would serve traffic to and from development north of Mebane, northern Alamance County, Caswell County, and beyond. The northwestern area of Mebane is currently more developed than the northeastern section (Orange County) and this development trend is estimated to continue. Therefore, the western route serves more of Mebane's circulation travel (Mebane's citizens obtaining services in and around the Mebane area, especially travel to the employment centers located along the interstate corridor). A major attribute of the western route is the travel service it would provide the North Carolina Industrial Center (NCIC). The western route would provide a four-lane median divided roadway with limited control of access that parallels the eastern side of this 28-site industrial park. This route would provide the opportunity for additional access into the middle and northern sections of this large industrial park. Without traffic service of the western route, significant congestion would likely result at the entrance to the NCIC located on SR 1962 (Third Street Extension), just south of SR 1980 (Holmes Road). This resulting traffic congestion could become an impediment to future development of the northern section of the NCIC.

One major observation concerning the eastern route is the benefits provided to travel into the industrial area located at SR 1144 (Mattress Factory Road) along Oakwood Street Extension and Industrial Drive.

In order to analyze the design year (2025) traffic volumes for the east side and west side alternatives, it was necessary to determine how much traffic would likely be diverted from existing NC 119 to the east side alternative compared to the west side alternative. Table 2.2 summarizes this data.

Table 2.2
Diversion of Traffic from Existing NC 119
(East Side Alternative and West Side Alternative)

Segment of Existing NC 119	No-Build Alternative 2025 Traffic Volumes on Existing NC 119 (ADT)	East Side Alternative		West Side Alternative	
		2025 Traffic Volumes on Existing NC 119 (ADT)	Reduction Compared to No-Build Alternative	2025 Traffic Volumes on Existing NC 119 (ADT)	Reduction Compared to No-Build Alternative
SR 1007 (Mebane Oaks Road) to US 70	29,700	22,500	24%	19,800	33%
Along US 70 from Fifth Street to Second Street	25,600	22,700	11%	19,600	23%
US 70 to SR 1921 (Mebane Rogers Road)	13,400	10,400	22%	4,300	67%
North of SR 1921 (Mebane Rogers Road)	18,900	11,400	40%	3,600	81%

Note: * ADT volume included in table is the highest volume on that segment.

With an east side alternative, existing NC 119 would experience reductions in traffic volumes of 11-40 percent in comparison to the No-Build Alternative. The reduction in traffic volume through the central business district of Mebane with an east side alternative compared to the No-Build Alternative is 22 percent. However, with a west side alternative, existing NC 119 would experience reductions in traffic volumes of 23-81 percent in comparison to the No-Build Alternative. The reduction in traffic volume through the central business district of Mebane with a west side alternative compared to the No-Build Alternative is 67 percent.

2.5.3.3 Elimination of Other Study Corridor Alternatives from Further Study

Improve Existing NC 119

The Improve Existing NC 119 Alternative, as designed, would impact a historic property, which is also a known hazardous materials site, in order to avoid several churches in the downtown Mebane area. Existing NC 119 is heavily developed through downtown Mebane. This alternative would result in substantial residential and business relocations along existing NC 119 in the downtown area.

This alternative would not reduce traffic congestion in downtown Mebane and would not provide Alamance County with a primary north-south route, both of which are purposes of the proposed project. An Improve Existing NC 119 Alternative would attract additional through traffic in the central business district of Mebane, especially since this route is anticipated to serve as a primary north-south route in Alamance County. Local use traffic mixing with through traffic along existing NC 119 causes motorists to experience increased delays. The through traffic on an Improve Existing NC 119 Alternative would make it difficult for residents along NC 119 to access their homes. Currently, there is no access control along existing NC 119 in the project area. Improving existing NC 119 by providing some type of access control along the roadway would result in the removal of the frequent driveway entrances along existing NC 119; thereby improving traffic safety and the

efficiency of the roadway. However, due to the substantial residential and business relocations along existing NC 119 that would result from this improvement, controlling access along existing NC 119 was considered unreasonable and therefore, not studied. Improving access to the local area, also a purpose of the proposed project includes improving access to the NCIC. Improving existing NC 119 through downtown would not provide adequate access to the NCIC.

Due to the substantial number of relocations and the historic, hazardous materials site impacted, in addition to the fact that this alternative did not meet the purpose and need of the project as discussed above, this alternative was eliminated from further study.

East Side Alternative

Based on the NCDOT traffic model and traffic forecasts included in the *Project Traffic Forecasts – NC 119 Relocation* (Ko & Associates, 2003), both the east side and west side alternatives of Mebane would be effective in reducing traffic on Fifth Street across Mebane, the western route being more effective in its traffic reducing impacts to Fifth Street. With an east side alternative, existing NC 119 would experience reductions in traffic volumes of 11-40 percent in comparison to the No-Build Alternative (Table 2.2). The reduction in traffic volume through the central business district of Mebane with an east side alternative compared to the No-Build Alternative is 22 percent. However, with a west side alternative, existing NC 119 would experience reductions in traffic volumes of 23-81 percent in comparison to the No-Build Alternative. The reduction in traffic volume through the central business district of Mebane with a west side alternative compared to the No-Build Alternative is 67 percent. As discussed in Chapter 1, reducing traffic congestion in downtown Mebane is a purpose of the proposed project. The East Side Alternative reduces traffic in downtown Mebane to such a low degree, it was eliminated from further consideration as not being an effective, as well as cost effective, measure of reducing the traffic congestion in downtown by comparison to the western alternatives.

Another purpose of the NC 119 Relocation project, also detailed in Chapter 1, is to provide Alamance County with a primary north-south route. The East Side Alternative would serve traffic to and from development north of Mebane, northern Alamance County, Caswell County, and beyond. However, because of the location of the SR 1114 (Buckhorn Road) interchange and the SR 1144 (Mattress Factory Road) grade separation at I-85/40, the close proximity of a city-owned recreational lake (Lake Michael), and existing development (residential, industrial, and commercial), east side alternatives would require a lengthier route that would provide less direct access to the interstate, especially to motorists desiring to travel west on I-40 or south on I-85. If an east side alternative were constructed, motorists desiring to follow NC 119, a regional route that provides access between northern Alamance and Caswell Counties and NC 54, would be directed along the heavily traveled I-85/40 corridor. Including the distance that NC 119 motorists would have to travel along I-85/40, people following an NC 119 route on the east side of town would have to travel 8 miles to get from existing NC 119 north of town to the segment of NC 119 south of the interstate. A west side alternative would reduce the distance from existing NC 119 north of town to the existing segment of NC 119 south of the interstate to approximately 4.5 miles. The northwestern area of Mebane is currently more developed than the northeastern section (Orange County) and this development trend is estimated to continue. Therefore, the western route serves more of Mebane's circulation travel

(Mebane's citizens obtaining services in and around the Mebane area, especially travel to the employment centers located along the interstate corridor).

Based on the alternatives comparison and because an alternative on the east side of Mebane did not satisfy the purpose and need of the project; an alternative on the east side of Mebane was eliminated from further study.

2.5.4 Description of Preliminary Corridors

The ten preliminary corridors identified for initial study on this project were originally labeled as corridors, and later identified as alternatives. A description of each of the ten Preliminary Corridor Alternatives is included below and shown on Figure 2.2:

Alternative 1 - Alternative 1 begins at the existing NC 119 /I-85/40 interchange and crosses US 70 just west of Craftique Furniture Company. From there, it roughly follows SR 1920 (Cooks Mill Road) and ties back into existing NC 119 approximately 0.4 miles north of SR 2005 (Landi Lane).

Alternative 2 - Alternative 2 is similar to Alternative 1 south of US 70, beginning at the existing NC 119/I-85/40 interchange and crossing US 70 just west of Craftique Furniture Company. It crosses SR 1917 (White Level Road) near SR 1920 (Cooks Mill Road) and ties back into existing NC 119 approximately 0.4 miles north of SR 2005 (Landi Lane).

Alternative 3 - Alternative 3 begins at the existing NC 119/I-85/40 interchange and crosses US 70 just west of Craftique Furniture Company. From there it passes through the northwestern corner of the Cates Farm property (within the National Register of Historic Places (NRHP) listed boundary) and ties into existing NC 119 at SR 1917 (White Level Road).

Alternative 4 - Alternative 4 begins at the existing NC 119/I-85/40 interchange and crosses US 70 at SR 1950 (Allen Baynes Road). It then passes through the northwestern corner of the Cates Farm property (within the NRHP listed boundary) and ties into existing NC 119 at SR 1917 (White Level Road).

Alternative 5 - Alternative 5 begins at the existing NC 119/I-85/40 interchange and crosses US 70 at SR 1950 (Allen Baynes Road). From there it passes through the western and northern sides of the Cates Farm property (within the NRHP listed boundary) and ties into existing NC 119 at SR 1917 (White Level Road).

Alternative 6 - Alternative 6 begins at the existing NC 119/I-85/40 interchange, crossing US 70 at SR 1950 (Allen Baynes Road). From there it crosses SR 1917 (White Level Road) near SR 1920 (Cooks Mill Road) and ties into existing NC 119 approximately 0.4 miles north of SR 2005 (Landi Lane).

Alternative 7 - Alternative 7 begins at the existing NC 119/I-85/40 interchange, crossing US 70 approximately 1,150 feet east of SR 1951 (Woodlawn Road), and ties into existing NC 119 approximately 0.8 miles south of SR 1917 (White Level Road).

Alternative 8 - Alternative 8 begins at the existing NC 119/I-85/40 interchange and crosses US 70 just west of the Craftique Furniture Company. From there it passes to the west and north of the historic property boundary of the Cates Farm and ties into existing NC 119 near SR 1918 (Mrs. White Lane).

Alternative 9 - Alternative 9 begins at the existing NC 119/I-85/40 interchange and crosses US 70 just west of the Craftique Furniture Company. From there it passes through the northwestern corner of the Cates Farm property (within the NRHP listed boundary) and ties into existing NC 119 near SR 1918 (Mrs. White Lane).

Alternative 10 - Alternative 10 begins at the existing NC 119/I-85/40 interchange and crosses US 70 just west of the Craftique Furniture Company. From there it passes through the northwestern corner of the Cates Farm property (within the NRHP listed boundary) and ties into existing NC 119 near SR 1918 (Mrs. White Lane).

2.5.4.1 Impacts Based on Functional Design

As discussed in Section 2.5.3, NCDOT conducted a screening evaluation of the seven preliminary alternatives developed during the preliminary impact assessment in order to identify those corridors to be carried forward. A comparison matrix of these study corridors was developed during the screening process and is included in Table 2.3. The summary of impacts for Alternatives 8, 9, and 10 are included in Table 4.18. The impact evaluation for Alternatives 8, 9, and 10 was performed with the latest preliminary designs, which incorporate more detailed design information than what was used to quantify impacts for the initial seven preliminary alternatives. Had Alternatives 1 through 7 been developed to the same level of detail as Alternatives 8, 9, and 10, the impacts and cost would be similar.

Descriptions of the study corridors carried forward for detailed study are included in Section 2.5.5.

2.5.4.2 Preliminary Corridors Eliminated from Further Study

The Preliminary Corridor Alternatives eliminated from consideration and discussed below include Alternatives 1, 2, 3, 4, 5, 6, and 7.

Alternative 1 - The linear distance of impacts to the water supply watershed critical area of the Graham-Mebane Reservoir, as well as impacts to several historic properties made this alternative undesirable. Alternative 1 was eliminated from further study at the Merger Team meeting held on December 13, 2000.

Alternative 2 - Alternative 2 is almost entirely within the water supply watershed critical area of the Graham-Mebane Reservoir. Alternative 2 was eliminated from further study at the Merger Team meeting held on April 18, 2001.

Alternative 3 - Alternative 3 was eliminated because of the availability of other similar alternatives that minimized impacts to the water supply watershed critical area of the Graham-Mebane Reservoir. Alternative 3 was eliminated from further study at the Merger Team meeting held on April 18, 2001.

**Table 2.3
Preliminary Corridor Alternatives Impact Comparison**

Evaluation Factor	Preliminary Study Corridor						
	1	2	3	4	5	6	7
Length (miles)	4.8	4.8	4.4	4.4	4.4	4.8	3.9
Construction Cost	27,300,000	27,300,000	24,800,000	26,000,000	24,400,000	27,300,000	22,500,000
Right of Way Cost (as of 1/5/99)	9,723,000	9,966,500	8,892,500	10,017,500	8,944,500	8,866,000	16,327,000
TOTAL COST:	\$37,023,000	\$37,296,500	\$33,692,500	\$36,017,500	\$33,344,500	\$36,166,000	\$38,827,000
SOCIOECONOMIC FACTORS							
Number of Relocatees Residential / Business*	15 / 2	19 / 2	10 / 3	19 / 4	17 / 4	28 / 4	107 / 11
Description of Relocatees	6 minority 10-11 low income**	7 minority 5-11 low income	4 minority 0-5 low income	Real Estate Bus. Church of Christ 6 minority 5-11 low income	Church of Christ 4 minority 3-11 low income	Church of Christ 10 minority 5-17 low income	Rescue Revival Temple 30 minority 70-90 low income
Divided West End Community	No	No	No	Yes	Yes	Yes	Yes
Historic Properties***							
Cates Farm	NE	NAE	AE****	NAE	NAE	NAE	NE
Tate Farm	AE	AE	NAE	NE	NE	AE	NE
Cooks Mill	AE	NE	NE	NE	NE	NE	NE
House (#K)	AE	NAE	NE	NE	NE	NAE	NE
NATURAL RESOURCES							
Stream Crossings	4	4	4	4	4	4	2
Wetlands (acres)	1	1.3	1.5	1.5	1.02	1.3	0.8
Water Supply Watershed Critical Area Impacts (linear distance/area)*****	2.1 mi / 50.9 acres	2.1 mi / 50.9 acres	0.96 mi / 23.3 acres	0.96 mi / 23.3 acres	0.5 mi / 12 acres	2.1 mi / 50.9 acres	0 mi / 0 acres

Notes: * Relocations from January 4, 1999 relocation report.
 ** Low income < \$27,000 (Mean County Income)
 *** NE = No Effect
 NAE = No Adverse Effect
 AE = Adverse Effect
 **** Property impact not re-evaluated after revisions to NRHP eligible boundary
 ***** Assume 200-foot right of way

Alternatives 4, 5, and 6 - Alternatives 4, 5, and 6 divided and disproportionately impacted the West End community. In addition, Alternatives 4 and 5 impact the water supply watershed critical area of the Graham-Mebane Reservoir. Alternatives 4 and 5 were eliminated from further study at the Merger Team meeting held on June 13, 2002, while Alternative 6 was eliminated from further study at the Merger Team meeting held on December 13, 2000.

Alternative 7 - Alternative 7 avoided both the water supply watershed critical area and the Cates Farm, but impacted the West End community, resulting in a high number of residential and business relocations (107 residences and 11 businesses), as well as substantially higher project costs. Alternative 7 was eliminated from further study at the Merger Team meeting held on June 13, 2002.

2.5.4.3 Corridors Carried Forward for Detailed Study

Based on the results of the screening evaluation and consideration of comments received through extensive public involvement and agency coordination programs, three Detailed Study Alternatives were selected from among the Preliminary Study Corridor Alternatives to be studied in detail and are listed below.

Alternative 8 - Alternative 8 would have the greatest impacts to the water supply watershed critical area as compared to the remaining alternatives. However, this alternative would avoid impacts to the NRHP listed Cates Farm.

Alternative 9 - Alternative 9 reduces impacts to the water supply watershed critical area, but impacts a small section of the NRHP listed Cates Farm (northwest corner).

Alternative 10 - Alternative 10 is located just outside of the water supply watershed critical area, but impacts more of the NRHP listed Cates Farm than Alternative 9.

These Detailed Study Alternatives are shown in Figure 2.3 and are described in the following section.

2.5.5 Description of Detailed Study Alternatives

From the original 10 Preliminary Study Alternatives, the Merger Team decided to carry forward Alternatives 8, 9, and 10 for detailed study. Preliminary engineering designs were developed within each Detailed Study Corridor, taking into consideration engineering design constraints (topography, design criteria, maintenance of traffic issues, etc.) and the locations of environmentally sensitive features such as residences, businesses, neighborhoods, community facilities, streams, wetlands, watershed critical area, and historic resources.

The designs include the proposed location of NC 119 for each alternative, as well as modifications to major intersecting cross streets. These designs are the basis for the impact analyses contained in this document. Table 2.4 lists some of the major features of the Detailed Study Alternatives preliminary designs and a comparative description of the Detailed Study Alternatives are included below.

**Table 2.4
Detailed Study Alternatives Preliminary Engineering Designs**

Feature	Detailed Study Alternative		
	8	9 (Preferred Alternative)	10
Length of NC 119 (miles)	5.6	5.6	5.6
Modifications to Intersection Roadways			
I-85/40	Add lanes to ramps and overpass	Add lanes to ramps and overpass	Add lanes to ramps and overpass
SR 1980 (Holmes Road)	Right-in/right-out at existing NC 119	Right-in/right-out at existing NC 119	Right-in/right-out at existing NC 119
Existing NC 119 (Fifth Street)	T-turn around at proposed facility	T-turn around at proposed facility	T-turn around at proposed facility
Realignment of SR 1962 (Third Street Extension) and Fifth Street (NC 119)	Signalized intersection	Signalized intersection	Signalized intersection
Existing SR 1962 (Third Street Extension)	T-turn around on either side of proposed facility	T-turn around on either side of proposed facility	T-turn around on either side of proposed facility
Realignment of SR 1962 (Third Street Extension) near Post Office	Signalized intersection	Signalized intersection	Signalized intersection
SR 1972 (Smith Drive)	Signalized intersection	Signalized intersection	Signalized intersection
SR 1963 (Holt Street); NC Railroad; US 70	NC 119 overpass	NC 119 overpass	NC 119 overpass
Proposed US 70 Connector Road	Signalized intersection	Signalized intersection	Signalized intersection
US 70	Widen to four-lanes between proposed roadway and connector road	Widen to four-lanes between proposed roadway and connector road	Widen to four-lanes between proposed roadway and connector road
SR 1949 (Edgewood Church Road)	T-turn around near US 70	T-turn around near US 70	T-turn around near US 70
SR 1951 (Woodlawn Road)	T-turn around on either side of proposed roadway	T-turn around on either side of proposed roadway	T-turn around on either side of proposed roadway
Realignment of SR 1951 (Woodlawn Road)	Right-in/right-out at proposed facility	Right-in/right-out at proposed facility	Right-in/right-out at proposed facility
SR 1921 (Mebane Rogers Road)	No Change	Relocate	Relocate
Existing NC 119 (First Street)	Realign to connect to proposed roadway; Signalized intersection; T-turn around near northern project terminus	Realign to connect to proposed roadway; Signalized intersection; T-turn around near northern project terminus	Realign to connect to proposed roadway; Signalized intersection; T-turn around near northern project terminus
SR 1917 (White Level Road)	No Change	No Change	No Change
SR 1918 (Mrs. White Lane)	No Change	No Change	No Change
SR 1997 (Corrigidor Road)	Realign to connect to SR 1973 (Tate Avenue)	Realign to connect to SR 1973 (Tate Avenue)	Realign to connect to SR 1973 (Tate Avenue)
SR 1970 (Roosevelt Street)	Extend to connect to extension of SR 1997 (Corrigidor Road)	Extend to connect to extension of SR 1997 (Corrigidor Road)	Extend to connect to extension of SR 1997 (Corrigidor Road)

Overpasses would be provided at SR 1963 (Holt Street), the North Carolina Railroad (NCRR), and US 70 for all of the alternatives. In addition, a connector road would provide access from proposed NC 119 to US 70.

ALTERNATIVE 8

Alternative 8, shown in Figure 2.3, begins at the existing NC 119/I-85/40 interchange and continues north on existing alignment for a distance of approximately 0.36 miles. From this point northward, the project proceeds on new alignment, passing to the west of the West End community. The alternative then turns northwest, crossing US 70 just west of the Craftique Furniture Company. Transitioning back to the northeast, this alternative passes west and north of the historic property boundary of the Cates Farm, and passes through the water supply watershed critical area of the Graham-Mebane Reservoir. The alignment ties into existing NC 119 near SR 1918 (Mrs. White Lane). This alternative requires no realignment of SR 1921 (Mebane Rogers Road).

ALTERNATIVE 9

Alternative 9 follows the same alignment as Alternative 8 until just south of SR 1921 (Mebane Rogers Road), where it turns east and runs parallel to Alternative 8 as it passes through the northwestern corner of the Cates Farm property (within the NRHP listed boundary) and passes through the water supply watershed critical area. The alignment ties back into existing NC 119 near SR 1918 (Mrs. White Lane). A portion of the proposed alignment is located within the water supply watershed critical area. This alternative would require a section of SR 1921 (Mebane Rogers Road) to be realigned to accommodate the proposed intersection of NC 119 and SR 1921 (Mebane Rogers Road).

ALTERNATIVE 10

Alternative 10 follows the same alignment as Alternatives 8 and 9 until just south of SR 1921 (Mebane Rogers Road), where it turns further east and runs parallel to Alternatives 8 and 9 as it passes through the northwestern corner of the Cates Farm property (within the NRHP listed boundary) and to the east (outside) of the water supply watershed critical area. The alignment ties back into existing NC 119 near SR 1918 (Mrs. White Lane). This alternative would require more realignment of a section of SR 1921 (Mebane Rogers Road) than Alternative 9 to accommodate the proposed intersection of NC 119 and SR 1921 (Mebane Rogers Road).

In September 2002 and again in July 2003, NCDOT received signed petitions from 17 property owners requesting that the alignment be moved further west into the water supply watershed critical area of the Graham-Mebane Reservoir to avoid properties located east of the SR 1951 (Woodlawn Road) and SR 1921 (Mebane Rogers Road) intersection.

AREAS OF COMMON ALIGNMENT

All three Detailed Study Alternatives follow the same alignment from the existing NC 119/I-85/40 interchange to just south of SR 1921 (Mebane Rogers Road). The existing bridge at the NC 119/I-85/40 interchange would have to be replaced to include additional travel lanes needed to

accommodate projected traffic volumes. In addition to replacing the bridge, several of the interchange ramps would be widened to include additional travel lanes. However, this widening would not extend onto I-85/40. The current traffic signals would remain; however, additional right of way, in the vicinity of the interchange ramps, would be required to accommodate the proposed designs.

Under all three Detailed Study Alternatives, existing SR 1962 (Third Street Extension) and NC 119 (Fifth Street), in the vicinity of the proposed NC 119 relocation would be realigned to create a four-way intersection. In addition, another segment of SR 1962 (Third Street Extension) in the vicinity of the US Post Office would be realigned to intersect the proposed NC 119 approximately 1,400 feet north of the existing SR 1962 (Third Street Extension) along NC 119. Secondary Road 1972 (Smith Drive) would be extended to tie into the proposed NC 119 in the vicinity of the North Carolina Industrial Center (NCIC), thus providing access for the West End community. As part of the three build alternatives, the section of US 70 between the proposed NC 119 overpass and SR 1982 (St. Luke's Church Road) would be widened to a four-lane facility. All three Detailed Study Alternatives restrict access between NC 119 and SR 1980 (Holmes Road) to right-in/right-out. A service road has been provided immediately north of the northeast quadrant of the I-85/40 interchange to provide restricted right-in/right-out access to several parcels. In addition, SR 1951 (Woodlawn Road) would be realigned to intersect the proposed NC 119 approximately 520 feet south of where existing SR 1951 (Woodlawn Road) would intersect the proposed roadway.

Two access points have been provided off the proposed relocation of NC 119 in the vicinity of the NCIC to provide access for the NCIC to both the northern and southern portions of their property. One access point is located across from the Fieldstone community, while the other is located on the northern side of the NCIC, across from the SR 1972 (Smith Drive) intersection, south of the Duke Power easement.

In addition to improvements to NC 119, all three Detailed Study Alternatives propose to extend SR 1997 (Corrigidor Road) from SR 1962 (Third Street), past the Mebane Arts and Community Center, City of Mebane Wastewater Treatment Plant, and City of Mebane Maintenance Yard, to SR 1973 (Tate Avenue) in the West End community. Secondary Road 1970 (Roosevelt Street) would also tie into the extension of SR 1997 (Corrigidor Road), providing additional connectivity within the West End community.

2.6 TRAFFIC OPERATIONS ANALYSIS

A *NC 119 Relocation Travel Analysis Report* (RS&H, 2006b) was prepared for the proposed project and is appended by reference. The sections below summarize the findings contained in the report.

2.6.1 Design Year 2030 Build Traffic Projections

Within the project study area, the Burlington-Graham Metropolitan Planning Organization (MPO) and Alamance County anticipate continued population and employment growth throughout the Mebane area. The majority of development is planned for the areas north, south, and west of the City of Mebane according to the City of Mebane 2010 Land Development Plan adopted in June 2001.

The three Detailed Study Alternatives (Alternatives 8, 9, and 10) have the same basic corridor location and the same proposed access control with only slight variations in their alignments in the vicinity of the Cates Farm (between SR 1921 [Mebane Rogers Road] and SR 1917 [White Level Road]). These small variations would have no effect on the traffic assignments or operational characteristics for each of the three alternatives. For this reason, only one “Build” analysis was conducted to estimate traffic impacts.

Projected design year (2030) average daily traffic (ADT) volumes for the three alternatives and the surrounding roadway network are shown in Figure 2.4. As shown in this figure, the Build Alternatives on new location would carry traffic volumes ranging from 30,000 and 52,600 ADT between I-85/40 and US 70. Between US 70 and SR 1921 (Mebane Rogers Road), the Build Alternatives would carry traffic volumes ranging from 18,800 to 19,800 ADT, decreasing to 13,100 ADT north of First Street.

In order to complete the capacity analysis, it was first necessary to analyze traffic volumes for the design year (2030) to determine how much traffic would likely be diverted from existing NC 119 to the build alternatives (Alternatives 8, 9, and 10). Table 2.5 summarizes this data.

Table 2.5
Diversion of Traffic from Existing NC 119
(Build Alternatives)

Segment of Existing NC 119	No-Build Alternative 2030 Traffic Volumes on Existing NC 119 (ADT)	Build Alternatives 8, 9, and 10	
		2030 Traffic Volumes on Existing NC 119 (ADT)	Reduction Compared to No-Build Alternative
SR 1007 (Mebane Oaks Road) to US 70	36,100	24,100	33%
Along US 70 from Fifth Street to Second Street	31,100	24,000	23%
US 70 to SR 1921 (Mebane Rogers Road)	16,300	5,300	67%
North of SR 1921 (Mebane Rogers Road)	23,000	4,300	81%

Note: * ADT volume included in table is the highest volume on that segment.

Existing NC 119 would experience reductions in traffic volumes of 23-81 percent in comparison to the No-Build Alternative. The reduction in traffic volume through the central business district of Mebane compared to the No-Build Alternative is 67 percent.

2.6.2 Design Year 2030 Build Capacity Analysis

A capacity analysis is performed to estimate the traffic-carrying ability of roadways over a range of conditions. This type of analysis was performed on NC 119 to compare the Build and No-Build Alternatives.

The existing (2005) and future (2030) Annual Average Daily Traffic Volumes (AADT) for the project were developed using the *Project Traffic Forecasts – NC 119 Relocation* (Ko & Associates, 2003). The *Project Traffic Forecasts* provided the traffic forecasts for 2005 and 2025. Since the analysis year for this project is 2030, traffic volumes were projected from the 2025 traffic volumes using a growth factor.

Traffic operations analysis for the NC 119 capacity analysis was performed using the Arterial Level of Service analysis from the Synchro software program. This analysis was used because NC 119 is an arterial road (i.e., a major through route). It reflects the methodology described in Chapter 15 (Urban Streets) of the Highway Capacity Manual (Transportation Research Board, 2000).

Traffic operations analysis for the ramp terminal intersections (i.e., intersection of I-85/40 interchange ramps with NC 119) were conducted using Synchro. Results were reported using the Highway Capacity Manual report feature of the software, which is based on the Highway Capacity Manual (Transportation Research Board, 2000).

The intersection capacity analysis was performed for the existing and future travel conditions within the NC 119 study area using the Highway Capacity Manual 2000 methodology and related software programs. Synchro was used for signalized intersections and Highway Capacity Software was used to analyze unsignalized intersections. SimTraffic (simulation tool with Synchro) was used to report the 95th percentile queue lengths (i.e., lengths of vehicles in line) at the signalized intersections for the future build alternatives capacity analysis.

2.6.2.1 Roadway Sections

The arterial capacity analysis was performed at a total of five corridors in the study area. The purpose of this analysis was to determine whether the NC 119 Relocation project provides adequate capacity for the future traffic demand in the study area and to evaluate how successfully the proposed project would relieve congestion on existing roads. The following is a list of the corridors analyzed for the 2030 Build Alternatives:

- Proposed NC 119 between I-85/40 and First Street
- Fifth Street between NC 119 and US 70
- SR 1007 (Mebane Oaks Road) between I-85/40 and Fifth Street
- US 70 between Fifth Street and NC 119 Ramps
- First Street between SR 1996 (East Stagecoach Road) and Proposed NC 119

The capacity analysis conducted for the future 2030 Build Alternatives indicate that the proposed NC 119 corridor as a whole would function at LOS C or better throughout the day, with two exceptions (see Section 1.9 for a definition of LOS). Northbound NC 119 in the vicinity of the I-85/40 eastbound ramps would function at LOS F during both the morning and evening peak

periods of the day. However, the intersection capacity analysis indicates that the overall NC 119 and I-85/40 eastbound ramp intersection would function at LOS D or better during both the morning and evening peak periods of the day, an acceptable rate of flow for peak hour conditions. Southbound NC 119 in the vicinity of the realigned Fifth Street would function at LOS E during both peak periods of the day. However, the intersection capacity analysis indicates that the overall NC 119 at Realigned Fifth Street intersection would function at LOS D or better during both peak periods of the day.

The capacity analysis shows that the Fifth Street corridor as a whole would function at LOS C or better throughout the day, an acceptable rate of traffic flow. However, northbound realigned Fifth Street in the vicinity of NC 119 and southbound Fifth Street in the vicinity of US 70 would continue to exceed the capacity of the roadway (LOS F) during both peak periods of the day. The relocated NC 119 would divert 35 to 65 percent of traffic away from this corridor, which would substantially improve the traffic flow conditions over the No-Build Alternative.

The capacity analysis shows the traffic flow on the SR 1007 (Mebane Oaks Road) corridor between the I-85/40 ramps and Fifth Street, as well as the traffic flow on US 70 between Fifth Street and Third Street, would continue to either approach or exceed the capacity of the roadway during at least one, or both, peak periods of the day. The relocated NC 119 would divert 10 percent of the traffic away from the SR 1007 (Mebane Oaks Road) corridor. The Build Alternatives capacity analysis assumed that the section of US 70 between the proposed NC 119 overpass and SR 1982 (St. Luke's Church Road) would be widened to a four-lane facility. With this improvement, the capacity analysis shows that the traffic on US 70 in the vicinity of NC 119 would operate at LOS C or better throughout the day. The capacity analysis also shows that the First Street corridor, as a whole, would function at LOS B or better throughout the day.

2.6.2.2 Intersections

Table 2.6 shows the LOS for intersections along NC 119 projected to occur with the Build Alternatives in place. For the 2030 Build Alternatives, a total of 18 intersections were analyzed within the study area. Of these, ten intersections are located along the proposed relocation corridor for NC 119. The remaining intersections, which were also analyzed for the 2005 existing conditions and 2030 No-Build Alternative, are located along existing NC 119 and other corridors in the study area that may be affected by changes in future travel patterns as a result of this project.

**Table 2.6
Intersection Capacity Analysis
2030 Build Alternatives**

Intersection Location	Controller	Morning Peak					Evening Peak				
		Overall	EB	WB	NB	SB	Overall	EB	WB	NB	SB
NC 119 at I-85/40 EB Ramps	Signal	C	D	N/A	C	B	D	D	N/A	C	C
NC 119 at I-85/40 WB Ramps	Signal	C	N/A	C	B	C	B	N/A	D	A	B
NC 119 at Realigned Fifth Street	Signal	D	E	D	C	D	C	D	D	C	D
NC 119 at Realigned Third Street	Signal	C	N/A	D	C	B	C	N/A	C	C	B
NC 119 at International Drive	Signal	C	D	N/A	A	C	B	C	N/A	B	C
NC 119 at Smith Drive	Signal	C	E	E	B	C	C	D	D	B	B
US 70 at NC 119 Ramp	Signal	B	C	B	N/A	B	B	C	B	N/A	B
NC 119 at US 70 Connector	Signal	C	N/A	C	B	C	C	N/A	C	B	C
NC 119 at Mebane Rogers Road	Signal	D	D	D	D	D	D	D	C	D	D
NC 119 at First Street	Signal	B	N/A	C	A	A	B	N/A	C	A	A
Fifth Street at Mebane Oaks Road	Signal	F	E	D	F	F	F	E	F	E	E
Fifth Street at US 70	Signal	E	E	E	E	F	F	E	F	F	F
US 70 at Third Street	Signal	F	F	F	F	D	F	F	F	F	D
US 70 at Second Street	N-S Stop	N/A	B	N/A	N/A	F	N/A	D	N/A	N/A	F
First Street at Stagecoach Road	Signal	C	B	C	C	C	C	C	B	C	C
Mebane Oaks Road at I-85/40 EB Ramps	E-W Stop	N/A	F	N/A	N/A	F	N/A	F	N/A	N/A	E
Mebane Oaks Road at I-85/40 WB Ramps	Signal	F	N/A	F	F	F	F	N/A	F	F	F
Third Street Extension at Holmes Road	E-W Stop	N/A	N/A	F	N/A	B	N/A	N/A	F	N/A	C

Note: N/A - not applicable

The proposed intersection improvements recommended as part of the 2030 Build Alternatives include additional through-lanes and additional left-turn and right-turn lanes at various intersections along the proposed relocation corridor for NC 119. These improvements and the construction of the new NC 119 facility are expected to reduce traffic volumes and the overall congestion levels along existing NC 119 and provide adequate traffic capacity along the relocated NC 119 roadway.

With the proposed intersection improvements, the capacity analysis shows that the NC 119/I-85/40 eastbound and westbound ramps would function at LOS D or better throughout the day. It also predicts that the Realigned Fifth Street/Realigned Third Street Extension signalized intersection would function at LOS D or better throughout the day. However, the left-turning movements on the eastbound, northbound, and southbound approaches of this intersection, as well as the through and right-turning movements on the eastbound and westbound approaches would function at LOS E during at least one peak period of the day, which is considered acceptable during peak hour conditions.

With the proposed improvements to the realigned Third Street Extension intersection, this signalized intersection would function at LOS D or better throughout the day, resulting in an acceptable rate of traffic flow.

Access to and from the North Carolina Industrial Center (NCIC) is not currently shown in the Detailed Study Alternatives designs as access for the NCIC has not yet been developed and is not a

part of this project. However, the capacity analysis at the SR 1972 (Smith Drive) intersection was performed including access to/from the NCIC for the Build Alternatives in order to accommodate future traffic demand at this intersection.

The capacity analysis indicates that the NC 119 at (future) International Drive intersection would function at LOS D or better throughout the day and that the NC 119 at SR 1972 (Smith Drive) intersection would function at LOS C or better throughout the day. The capacity analysis indicates that both the US 70 at US 70 connector road intersection and the NC 119 at US 70 connector road intersection would function at LOS C or better throughout the day. The analysis also indicates that the NC 119 at SR 1921 (Mebane Rogers Road) intersection would function at LOS D or better throughout the day and the NC 119 at First Street intersection would function at LOS C or better throughout the day.

Several intersections along other corridors in the vicinity of the proposed project were also analyzed. The interchange along I-85/40 east of the NC 119 southern project terminus, SR 1007 (Mebane Oaks Road), capacity analysis shows that the SR 1007 (Mebane Oaks Road) and I-85/40 ramp intersections would continue to function at LOS F during both peak periods of the day. However, the proposed facility would divert traffic away from these intersections and traffic flow would improve over the No-Build Alternative. The capacity analysis indicates that the traffic on SR 1980 (Holmes Road) at SR 1962 (Third Street Extension) would continue to experience long delays (LOS F) during both peak periods of the day. However, the relocated NC 119 would divert about 30 percent of traffic away from this intersection. This would substantially improve the traffic flow at this intersection in comparison with the No-Build Alternative.

The capacity analysis shows that the Fifth Street at SR 1007 (Mebane Oaks Road) intersection, as well as the Fifth Street at US 70 intersection, as a whole and all the approaches would either approach or exceed the capacity of the intersection (LOS E or F) during at least one, or both, peak periods analyzed. The relocated NC 119 would divert 50 percent of traffic away from the Fifth Street/SR 1007 (Mebane Oaks Road) intersection and 40 percent away from the Fifth Street/US 70 intersection. The US 70 and Second Street intersection would continue to function at LOS F during both peak periods of the day. The traffic on Second Street at its intersection with US 70 would continue to experience long delays (LOS F) during both peak periods of the day. With the proposed relocation of NC 119, the travel conditions at the First Street/SR 1996 (Stagecoach Road) intersection would be substantially improved. The capacity analysis shows that the intersection would function at LOS C or better throughout the day, a substantial improvement in comparison with the 2030 No-Build Alternative.

2.7 COST ESTIMATES

Preliminary cost estimates for each Detailed Study Alternative are presented in Table 2.7. These values include estimates for construction, utility, and right-of-way acquisition costs based on the proposed preliminary designs. The total costs range from just under \$101.5 million (Detailed Study Alternative 9) to just under \$102.5 million (Detailed Study Alternative 10).

**Table 2.7
Cost Estimates
(Build Alternatives)**

Detailed Study Alternative	Length (miles)	Right-of-Way Cost (\$)*	Construction Cost (\$)*	Utility Relocation Cost (\$)*	Total Cost (\$)
8	5.6	\$30,475,000	\$68,700,000	\$2,402,000	\$101,577,000
Section A	3.3	23,875,000	48,000,000	\$1,589,000	73,464,000
Section B	2.3	6,600,000	20,700,000	\$813,000	28,113,000
9 (Preferred Alternative)	5.6	\$30,550,000	\$68,500,000	\$2,402,000	\$101,452,000
Section A	3.3	23,875,000	48,000,000	\$1,589,000	73,464,000
Section B	2.3	6,675,000	20,500,000	\$813,000	27,988,000
10	5.6	\$29,947,500	\$70,100,000	\$2,402,000	\$102,449,500
Section A	3.3	23,875,000	48,000,000	\$1,589,000	73,464,000
Section B	2.3	6,072,500	22,100,000	\$813,000	28,985,500

Note: * Construction cost in 2009 dollars. Utility and Right-of-Way costs in 2007 dollars.

Detailed Study Alternative 9 has the highest right-of-way cost, primarily due to the realignment of SR 1921 (Mebane Rogers Road) compared to the other alternatives. Detailed Study Alternative 10 has the highest construction cost primarily due to the additional earthwork and longer structure at Mill Creek compared to the other alternatives.

2.8 PREFERRED ALTERNATIVE

2.8.1 Selection of the Preferred Alternative

The DEIS for this project was completed in August 2007 and evaluated three Detailed Study Alternatives. It was distributed to federal and state environmental regulatory and resource agencies and made available to the general public for comment in October 2007.

Based on the findings of the DEIS, comments of the citizens at the public meetings and corridor public hearing on January 15, 2008, and identification of Alternative 9 as the least environmentally damaging practicable alternative (LEDPA) by the Section 404/NEPA Merger Team, NCDOT endorsed Alternative 9 as its Preferred Alternative (Figure 2.5). This decision was based primarily on minimizing impacts to a water supply watershed critical area, historic property, and streams.

On June 19, 2008, the Section 404/NEPA Merger Team met to discuss the identification of the LEDPA (Concurrence Point 3). At this meeting, the Team evaluated the three Detailed Study Alternatives (Alternatives 8, 9, and 10) and agreed to Alternative 9 as the LEDPA based on the following discussion (see the concurrence form dated June 19, 2008, in Appendix G – Part 4).

- The three Detailed Study Alternatives have the same basic corridor location and the same proposed access control with only slight variations in their alignments in the vicinity of the Cates Farm (between SR 1921 [Mebane Rogers Road] and SR 1917 [White Level Road]).

These small variations would have no effect on the traffic assignments or operational characteristics for each of the three alternatives.

- Approximately one mile of Alternative 8 and 0.7 miles of Alternative 9 are within the water supply watershed critical area of the Graham-Mebane Reservoir. Alternative 10 lies outside of the water supply watershed critical area.
- Alternatives 9 and 10 would require the acquisition of right-of-way from the Cates Farm. Alternative 8 passes west and north (outside) of the historic property boundary of the Cates Farm. For Alternative 9, approximately 12.6 acres of land would be acquired of the approximately 100 acres listed on the NRHP. Alternative 10 would acquire approximately 13.4 acres of the area listed on the NRHP. An additional 4.6 acres of the farm would be isolated from the remaining historic property with Alternative 9, compared to 23.4 acres with Alternative 10.
- For both Alternative 9 and Alternative 10, the proposed roadway is anticipated to be visible and audible from the Cates farmhouse. However, the potential visual impacts are less with Alternative 9 than with Alternative 10, because it is located further west of the farmhouse than Alternative 10. In addition, Alternative 9 would not require the removal of any structures associated with the Cates Farm, while Alternative 10 would remove one structure. However, the structure is not listed as a contributing element of the historic property.
- Modifications to existing roadways intersecting proposed NC 119 are virtually the same for each of the Detailed Study Alternatives, with the exception of the SR 1921 (Mebane Rogers Road) intersection. Alternative 8 requires no realignment of SR 1921 (Mebane Rogers Road), while Alternatives 9 and 10 would realign SR 1921 (Mebane Rogers Road) to accommodate its proposed intersection with NC 119. Alternative 10 would require more realignment of SR 1921 (Mebane Rogers Road) than Alternative 9 to accommodate the proposed intersection.
- Although a portion of the Cates Farm property (not including the house or outbuildings) is currently for sale; historic preservation regulations apply based on the current status of the property. Therefore, until development begins, the entire property is subject to Section 106 of the National Historic Preservation Act of 1966 and Section 4(f) of the Department of Transportation Act of 1966.
- The NC Division of Water Quality (NCDWQ) expressed concern about Alternatives 8 and 9 impacting the water supply watershed critical area of the Graham-Mebane Reservoir and asked about citizen comments on this issue. While several citizens at the Corridor Public Hearing were not in favor of an alternative that impacted the watershed critical area, there were also verbal and written comments from citizens requesting that NCDOT avoid the Cates Farm historic property.
- The Merger Team reviewed the impacts of the Detailed Study Alternatives on streams in the project study area. Alternatives 9 and 10 have the fewest stream impacts. Alternatives 9 and 10 cross 16 perennial streams, while Alternative 8 crosses 18 streams. Alternative 9 impacts

approximately 3,178 linear feet of streams along the proposed corridor, while Alternatives 8 and 10 impact approximately 3,454 and 3,328 linear feet of streams, respectively.

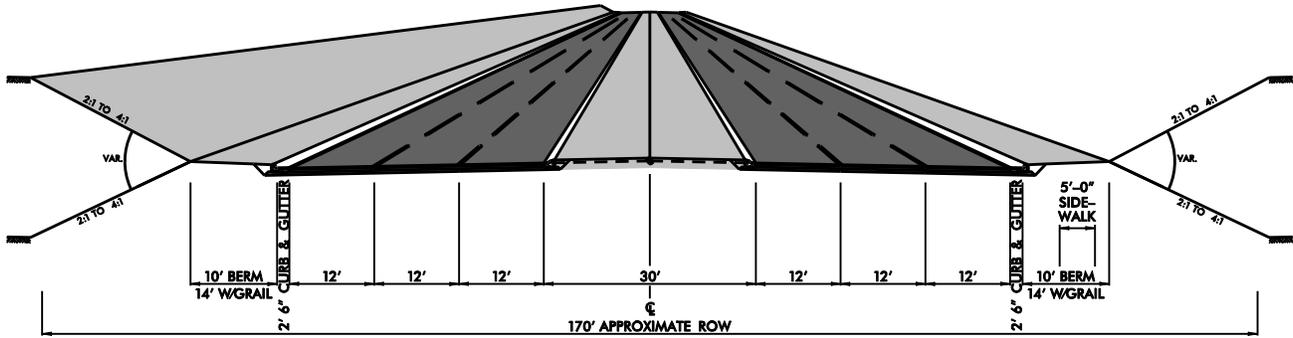
Based on the reasons described above, the Merger Team, including NCDOT, FHWA, US Army Corps of Engineers, NCDWQ, US Fish and Wildlife Service, NC Wildlife Resources Commission, and the North Carolina State Historic Preservation Office (HPO) concurred on June 19, 2008, that Alternative 9 is the LEDPA.

2.8.2 Updates to the Preferred Alternative Engineering Design Since the DEIS

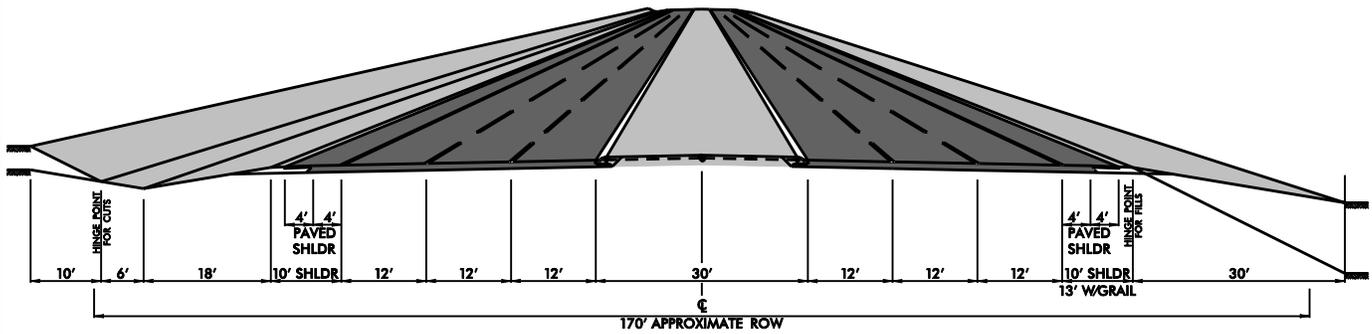
In response to requests from concerned citizens, the Preferred Alternative was modified to include a realignment of existing SR 1951 (Woodlawn Road) to tie into proposed NC 119 south of where existing SR 1951 (Woodlawn Road) would intersect the proposed roadway. The purpose of this realignment is to maintain continuity of the street system in the Woodlawn community by providing a connection of SR 1951 (Woodlawn Road) to the proposed NC 119 roadway. This realignment provides right-in/right-out access from SR 1951 (Woodlawn Road) onto the proposed NC 119. The NCDOT also studied whether a traffic signal was warranted at the existing NC 119 / SR 1918 (Mrs. White Lane) intersection. Based on the traffic data collected, the NC 119/SR 1918 (Mrs. White Lane) intersection does not meet any of the volume warrants and therefore, does not warrant a traffic signal at this time.

Additionally, minor design revisions in the vicinity of the realignment of the SR 1962 (Third Street)/SR 1979 (Foust Road) intersection to minimize impacts to properties in that area would be included in the Record of Decision (ROD) after the design is complete. As requested by the public, accesses to the Cambridge Center LLC property and an additional access to the NCIC will be studied and shown more clearly in the Preferred Alternative, as appropriate. Additional right-in/right-out accesses to the Preferred Alternative along the project corridor would also be included in the ROD after the design is complete. The final design will be developed based on design constraints and cost considerations.

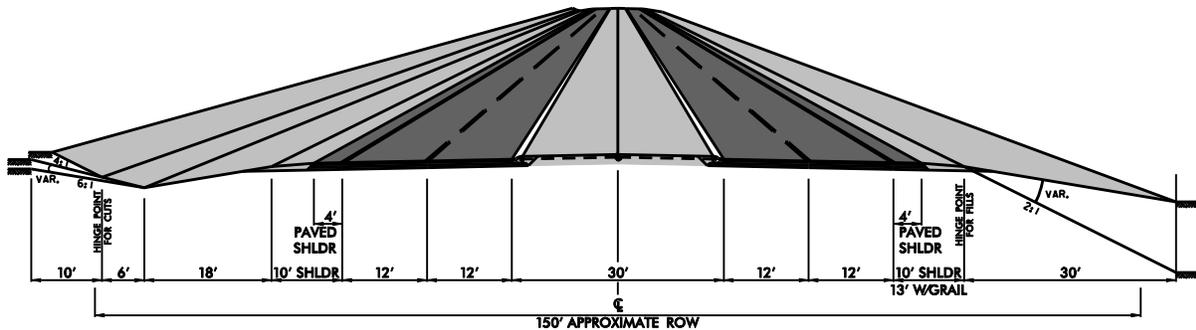
The impacts described in this document are based on the preferred alternative as identified by NCDOT following selection of the LEDPA. Minor changes in design are anticipated throughout the design process and into right-of-way acquisition and construction.



PROPOSED NC 119 TYPICAL SECTION
WITH GRASS MEDIAN
6 LANE WITH CURB & GUTTER



PROPOSED NC 119 TYPICAL SECTION
WITH GRASS MEDIAN
6 LANE SHOULDER



PROPOSED NC 119 TYPICAL SECTION
WITH GRASS MEDIAN
4 LANE SHOULDER

NOT TO SCALE



North Carolina Department of Transportation
Project Development & Environmental Analysis Branch

Proposed Relocation of NC 119 from I-85/40 to South of SR 1918
Mebane, Alamance County
TIP Project No. U-3109

FIGURE 2.1
TYPICAL ROADWAY CROSS-SECTIONS

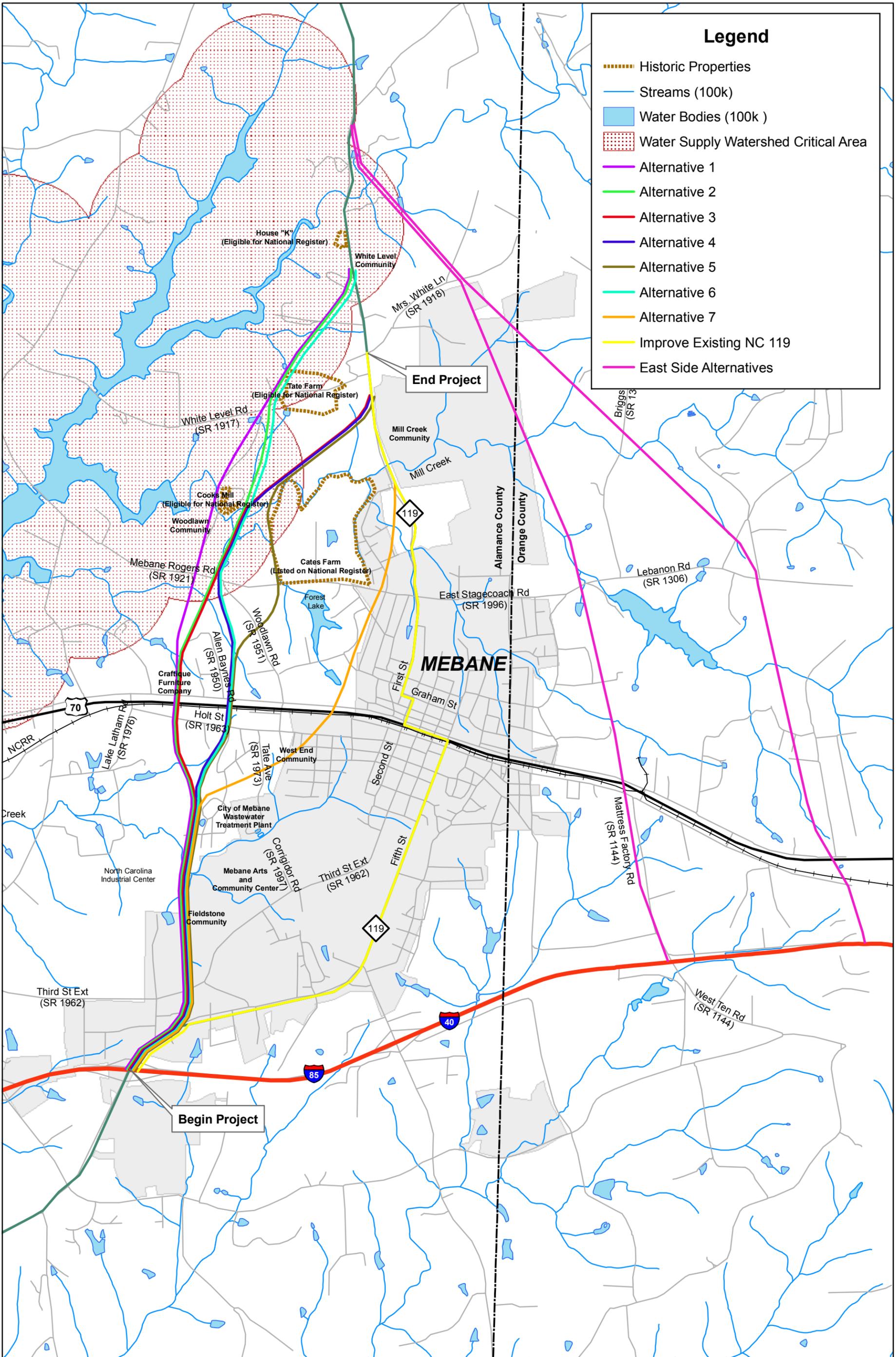
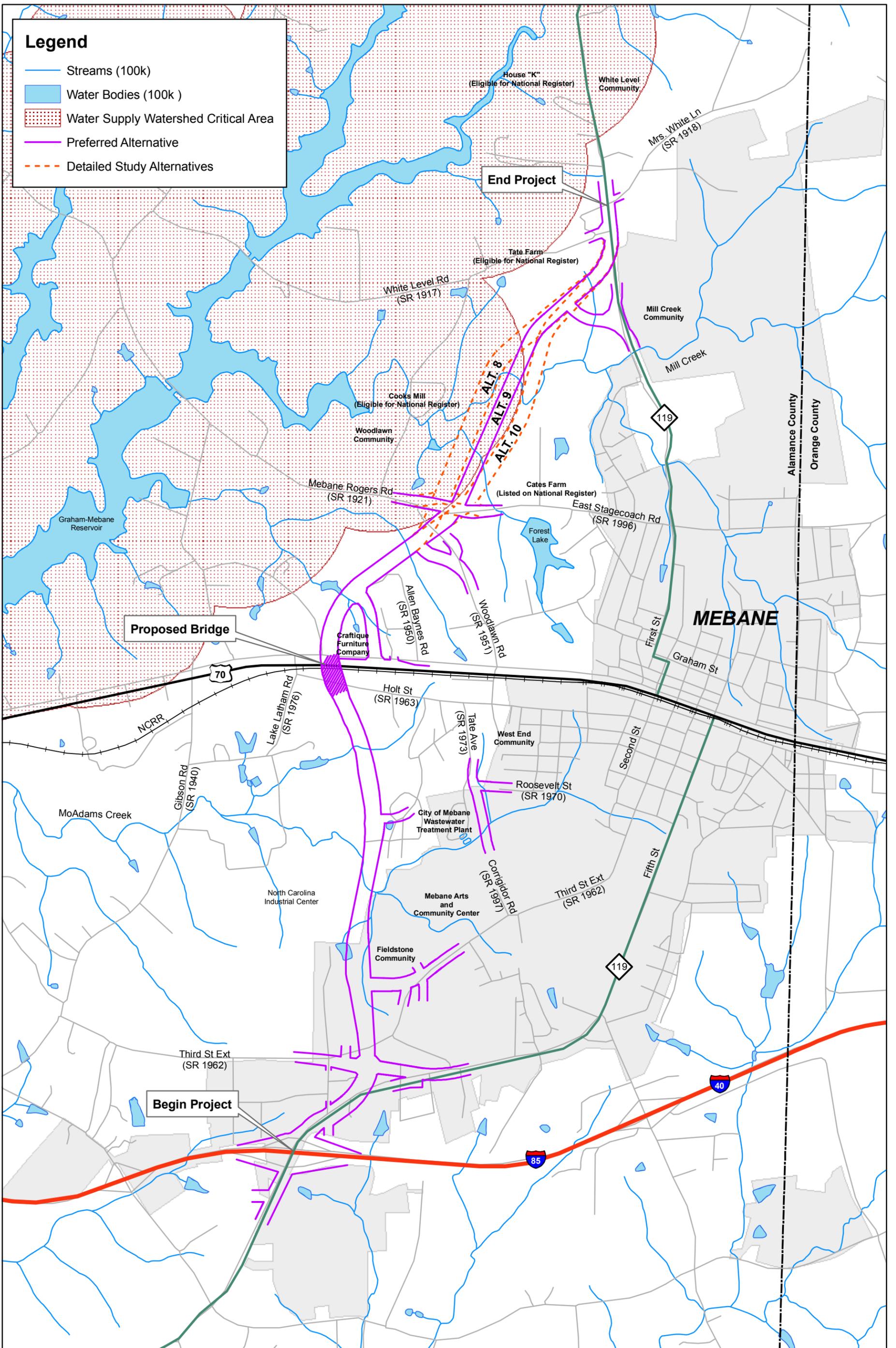


Figure 2.2
Preliminary
Corridor Alternatives



North Carolina Department of Transportation
 Project Development & Environmental Analysis Branch
 Proposed Relocation of NC 119 from I-85/40 to South of SR 1918
 Mebane, Alamance County
 TIP Project No. U-3109

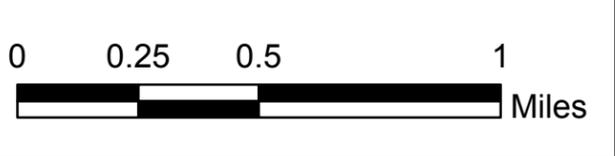


Figure 2.3
Detailed Study Alternatives

LEGEND

000 Vehicles Per Day (ADT)

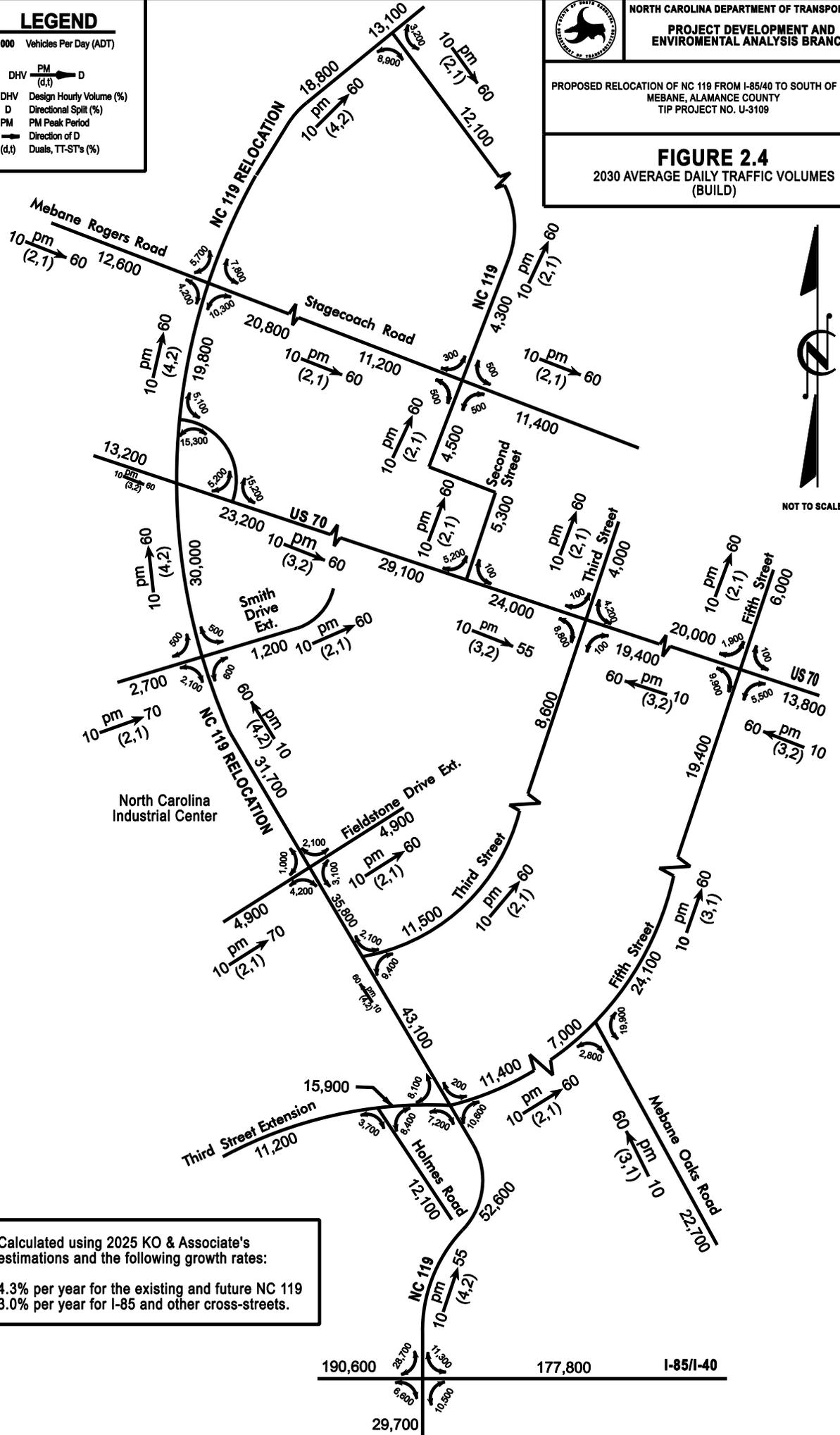
- DHV $\xrightarrow{\text{PM}} \text{D}$
(d,t)
- DHV Design Hourly Volume (%)
- D Directional Split (%)
- PM PM Peak Period
- \rightarrow Direction of D
- (d,t) Duals, TT-ST's (%)



NORTH CAROLINA DEPARTMENT OF TRANSPORTATION
PROJECT DEVELOPMENT AND ENVIRONMENTAL ANALYSIS BRANCH

PROPOSED RELOCATION OF NC 119 FROM I-85/40 TO SOUTH OF SR 1918
MEBANE, ALAMANCE COUNTY
TIP PROJECT NO. U-3109

FIGURE 2.4
2030 AVERAGE DAILY TRAFFIC VOLUMES (BUILD)

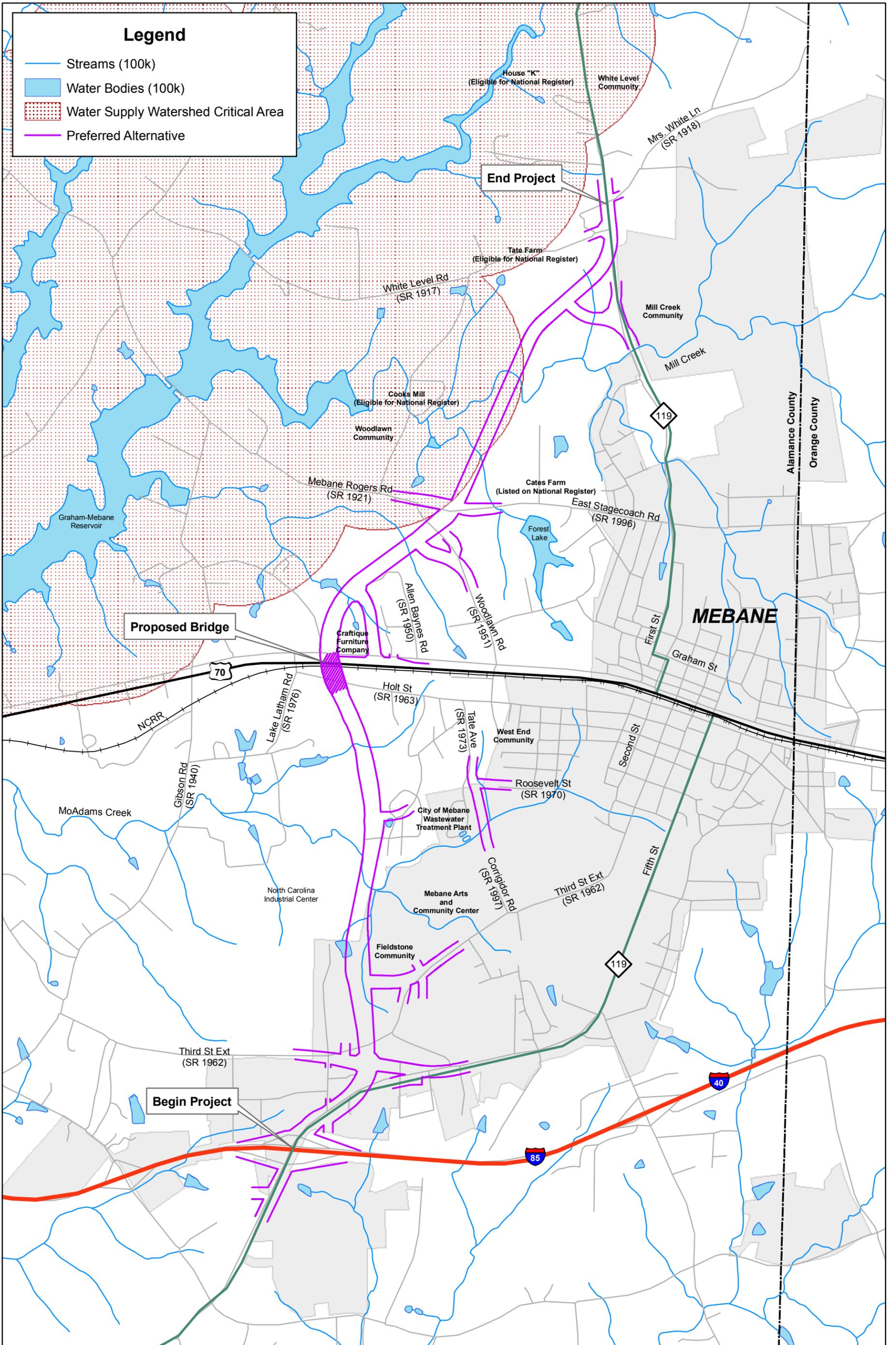


NOT TO SCALE

Calculated using 2025 KO & Associate's estimations and the following growth rates:
4.3% per year for the existing and future NC 119
3.0% per year for I-85 and other cross-streets.

Legend

- Streams (100k)
- Water Bodies (100k)
- Water Supply Watershed Critical Area
- Preferred Alternative



North Carolina Department of Transportation
 Project Development & Environmental Analysis Branch
 Proposed Relocation of NC 119 from I-85/40 to South of SR 1918
 Mebane, Alamance County
 TIP Project No. U-3109

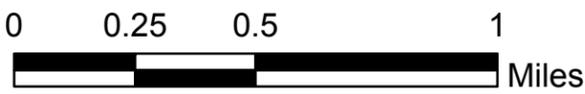


Figure 2.5
 Preferred Alternative

CHAPTER 3

This chapter contains a description of the existing human, physical, and natural environments within the NC 119 Relocation study area. This will serve as the basis for assessing the potential environmental impacts of the Detailed Study Alternatives presented in Chapter 2.

3.1 HUMAN ENVIRONMENT CHARACTERISTICS

A *Community Impact Assessment Report* (NCDOT, 1998), *Community Impact Assessment* (Wilbur Smith Associates, 2003), and a *Final Community Impact Assessment* (RS&H, 2006a) were prepared for the proposed project and are appended by reference in the following sections.

3.1.1 Land Use Characteristics

The project study area is located west of the City of Mebane and within the Extraterritorial Jurisdiction (ETJ) of the City, which extends as much as one mile from the City limits in some places. The map of the project study area shown in Figure 3.1 includes the municipal boundary lines, as well as the ETJ boundary.

The human environment characteristics described in the sections below are based upon the following:

- Field surveys of the project study area
- Adopted policy documents from Alamance County and the City of Mebane
- US Census Data (2000)
- North Carolina Department of Commerce data
- North Carolina Office of State Budget and Management data

While a small portion of the City of Mebane is within Orange County, the majority of the City, including the project study area, is within Alamance County. Since the proposed project lies entirely within Alamance County and is not likely to affect the Orange County portion of the City of Mebane, the discussion of the study area only includes data for Alamance County.

In the 2000 Census, Alamance County was divided into 23 Census Tracts. Census Tracts are relatively permanent statistical subdivisions of a county. Census Block Groups are a subset of the Census Tract and provide a greater level of statistically-reliable detail of Census-related data.

Within Alamance County, the project study area is located within Census Tracts 212.03 and 213.00. The study area includes Census Block Groups 212.03-1, 212.03-2, 212.03-3, 212.03-4, 212.03-5, and 213.00-2, as shown in Figure 3.2. Collectively, the Census Block Groups in which the project study area is located is called the demographic study area. All of the Census-related data presented are from the 2000 US Census unless stated otherwise.

3.1.1.1 Existing Land Use

The overall character of the project study area is varied, ranging from the small town setting of the City of Mebane, to the semi-rural areas north and west of the town, and industrial and commercial development to the south and along the I-85/40 corridor. Suburban residential and supporting commercial development is occurring throughout much of the project study area. The areas north and west of Mebane are primarily semi-rural with low-density single-family residences and agricultural uses and open space. Most of the northern half of the project study area is within watershed protection overlay districts in which development is restricted to low densities. The areas immediately west and south of Mebane are a mix of low to medium density residential developments and commercial uses. The areas located farther west of downtown Mebane have been experiencing growth with the development of the North Carolina Industrial Center (NCIC) and commercial development along the I-85/40 corridor. The existing land uses for the Mebane area are shown in Appendix A.

Development in Alamance County is influenced by its proximity to the Triangle (Raleigh, Durham, Chapel Hill) and Triad (Greensboro, High Point, Winston-Salem) areas. As a result, the Mebane area has become a “bedroom community” for commuters working outside of Alamance County. Many existing residential subdivisions have access to NC 119.

The existing zoning districts within the project study area are primarily industrial and low-density residential zones south of US 70 with low to moderate density residential uses north of US 70. A portion of the project study area north of US 70 is located within the water supply watershed critical area and/or watershed protected area for the Graham-Mebane Reservoir. The existing zoning designations for the Mebane area are shown in Table 3.1 and in Appendix A.

**Table 3.1
Zoning Districts in the City of Mebane and ETJ**

District	Description
Residential Agricultural District (RA-20)	Mixed agricultural and residential uses and compatible business uses such as daycare; generally within the City’s ETJ; minimum residential lot size is 20,000 square feet; overall gross density is typically 1.9 units per acre or less
Residential 20 (R-20)	Low density residential and agricultural uses with limited public, semi-public, and recreational uses; minimum lot size is 20,000 square feet; overall gross density is typically 1.9 units per acre
Residential 15 (R-15)	Moderate density residential uses in areas with water and sewer; limited agricultural, public, semi-public, and recreational activities; minimum lot size is 15,000 square feet; overall gross density is typically 2.5 units per acre or less
Residential 12 (R-12)	Moderate density residential uses; limited agricultural, public, semi-public, and recreational activities; minimum lot size is 12,000 square feet; overall gross density is typically 3.0 units per acre or less
Residential 10 (R-10)	Moderate to high density residential uses with limited public, semi-public and commercial uses; minimum lot size is 10,000 square feet; overall gross density is typically 3.5 units per acre or less
Residential 8 (R-8)	Moderate to high density two-family and multi-family residences with limited public, semi-public and commercial uses; minimum single-family lot size is

District	Description
	8,000 square feet; overall gross density is typically 10 units per acre or less
Residential 6 (R-6)	High density two-family and multi-family residences with limited public, semi-public and commercial uses; minimum single-family lot size is 6,000 square feet; overall gross density is typically 14 units per acre or less
Central Business (B-1)	Centrally located trade and commercial service area to provide for retailing goods and services to passing motorists and residents; permits a concentrated development of uses based on the capacity of utilities and streets
General Neighborhood Business (B-2)	Compact neighborhood shopping district to provide convenience goods to the surrounding residential areas
Neighborhood Business (B-3)	Smaller scale retail trades and services provided for adjacent residential neighborhoods
Office and Institutional (O&I)	Business and professional office use, service occupations and light commercial uses
Heavy Manufacturing (M-1)	Manufacturing, industrial, and warehousing uses
Light Manufacturing (M-2)	Lower intensity industry assembly, fabrication and warehousing on planned sites with access to major highways and streets with adequate urban services
Planned Unit Development (PUD)	A designated group of varied and compatible land uses, such as housing, recreation, commercial centers and industrial parks, all within one contained development or subdivision
Manufactured Housing (MHP)	Manufactured dwellings that occur on individual lots or occur in manufactured housing developments.

Note: Does not include overlay districts.

Source: City of Mebane 2010 Land Development Plan, 2001

The City of Mebane adopted two watershed overlay zoning districts that are consistent with the WS-II watershed management rules adopted by the North Carolina Environmental Management Commission (EMC). The 2010 Land Development Plan for the City of Mebane contains the following information regarding water supply watershed regulations:

Water Supply Watershed Regulations. Development suitability is significantly affected by Mebane’s watershed regulations. Most of Mebane’s jurisdiction north of US 70 drains into Graham-Mebane Reservoir, the water supply reservoir for Mebane and Graham. This watershed is classified as WS-II and is divided into two regulatory zones, the watershed critical area (WCA) within one-half mile of the reservoir, and the balance of watershed (BOW) in all other areas draining to the lake.

Mebane’s watershed standards are instituted as a zoning overlay district, so requirements of both the underlying base zoning district and the overlay district must be met. Mebane has chosen the State’s “high density option,” allowing normal watershed development standards to be waived for projects which employ wet detention ponds to control storm water runoff. In such cases, new development in the WCA cannot exceed 24 percent impervious surface coverage and 30 percent in the BOW. Without wet detention ponds, impervious services are limited to 6 percent in the WCA and 12 percent in the BOW.

New residential development without wet detention may instead meet a standard of 1 unit per two acres in the WCA or 1 unit per acre in the BOW. Aside from base zoning district standards, there are no residential dwelling unit limits for projects using wet detention. Mebane also provides the opportunity for landowners in the watershed to apply for a Special Intensity Allocation (SIA). SIA's are sanctioned by the State and issued on a case-by-case basis by the City. The SIA allows up to 70 percent impervious surface coverage in the BOW, but cannot be used in the WCA. Up to 10 percent (334 acres) of the BOW may be developed under this exception. The City's allocated acreage is nearly unused.

Watershed Stream Buffer Regulations. The City's watershed ordinance requires undeveloped, vegetated buffers along streams, ponds and lakes classified as "perennial" on USGS maps. A 100-foot buffer is required around Graham-Mebane Reservoir. Most of the required reservoir buffer area is publicly owned and barely touches the City's current jurisdiction. For all other water features, the minimum buffer requirement is 30 feet for projects developed with wet detention ponds and 100 feet for those without. These buffers are applied equally in the WCA and the BOW.

With respect to the construction of new transportation facilities, the City included in its zoning regulations the following language from the water supply rules adopted by the EMC (15A NCAC 2B .0104(m)):

The construction of new roads and bridges and non-residential development shall minimize built-upon area, divert stormwater away from surface water supply waters as much as possible, and employ best management practices (BMPs) to minimize water quality impacts. To the extent practicable, the construction of new roads in the critical area shall be avoided. The Department of Transportation shall use BMPs as outlined in their document entitled "Best Management Practices for the Protection of Surface Waters" which is hereby incorporated by reference including all subsequent amendments and editions.

3.1.1.2 Communities

There are several communities within or near the preliminary alignments being considered for the Relocation of NC 119. These include Fieldstone, West End, downtown Mebane, Woodlawn, Mill Creek and White Level, which are shown in Figure 3.3. The geographical boundaries of these communities – with the exception of downtown Mebane – are based on input received from local citizens and planning officials. The Fieldstone community and portions of the West End and Mill Creek communities are located within the City limits of Mebane; the Woodlawn and White Level communities and portions of the West End and Mill Creek communities are not within the incorporated area of Mebane; however, they are located within the ETJ of the City of Mebane.

This section provides a general description of each of the six generally defined communities within the project study area, including current land uses, public services and facilities, approximate population, and planned growth and development as specified in the 2010 Land Development Plan for the City of Mebane (City of Mebane, 2001). As a reference to the information included in the 2010 Land Development Plan, the following maps are included in Appendix A: City of Mebane

Existing Land Use; City of Mebane Existing Zoning; City of Mebane Proposed Land Use; City of Mebane Growth Strategy; and the City of Mebane Physical Development Limitations.

Fieldstone. The Fieldstone Farms subdivision and Fieldstone Apartments are medium-density residential developments located north and west of SR 1962 (Third Street Extension) and south of the Mebane Arts & Community Center within the Mebane City limits. The Fieldstone Farms development was constructed in recent years and consists of 96 lots for single-family residences. Fieldstone Apartments opened in December of 1999 and offers 240 one-, two-, and three-bedroom units.

The Growth Strategy element of the City of Mebane 2010 Land Development Plan identifies this area as a “Primary Growth Area.” It is planned for Neighborhood Residential and Urban Residential development. The Fieldstone community is within the City limits of Mebane and is zoned as a Planned Unit Development (PUD). This area is served by municipal water and sewer services.

West End. The West End community is a historically Black/African American neighborhood that has served as a residential, social, cultural, and religious center for several generations. According to research conducted by the Wills Duncan Group, Inc. (WDG) in 2004, the West End community has approximately 500 residents. Approximately 40 percent of the West End community is located within the Mebane City limits and the remaining 60 percent is within Mebane’s ETJ, as shown in Figure 3.3.

The West End community is bounded by the Mebane Wastewater Treatment Plant to the south, US 70 to the north (including all of James Walker Road, SR 1982 (St. Luke’s Church Road) and SR 1950 (Allen Baynes Road) on the north side of US 70), SR 2209 (Curry Street) on the west, and Madison Street to the east. West End is characterized by several dead-end streets.

The developed areas of the West End community include mostly single-family residential uses with scattered industrial and commercial uses located along US 70 and several churches. Most of the area is zoned as low and moderate density residential districts with business and industrial districts along US 70.

The City of Mebane 2010 Land Development Plan designates most of this area as “Neighborhood Residential” with a portion north of US 70 designated as “Conservation Rural.” The western portion of the West End community is in an “Adjacent Developed” growth strategy area, which targets the area for consideration for annexation and provision of City services in the next one to ten years. The eastern portion of the community is designated as part of the “Primary Growth Area,” indicating that suitable development sites will be given the highest level of encouragement including incentives for short-range development.

According to the City of Mebane Planning Department, Phases 1 and 2 of the planned extensions of municipal sewer services have been completed for the West End community.

Downtown Mebane. The City of Mebane can trace its beginnings to the early nineteenth century with the establishment of a post office in 1809. The town was named for Brigadier General Alexander Mebane of the North Carolina Militia, who was also a member of Congress in the 1790s.

Residential development in the area dates from the early 1850s when the North Carolina Railroad began laying tracks across the State from Goldsboro to Charlotte. The railroad acted as a magnet and people began moving to land adjacent to the tracks. Those early homes were the beginning of the town of Mebane. As the number of people grew, the town of Mebanesville was established and incorporated in 1881. In 1883, the name of the town was shortened to Mebane.

The City's industrial heritage began with the White Furniture Company (Hickory-White) in 1881 and continued with establishment of the Mebane Bedding Company (Kingsdown) in 1904 and the Ridgeville Telephone Company (Mebtel) in 1907. The current local economy is still dominated by the manufacturing industry. Several of Alamance County's largest manufacturers are located in the Mebane area.

According to the US Census 2000 data, the population of the City of Mebane was 7,284, an increase of nearly 54 percent from the 1990 population. Most of the growth can be attributed to the annexation of new residential development that occurred primarily between US 70 and I-85/40, as well as subdivision development to the north.

Downtown Mebane includes a commercial district surrounded by low to medium density, single-family residential areas. The town developed in a north-south linear orientation along existing NC 119. The areas in the vicinity of the NC 119 and I-85/40 interchange have experienced most of the industrial and commercial development within the project study area. Residential development, primarily in the form of single-family subdivisions, has also occurred in this area.

According to recent data available from the City of Mebane, approximately 26 percent of the land in Mebane's City limits was vacant or excess, while approximately 52 percent of the land area in the City's ETJ was vacant or excess. All of the undeveloped land north of US 70, comprising approximately a third of the total land in the ETJ, is subject to watershed development constraints and stream buffer requirements. Properties located along US 70 in the downtown area are mostly zoned business and industrial. Properties surrounding the downtown core are zoned primarily for moderate density residential development.

The City of Mebane 2010 Land Development Plan designates a "City Activity Center" (CAC) for the downtown Mebane area. The CAC is defined as a large-scale, mixed-use activity center, serving the entire community. The area is also a "Primary Growth Area," indicating that suitable development sites will be given the highest level of encouragement and incentives for short-range development. Overall, because there is a limited amount of vacant land within the downtown area, redevelopment is more likely than new development.

Woodlawn. The original Woodlawn community included lands south of SR 1917 (White Level Road), west of the Mebane City Limits and the areas along SR 1921 (Mebane Rogers Road). Although parcels near downtown Mebane have been annexed, a large, somewhat rural area retains the character of the old farming community. The majority of Woodlawn is outside of the Mebane City limits, but within the ETJ. In an effort to provide public education for its children, Woodlawn became an incorporated rural community around 1900. The charter has since lapsed. The name "Woodlawn" came from the woods that surrounded the original Woodlawn School building and the lawn in front of it. There are several historic sites within the Woodlawn area including Cates Farm

and the Woodlawn School, both of which are listed on the National Register of Historic Places (NRHP) as well as Tate Farm and Cooks Mill, which are listed as eligible for the NRHP.

The Woodlawn area is rural to semi-rural in nature with scattered lot-by-lot development, some agricultural uses, and open space. The eastern portion of the Woodlawn community is within the ETJ of the City of Mebane. According to the research conducted by WDG in 2004, the Woodlawn community has an approximate population of 1,050 residents. The area has experienced low to moderate growth in recent years. Recent development includes a church located southeast of the intersection of SR 1921 (Mebane Rogers Road) and SR 1951 (Woodlawn Road), and a few smaller subdivisions located along the extension of Forest Lake Drive.

While the City of Mebane 2010 Land Development Plan designates most of the Woodlawn area as “Conservation Residential,” most of the properties fronting on US 70 are designated for non-residential uses. The area is designated as a “Rural Conservation” growth strategy area, indicating little encouragement for development other than very low-density, single-family residences. “Open Space” is indicated along Forest Lake and streams. The area located north of Mill Creek, south of SR 1917 (White Level Road), and west of existing NC 119 is planned for Neighborhood Residential with a Traditional Neighborhood Development (TND) overlay district.

Located in the eastern portion of Woodlawn and south of Mill Creek, is the historic site known as Cates Farm. This area is designated as “Open Space” in the Mebane land use plan and in the growth strategy plan. The northern portion of the Cates Farm property fronting on NC 119 is designated a “Secondary Growth Area.” A “Conservation Corridor” is designated along Mill Creek and several tributaries. There is a large of undeveloped land or large tracts with single-family residential uses in this area.

The Woodlawn community lies within either the Critical Watershed overlay zoning district or the Balance of Watershed overlay district, which limit the density of development in order to protect the water quality of the Graham-Mebane Reservoir. Development constraints for much of this area include the restrictions from the water supply watershed protection ordinances, other zoning restrictions, and floodplain and steep slopes along tributaries. The Woodlawn community is not served by water and sewer services and properties would require annexation by the City of Mebane in order to connect to these services.

Mill Creek. The Mill Creek community is located north of downtown Mebane and east of existing NC 119 and consists of residential neighborhoods and a golf course. The total area included in the Mill Creek development is 655 acres with approximately 400 homesites. This development is about 50 percent built out. Water and sewer are available to all of the properties in the Mill Creek development. A shopping center including a grocery store and other services has recently been constructed in the southeast quadrant of the NC 119 intersection with SR 1996 (East Stagecoach Road).

A portion of the Mill Creek development is within the City limits of Mebane and is zoned as a PUD. All of the area is within the Balance of Watershed overlay district. Most of the Mill Creek area is shown on Mebane’s proposed land use plan as either a “Neighborhood Residential” area or a “Suburban Residential” area. The plan indicates a “Neighborhood Activity Center” in the Mill

Creek PUD, which is defined as a small, pedestrian-oriented, activity center with a mix of uses. A TND overlay is shown for the Mill Creek development.

The Mill Creek area is in Mebane's "Primary Growth Area," (with the exception of the two lots surrounded by City limits in the "Secondary Growth Area") and has experienced high growth in recent years. In addition, a "Conservation Corridor" is located along Mill Creek designating areas encouraged to remain as natural buffers along Mill Creek and several tributaries.

White Level. The White Level community is located on both the east and west sides of the existing NC 119 facility at the northern terminus of the project and includes portions of SR 1917 (White Level Road), SR 1918 (Mrs. White Lane), SR 2005 (Landi Lane), Blue Heron Trail, Heron Cove Lane, and Virginia Pines Lane. The White Level community is outside of the Mebane City limits, but within the ETJ. According to the research conducted by WDG in 2004, the White Level community has a primarily Black/African American population with 144 residents.

This community is in the northern area of Mebane's ETJ and has semi-rural land uses with scattered single-family residences, agricultural uses, and open space. Non-residential uses include a gas station and a church close to the existing NC 119/SR 1917 (White Level Road) intersection. There is an historic site (eligible for the NRHP), referred to as House "K", located along existing NC 119 north of SR 2005 (Landi Lane).

The City of Mebane 2010 Land Development Plan designates most of the White Level area as "Conservation Residential," defined as very low-density single-family residential uses intended to accommodate existing residential uses and limit new low-density residential uses and encourage cluster development.

The area is not served by municipal water and sewer service. Properties would require annexation by the City of Mebane in order to be connected to these City services. The growth strategy designation for most of this area is "Rural Conservation," which reflects the City's desire to discourage development other than very low-density, rural uses. The area is within the Critical Watershed overlay district and, as such, growth has been slow.

3.1.1.3 Housing Units

Housing characteristics provide insight into the availability and type of replacement housing. Table 3.2 shows that the majority of available housing units within the demographic study area are occupied with an occupancy rate of 91 percent as compared to 93 percent occupancy rate for Alamance County and 89 percent for the State. Census Block Group 212.03-1 (Figure 3.2) has a housing vacancy of 11 percent, the highest within the study area, and block group 212.03-4 has the lowest housing vacancy of 3 percent.

**Table 3.2
Housing – Occupied vs. Vacant**

Census Area	Occupied	Vacant	Total
212.03-1	1,453	184	1,637
212.03-2	519	17	536
212.03-3	235	17	252
212.03-4	335	11	346
212.03-5	674	89	763
213.00-2	790	72	862
Demographic Study Area	4,006	390	4,396
Alamance County	51,584	3,879	55,463
North Carolina	3,132,013	391,931	3,523,944

Source: US Census Bureau, 2000

Table 3.3 indicates that the majority of occupied housing within the study area is owner-occupied (69 percent), which is similar to the county and state percentages. Census Block Group 212.03-5 has the lowest owner-occupied rate of 40 percent and Block Group 213.00-2 has the highest owner-occupied rate of 89 percent, with rental property comprising the remaining percent of occupied housing.

**Table 3.3
Housing – Owner Occupied vs. Renter Occupied**

Census Area	Owner	Renter	Total
212.03-1	976	477	1,453
212.03-2	390	129	519
212.03-3	172	63	235
212.03-4	266	69	335
212.03-5	267	407	674
213.00-2	706	84	790
Demographic Study Area	2,777	1,229	4,006
Alamance County	36,176	15,408	51,584
North Carolina	2,172,270	959,743	3,132,013

Source: US Census Bureau, 2000

Tenure. Tenure provides an indication of the population’s mobility. For the demographic study area as a whole, the greatest share relative majority of residents, 30 percent, have lived in their homes between three and five years, which is consistent with the mobility characteristics of the county and state as shown in Table 3.4. Census Block Group 212.03-5 has the highest turn-over rate with 40 percent of households with less than two years of residence. Census Block Group 212.03-4 has the

longest tenure of residents with a combined percentage of 32 percent of the households living in their residence for more than 21 years; this is followed by Block Group 212.03-2, which has 31 percent of the households living in their residence more than 21 years.

**Table 3.4
Tenure by Year (Yr) Householder Moved into Unit**

Census Area	1-2 Yr	3-5 Yr	6-10 Yr	11-20 Yr	21-30 Yr	>30 Yr	Total
212.03-1	304	417	307	176	92	157	1,453
212.03-2	93	116	79	71	32	128	519
212.03-3	45	57	23	50	32	28	235
212.03-4	28	122	41	37	41	66	335
212.03-5	270	202	58	47	50	47	674
213.00-2	74	287	109	142	71	107	790
Demographic Study Area	814	1,201	617	523	318	533	4,006
Alamance County	10,012	14,106	7,302	7,756	4,861	7,547	51,584
North Carolina	652,745	910,690	479,481	458,864	303,106	327,127	3,132,013

Source: US Census Bureau, 2000

3.1.1.4 Community Facilities and Services

Field surveys and interviews with local government officials and residents were conducted to identify community facilities within the project area. Community facilities include City government, schools, parks and recreation facilities, religious institutions, historic sites, and public safety organizations. The community facilities located within and in proximity to the Detailed Study Alternatives are shown in Figure 3.4. Most of the community facilities are located near Mebane, outside the Detailed Study Alternatives boundaries. However, the following three churches are located within the project study area: St. Luke’s Christian Church, Johnson Chapel African Methodist Episcopal (A.M.E.) Church, and White Level Primitive Baptist Church.

Mebane City Government. Mebane has a City Council form of government, with a City Manager. The City has a Planning Board to guide growth and has adopted a Zoning Ordinance and Subdivision Regulations that cover the City limits and the one-mile ETJ. The administrative offices of the City, as well as the Mebane Public Library, Building Inspections, Planning and Zoning, Police Department, Public Works and Utilities, and the Tax Department are located in the Municipal Building at 106 E. Washington Street.

Public Schools. There are two elementary schools, a middle school, and a high school within the project area (Figure 3.4). E. M. Yoder Elementary (located at Clay and Charles Street) and South Mebane Elementary (located on SR 1962 (Third Street Extension)) house the Kindergarten-5th grade students and are located outside the Detailed Study Alternatives boundaries. Woodlawn Middle School and Eastern Alamance High School serve grades 6-12 and are located west of the City on SR 1921 (Mebane Rogers Road), outside the Detailed Study Alternatives boundaries.

Public Parks/Recreation Facilities. The Mebane Parks and Recreation administrative staff is housed in the Mebane Arts & Community Center located west of downtown Mebane on SR 1997 (Corridor Road). The 31,000-square foot facility is equipped with two basketball courts, a stage, large conference rooms with kitchen facilities, and four baseball/softball fields, two of which are all-purpose fields.

Within the project area, the Mebane Parks and Recreation Department is also responsible for public tennis courts (located between Second and Third Streets and Lee and Jackson Streets) and other public ball fields (located between First and Second Streets and McKinley and Lee Streets).

Religious Institutions. There are numerous places of worship within and in proximity to the Detailed Study Alternatives including Baptist, Presbyterian, A.M.E., Gospel, Jehovah's Witnesses, Holiness, and non-denominational faiths. Three churches are located within the Detailed Study Alternatives boundaries. St. Luke's Christian Church is located along US 70 at its intersection with James Walker Road; Johnson Chapel A.M.E. Church is located along SR 1951 (Woodlawn Road); and White Level Primitive Baptist Church is located along SR 1917 (White Level Road) at its intersection with NC 119. There are no cemeteries located within the project study area.

Public Safety. The Mebane Police Department includes the Administration, Patrol, Investigations, Drug Abuse Resistance Education (D.A.R.E.), and Animal Control units. The office of the Police Department is located in the main Municipal Building at 106 E. Washington Street, outside of the Detailed Study Alternatives boundaries.

The Mebane Fire Department operates a north-side station located at 405 N. First Street and a south-side station located at 101-103 W. Washington Street. Both stations are equipped with fire vehicles and equipment and respond to all calls. Professional staff operates the newly constructed north station, which is staffed 24 hours a day, 7 days a week. The north-side station also has a rescue vehicle, an emergency medical vehicle, and a county paid paramedic vehicle.

Health Services. The Alamance Regional Medical Center is the only hospital in Alamance County and is located in the City of Burlington approximately 12 miles west of Mebane.

3.1.2 Future Land Use Planning

3.1.2.1 City of Mebane

The City of Mebane 2010 Land Development Plan (City of Mebane, 2001) includes the following vision for future land development in Mebane:

Over the next ten years, we envision land development in our community will lead to a strong, diverse economy and a high quality of life for all our citizens. Individual pieces of the "land development puzzle" will fit together to promote a quality environment, to preserve the assets and resources we value most, to stimulate development in the most appropriate places, and to enhance and maintain the beauty and livability of our community.

Plans for development in the Mebane area anticipate that the proposed project will be constructed. The 2010 Land Development Plan identifies the proposed project as a high-priority roadway improvement and includes the general alignment of the proposed facility on the City's Proposed Land Use and Growth Strategy and Transportation System maps. The proposed project has been a component of the long-range planning initiatives of the City of Mebane and Alamance County for many years and is consistent with both local and regional plans for the area.

The future land use designations are generally consistent with the existing land uses in the project study area. The North Carolina Industrial Center (NCIC), which covers the area west of the proposed NC 119 from the I-85/40 interchange to US 70, is projected to transition into Industrial use. Neighborhood Residential uses are projected east of the proposed roadway. Conservation Residential uses are projected for the area north of US 70, which is currently zoned as Single Family Residential. The proposed land uses for the Mebane area are included in Appendix A.

The Land Development Plan also includes a Growth Strategy map, which is included in Appendix A. The map indicates the level of support and encouragement the City is likely to offer to land development proposals within specific areas. Growth areas definitions are described in Table 3.5 below.

The Land Development Plan concludes that Mebane's supply of land "appears adequate to meet its needs for land development over the next ten years." According to the Plan, just over a third (37 percent) of the vacant or under-utilized land in Mebane's planning jurisdiction is subject to watershed development constraints and stream buffer requirements. However, the remaining vacant and excess land contains relatively few development constraints. The proposed land use map is used as a guideline by the City to evaluate development proposals and determine appropriate zoning classifications. Proposed NC 119 is shown on all proposed land use maps of the Mebane area as a dashed line.

**Table 3.5
Mebane Growth Strategy**

Growth Area	Description
Primary Growth Area	Areas with prime access to existing city infrastructure and urban services and within existing City limits. Suitable development sites within these areas should be given the highest level of encouragement and incentives for short-range development over the next 1 to 5 years.
Secondary Growth Area	Areas with access to an existing city gravity sewer interceptor, an existing pump station and sewer force main, and/or an existing or potential future thoroughfare, and outside of, but adjacent to existing City limits. Suitable development sites within these areas should be given a moderately high level of encouragement and incentives for mid-range development over the next 5 to 10 years.
Economic Development Area	Areas with prime access to a major thoroughfare and/or highway interchange, with high potential for economic development expansion, but in need of new or expanded public infrastructure investment. High level of encouragement and incentives for short- to mid-range development over the next 1 to 10 years.
Long-Range Growth Area	Areas with moderate potential for expansion of existing sewer services using pump stations and force mains, and/or with moderate access to an existing or potential future thoroughfare, and outside of existing City limits. Low level of encouragement

Growth Area	Description
	for development over the next 1 to 10 years, moderate level of encouragement over the next 10 to 20 years.
Adjacent Developed Area	Areas with a high level of existing urban development outside of, but adjacent to existing City limits. Careful consideration for annexation and full provision of urban services over the next 1 to 10 years.
Rural Conservation Area	Areas with a low level of existing urban development, with low potential for expansion of sewer services, and/or with low access to an existing or potential future thoroughfare, and in a rural setting outside of existing City limits and/or within the water supply watershed. Very high level of encouragement and incentives to remain in a natural state, and/or to be maintained in very low density, rural uses over the next 20 years.
Conservation Corridors	Areas throughout the study area, primarily along creeks, streams, and rivers, and within areas containing floodplains, steep slopes, and/or severe soil limitations. Very high level of encouragement and incentives to remain in a natural state, and/or to be maintained in very low-intensity, open space, recreational, or greenway uses in perpetuity. Locate new development outside these areas as much as possible.

Source: City of Mebane 2010 Land Development Plan, 2001

3.1.2.2 Alamance County

The Alamance County Destination 2020 Strategic Plan was adopted in 2003 and includes policies and identifies key issues to “guide the future growth and development of the county and to help set priorities for county government in responding to the needs of future growth.” The growth and development related policies expressed in the plan indicate that the county values economic development balanced with environmental protection and the rights of individual property owners. The county prefers cluster-type residential development that includes open space to traditional large lot subdivisions. To achieve the preferred development pattern, new development would be directed toward municipalities, as well as in new compact urban enclaves. This development should be directed away from farmlands, wetlands, and sensitive environmental areas such as protected watershed areas. To support this development pattern, the water and sewer service policy endorses municipal extensions which focus these services within their targeted growth areas, where land is well-suited for development, and which steer development away from environmentally sensitive areas such as water supply watersheds (Alamance County, 2003).

As is the nature of a strategic plan, the Alamance County Destination 2020 Strategic Plan offers policies but does not map future land use.

3.1.3 Demographic and Economic Characteristics

3.1.3.1 Population Characteristics

Since 1950, Alamance County has experienced a 101 percent increase in its population. The fastest growth occurred between 1950 and 1960 and between 1990 and 2000. From 1950 to 1960 the County’s population grew from 71,220 to 85,674 (20.3 percent increase) and from 1990 to 2000 the County’s population grew from 108,213 to 130,800 (20.9 percent increase). As of July 2007, the NC Office of State Budget and Management estimated the population of Alamance County at 143,154 persons.

Of the 100 counties in North Carolina, Alamance County has the 18th highest total population. Projections for 2000 to 2010 show Alamance County's population increasing by 13.3 percent to reach a population of 148,192. North Carolina's population is expected to increase by 18.1 percent between 2000 and 2010 to reach a population of 9,502,904 (North Carolina – Office of State Budget and Management, 2008).

At the local level, Census Tract 212.03 had a total of 9,498 persons (7.3 percent of Alamance County's population) and Census Tract 213.00 had a total of 5,103 persons (3.9 percent of Alamance County's population) in 2000. There were 9,919 residents within the six Census Block Groups that comprise the demographic study area. The distribution of these residents by Census Block Group is summarized in Table 3.6. The population of the City of Mebane is approximately 9,187 residents (North Carolina – Office of State Budget and Management, 2008). Based on the population distribution at the Census Block Group level, a majority of citizens within the project area reside west of the central business district of Mebane (212.03-1) and north of Mill Creek (213.00-2). Census Block Group 212.03-3, located in the downtown area of Mebane, is the smallest block group and has the smallest residential population within the demographic study area.

Table 3.6
Population – Racial/Ethnic Composition

Census Area	Total Pop.	White	Black/ Afr. Amer.	AIAN*	Asian	NHPI*	Other race	Two or more races	Total Min. Pop.	% Min. Pop.	Hispanic or Latino (any race)	% Hispanic
212.03-1	3,662	2,636	903	7	37	0	24	55	1,026	28%	87	2%
212.03-2	1,245	1,133	72	2	3	1	20	14	112	9%	32	3%
212.03-3	571	494	57	3	0	0	12	5	77	13%	36	6%
212.03-4	908	561	272	1	4	0	63	7	347	38%	102	11%
212.03-5	1,450	1,157	241	4	3	0	18	27	293	20%	34	2%
213.00-2	2,083	1,378	657	6	1	0	16	25	705	34%	44	2%
Demographic Study Area	9,919	7,359	2,202	23	48	1	153	23	2,450	25%	335	3%
Demographic Study Area Percent		74%	22%	.002%	.005%	-	.015%	.002%	-	25%	-	3%
Alamance County	130,800	98,900	24,544	462	1,172	28	4,177	1517	31,900	24%	8,835	7%
North Carolina	8,049,313	5,804,656	1,737,545	99,551	113,689	3,983	186,629	103,260	2,244,657	28%	378,963	5%

Notes: * AIAN - American Indian and Alaska Native
NHPI - Native Hawaiian and Other Pacific Islander

Source: US Census Bureau, 2000

Racial and Ethnic Distribution and Trends

The racial and ethnic composition of the demographic study area was examined in order to identify the presence or absence of minority populations in the vicinity of the project. In the 2000 Census, non-white racial categories include Black or African American, American Indian or Alaska Native, Asian, Native Hawaiian, and other Pacific Islander, some other race, or two or more races. Hispanics or Latinos may be of any race. The racial make-up of the State is approximately 72 percent white and 28 percent minority population. The ratio of white to minority populations for

Alamance County is similar to that for the State with a white population of 76 percent and a minority population of 24 percent. Alamance County has a seven percent Hispanic population; the State has a five percent Hispanic population.

Table 3.6 also shows the racial/ethnic composition of each Census Block Group within the demographic study area, Alamance County, and North Carolina. The white population within the entire demographic study area is 74 percent, which is similar to Alamance County and State percentages. Census Block Group 212.03-4 has the largest percentage of minority population (38 percent), of which 78 percent is Black/African American, as well as the largest Hispanic population of 11 percent. Census Block Group 213.00-2, north of Mill Creek, has the second largest minority population (34 percent), of which 93 percent is Black/African American. Census Block Group 212.03-2 has the largest white population (91 percent) within the demographic study area.

Education

As shown in Table 3.7, 80 percent of the adults within the demographic study area are high school graduates, which is slightly higher than the county or state levels. The percentage completing some college (29 percent) or a Bachelors degree and beyond (24 percent) are also higher than the county and State percentages.

**Table 3.7
Education**

Census Area	Non-High School Graduate	High School Graduate	Some College/ Associate Degree	Bachelors Degree or Beyond	Total
212.03-1	385	599	711	700	2,395
212.03-2	187	231	291	125	834
212.03-3	147	107	49	120	423
212.03-4	213	178	180	97	668
212.03-5	124	250	367	230	971
213.00-2	280	494	367	382	1,523
Demographic Study Area	1,336	1,859	1,965	1,654	6,814
Alamance County	20,316	27,020	22,670	16,629	86,635
North Carolina	1,154,724	1,502,978	1,438,579	1,186,713	5,282,994

Source: US Census Bureau, 2000

Census Block Groups 212.03-3 and 212.03-4 have the highest percentages (35 percent and 32 percent) of non-high school graduates within the demographic study area. Census Block Group 212.03-5 has the lowest percentage of non-high school graduates (13 percent) and the highest combined percentage of adults completing some college or a Bachelors degree or beyond (62 percent).

3.1.3.2 Economic Characteristics

The term “labor force” refers to all persons who are of working age, including both employed and unemployed persons. The North Carolina Employment Security Commission reports that Alamance County had an annual average labor force of 69,503 people during 2007 (NC Employment Security Commission, 2008). Of the annual average labor force, 3,518 people (5.1 percent) were unemployed

indicating Alamance County had a slightly higher unemployment rate than the State average (4.7 percent).

The US Census Bureau has established an employment classification system that includes the following sectors: agriculture; construction; finance, insurance, and real estate; government; manufacturing; other services; wholesale trade; retail trade; and transportation, communications, and public utilities.

Table 3.8 shows the number and percentage of sector employment for residents of the Census Block Groups in the demographic study area, Alamance County, and the State. The manufacturing and government sectors employ the greatest number of persons in the demographic study area with 23 percent of the workforce in each of these sectors. This is similar to the employment characteristics of the State; however, Alamance County has a somewhat higher percentage (28 percent) in the manufacturing sector. Of the 10 largest manufacturing businesses in Alamance County, five are located in the Mebane area; of the 10 largest non-manufacturing employers in Alamance County, one is located in the Mebane area.

**Table 3.8
Employment by Sector**

Census Area	Agri- culture	Const.	Finance, Ins and Real Estate	Gov't.	Mfg.	Other Services	Retail Trade	Transp Info and Utilities	Whsle.	Total Employed
212.03-1	7	119	316	548	388	155	179	132	68	1,912
212.03-2	4	55	30	179	185	54	67	48	14	636
212.03-3	0	0	35	48	58	8	13	0	36	198
212.03-4	8	8	99	52	118	78	37	18	29	447
212.03-5	0	59	97	113	137	86	157	53	26	728
213.00-2	6	76	147	203	256	90	127	92	19	1,016
Demographic Study Area	25	317	724	1143	1142	471	580	343	192	4,937
Alamance County	563	4,641	7,303	14,304	18,020	7,035	7,057	3,672	2,300	64,895
North Carolina	61,185	312,038	527,297	889,069	755,252	442,493	439,868	266,209	131,330	3,824,74

Source: US Census Bureau, 2000

The third largest employment sector in the demographic study area is the finance, insurance, and real estate industry with a 15 percent share of the employment. The industry sectors with the lowest percentages of workforce are the sectors of agriculture, wholesale trade, and construction.

Tourism in Alamance County generated an economic impact of \$140.84 million in 2007, a 7.24 percent increase from the year 2006 (NC Department of Commerce, 2008). Based on North Carolina Department of Commerce data, Alamance County ranked 25th in travel impact among North Carolina's 100 counties in 2007.

Census Block Group 212.03-2 and 212.03-3 have the highest percentage of the workforce in the manufacturing sector (29 percent each) and Census Block Groups 212.03-1 and 212.03-2 have the highest percentage of workers in the government sector (29 and 28 percent).

3.1.3.3 Household Income and Poverty Level

Table 3.9 presents data for household incomes in the demographic study area, based on data from the 2000 Census. The table shows the 1999 household incomes for each of the Census Block Groups within the demographic study area as well as for Alamance County and the State. Within the demographic study area, the percentage of households within each of the income levels is similar to the County and the State, with the exception of the income levels greater than \$50,000 per year. The percentage of the population in the demographic study area with incomes greater than \$50,000 per year is higher than the averages for the County or State. The two largest annual income groups within the demographic study area are the households with annual earnings of \$50,000 to \$90,000 (33 percent) and the households with annual earnings of less than \$20,000 (24 percent).

Census Block Group 212.03-3, which is located within the central business district of Mebane, and Census Block Group 212.03-5, located southwest of downtown Mebane and along the I-85/40 corridor, have the highest percentage of households (30 to 31 percent) with annual incomes less than \$20,000. Census Block Group 213.00-2 has the highest income levels for the demographic study area and 51 percent of the households have an annual income greater than \$50,000.

Table 3.9 also indicates the household median incomes for each of the Census Block Groups and the County and State. Most households in the demographic study area have median incomes equal or greater than the County and State. However, Census Block Groups 212.03-5 (\$37,070) and 212.03-2 (\$38,060) have slightly lower median incomes than those of Alamance County (\$39,164) and the State (\$39,184).

Table 3.9
Annual Household Income
(in thousand dollars)

Census Area	< 20	20 - 29,999	30 - 39,999	40 - 49,999	50 - 99,999	> 100	Total Households	HH Median
212.03-1	414	185	158	160	450	138	1505	\$39,750
212.03-2	115	56	121	60	152	35	539	\$38,060
212.03-3	65	8	35	14	71	14	207	\$39,375
212.03-4	61	46	37	83	104	21	352	\$42,875
212.03-5	206	97	54	56	256	12	681	\$37,070
213.00-2	138	119	74	75	312	107	825	\$52,644
Demographic Study Area	999	511	479	448	1,345	327	4,109	N/A
Alamance County	11827	7676	6882	6225	15267	3845	51722	\$39,168
North Carolina	739085	443665	412665	355195	887797	294875	3133282	\$39,184

Note: N/A denotes not available
Source: US Census Bureau, 2000

Table 3.10 shows the number of persons below the poverty level in the demographic study area, relative to the 1999 poverty thresholds. The 2000 poverty rates are based on 1999 thresholds according to the US Census Bureau. The US Census Bureau uses a set of money income thresholds that vary by family size and composition to determine who is in poverty, i.e., official poverty thresholds. For example, the 1999 poverty level threshold established by the federal government was an annual income of \$17,029 for a four-member household. For the most recent year for which poverty data are available, the average poverty threshold for a four-member household was an

annual income of \$21,203 (US Census Bureau, 2007). For the demographic study area as a whole, approximately 11 percent of the population is below the 1999 federal poverty level, which is similar to county and state levels. Census Block Group 212.03-3 has the highest percentage of population (29 percent) below the 1999 federal poverty level. Most of the remaining block groups in the demographic study area have 13 percent or less of the population living below the 1999 federal poverty level.

**Table 3.10
Poverty Level**

Census Area	Persons or Population Below Poverty Level*	Persons or Population Above Poverty Level*	Totals
212.03-1	477	3,178	3,655
212.03-2	81	1,163	1,244
212.03-3	171	410	581
212.03-4	59	859	918
212.03-5	139	1,290	1,429
213.00-2	150	1,934	2,084
Demographic Study Area	1,077	8,834	9,911
Alamance County	14,183	113,185	127,368
North Carolina	958,667	6,846,661	7,805,328

Note: * Based on 1999 poverty thresholds by percent of population
Source: US Census Bureau, 2000

3.1.3.4 Age Characteristics

Age distribution provides insight into the available work force, which is an indicator of population trends and employee availability. In addition, the absence of individuals of prime working ages can reflect the availability of jobs. Table 3.11 shows the age distributions for the demographic study area, Alamance County, and North Carolina populations. As indicated by the table, the largest population age groups for the entire demographic study area as well as Alamance County and the State are the under the age of 18 group and the 30-45 years of age group. Census Block Group 212.03-1 has a slightly higher percentage (28 percent) of its population under the age of 18 than the other Census Block Groups in the demographic study area. Census Block Group 212.03-3 has a slightly higher percentage (30 percent) of its population within the 30-45 years of age group than the other Census Block Groups in the demographic study area.

**Table 3.11
Age Distribution**

Census Area	Under 18	18 - 29	30 - 44	45 - 59	60 - 69	> 70	Total
212.03-1	1,018	574	995	641	211	223	3,662
212.03-2	296	161	263	216	143	166	1,245
212.03-3	146	71	171	107	29	47	571
212.03-4	210	120	226	165	82	105	908
212.03-5	369	312	348	203	126	92	1,450
213.00-2	510	222	564	429	189	169	2,083

Census Area	Under 18	18 - 29	30 - 44	45 - 59	60 - 69	> 70	Total
Demographic Study Area	2,549	1,460	2,567	1,761	780	802	9,919
Alamance County	31,154	21,976	30,055	23,844	10,321	13,450	130,800
North Carolina	1,964,047	1,408,343	1,899,013	1,485,357	606,341	686,212	8,049,313

Source: US Census Bureau, 2000

3.1.4 Infrastructure and Utilities

3.1.4.1 Electrical Power Transmission

The project study area contains two major electrical transmission line easements maintained by Duke Power, consisting of multiple large-scale transmission towers. One easement is located near the north end of the North Carolina Industrial Center (NCIC) property and traverses in an east-west direction across the project study area, crossing SR 1997 (Corrigidor Road) and SR 1972 (Smith Drive). The other easement is located south of SR 1917 (White Level Road) and also traverses in an east-west direction across the project study area. These easements cross all three Detailed Study Alternatives.

3.1.4.2 Water and Sewer Facilities

The City of Mebane provides water and sewage treatment for homes and businesses located within the City limits, including the commercial development at the I-85/40 interchange with NC 119, the communities of West End, Fieldstone, and Mill Creek, and the NCIC.

The Graham-Mebane Lake Water Treatment Plant, located west of the project study area, has a capacity of 12 million gallons per day (MGD) (City of Graham, 2009). According to the 2010 Land Development Plan for the City of Mebane, the City's existing water supply and treatment plant should be adequate to accommodate a moderate amount of growth over the next 10 years.

The City of Mebane Wastewater Treatment Plant, located within the project study area on SR 1997 (Corrigidor Road), is designed to handle 2.5 MGD of wastewater at the following concentrations:

- Biochemical Oxygen Demand (BOD) - 250 milligrams per liter (mg/l)
- Total Suspended Solids (TSS) - 250 mg/l
- Ammonia-Nitrogen (NH₃-N) - 25 mg/l
- Phosphorus (P) - 7.0 mg/l

The City applies its treated sludge (biosolids) to farmland for use as a soil conditioner. This biosolid recycling is regulated under 40 CFR Part 503, Standards for the Use or Disposal of Sewage Sludge (City of Mebane, 2008a).

3.1.4.3 Natural Gas

Piedmont Natural Gas Company and Public Service Company of North Carolina (PSNC) are the two suppliers and distributors for Alamance County, with PSNC serving the Mebane area. Portions of the project study area contain natural gas service lines.

3.1.4.4 Fiber Optic Cable

The project study area contains one fiber optic line easement maintained by Bellsouth. This easement is located north of SR 1921 (Mebane Rogers Road) and traverses in an east-west direction across the project study area, crossing SR 1921 (Mebane Rogers Road) to the west and Lebanon Road to the east. The easement crosses all three Detailed Study Alternatives.

3.1.4.5 North Carolina Railroad

The North Carolina Railroad (NCRR) owns and operates a mainline freight and passenger railroad that parallels US 70 through the project study area. NCRR leases the trackage rights to Norfolk Southern Railway for freight service. Currently, Amtrak operates two roundtrip passenger trains a day through the project study area (four trains total), the Carolinian and the Piedmont. The Carolinian provides daily passenger rail service between Charlotte, NC, and New York, NY, while the Piedmont provides daily passenger rail service between Charlotte and Raleigh. Two additional passenger trains will be added in the fall of 2009, bringing the total passenger trains to 6 per day. The remaining existing trains are freight and utilize the rail corridor in the Mebane area (NCDOT Rail Division, 2009a). From October 2007 through April 2008, ridership on the Carolinian and Piedmont increased more than 22 percent (197,126 total travelers). Based on this increase in passenger demand, a third train was purchased to serve the Charlotte to Raleigh corridor (State of North Carolina Office of the Governor, 2008).

This portion of the NCRR corridor through Mebane has also been identified as part of the Southeast High Speed Rail (SEHSR) corridor, whose goal is to ultimately provide high speed passenger service between Atlanta, GA, and New York, NY.

3.1.5 Cultural Resources

Section 106 of the National Historic Preservation Act of 1966, as amended (36 CFR Part 800), requires the identification of all properties eligible and potentially eligible for listing in the NRHP. Districts, sites, buildings, structures, and objects associated with American history, architecture, archaeology, engineering, and culture are considered eligible for the NRHP if they possess integrity of location, design, setting, materials, workmanship, feeling, or association and meet one or more of the following criteria:

- Criterion A: Resources that are associated with events that have made a significant contribution to the broad pattern of our history
- Criterion B: Resources that are associated with the lives of persons significant in our past
- Criterion C: Resources that embody the distinctive characteristics of a type, period, or method of construction, or that represents the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction
- Criterion D: Resources that have yielded or may be likely to yield information important in prehistory or history.

The following sections summarize the cultural resources identified within the project study area.

3.1.5.1 *Historic Architectural Resources*

In April 1995, *An Historic Architectural Resources Survey Report, Phase II (Abridged)* (NCDOT, 1995a) was completed for the NC 119 Relocation project to determine the Area of Potential Effects (APE) and to identify and evaluate all significant resources within the APE according to the NRHP criteria. This survey was based on the project alternatives being considered at the time and did not include all the areas covered by the Detailed Study Alternatives. The report identified 42 properties over fifty years of age in the APE, one of which was determined to be eligible for listing in the NRHP, while the other 41 were determined not eligible. The Paisley-Cates Farm was determined eligible for the NRHP under Criterion B for its association with Charles F. Cates (NCDOT, 1995a). The farm is located on the north side of SR 1921 (Mebane Rogers Road) between SR 1920 (Cooks Mill Road) and existing NC 119 (Fifth Street). Correspondence from the HPO regarding the Cates Farm is included in Appendix B.

In June 1995, *An Historic Architectural Resources Survey Report, Phase II (Abridged) Addendum* (NCDOT, 1995b) was completed that evaluated the Paisley-Cates Farm for NRHP eligibility under Criterion A (Agriculture). The report determined the importance of its dairy operation within the agricultural context of Alamance County, as developed for the property's period of significance (1905-1947). HPO agreed with the addendum result (NCDOT, 1995b), which indicated that the Paisley-Cates Farm was also eligible for the NRHP under Criterion A for agriculture as a small-scale diversified dairy farm. The property was listed on the NRHP in 2001, where it is referred to as the Charles F. and Howard Cates Farm. The listed boundary, which is a portion of the area determined eligible in the NCDOT studies, entails an approximate 100-acre tract containing the Cates House and associated outbuildings, along with enough land to retain historic and architectural integrity in an agricultural landscape. (A portion of the remainder of the original 278.25-acre tract has been developed for residential use.) Correspondence from the HPO regarding eligibility and historic boundary is included in Appendix B.

In August 1996, a second *An Historic Architectural Resources Survey Report, Phase II (Abridged) Addendum* (NCDOT, 1996a) was prepared that evaluated three additional areas, including the I-85/40 interchange area (area immediately south of the existing interchange), the West End community avoidance area, and the Paisley-Cates Farm avoidance area. These avoidance areas included expansion of the project study area westward in the vicinity of the West End community and the Paisley-Cates Farm to include alternatives that would avoid these areas. An intensive field survey was conducted to establish an APE boundary that included all properties located within and adjoining the new study areas. Thirteen properties were identified during the survey, eight of which were determined not eligible for the National Register and no further evaluation was required. The remaining five properties were evaluated and three were found to be eligible for the NRHP. Cook's Mill, located on the east side of SR 1920 (Cooks Mill Road), approximately 0.5 miles north of SR 1921 (Mebane Rogers Road), was determined eligible under Criterion A (Event) because it reflects the important role that grist mills played in the economic development of Alamance County from the eighteenth through the twentieth centuries. It is also eligible under Criterion C (Design/Construction) because it embodies the distinctive characteristics of mill construction. The Dr. W. N. Tate Farm, located on both sides of SR 1917 (White Level Road), approximately 0.2 miles west of existing NC 119, was determined eligible under Criterion A (Event) as an example of the family dairy and beef farms that played an important role in Alamance County's agricultural development in the late-nineteenth and early-twentieth centuries. The farm is also eligible under

Criterion C (Design/Construction) for its Eastlake-style farmhouse. House “K”, located along NC 119 north, approximately 0.75 miles north of SR 1917 (White Level Road), was determined eligible under Criterion C (Design/Construction) because it embodies the distinctive characteristics of log construction in Alamance County. The four properties listed on or eligible for the NRHP are shown in Figure 3.4. Correspondence from the HPO regarding eligibility and historic boundaries for these properties is included in Appendix B.

During 2007, NCDOT re-evaluated the historic architectural resources and confirmed HPO’s previous findings. Based on this re-evaluation, there are no new eligible or potentially eligible historic architectural resources within the APE for this project.

3.1.5.2 *Archaeological Resources*

Archaeological and historical background research was conducted for the proposed NC 119 Relocation to provide a general understanding of the potential archaeological resources within the Detailed Study Alternatives. This research consisted of consulting files at the Office of State Archaeology (OSA) for reports dealing with the immediate area of the proposed project.

The *Archaeological Survey, NC 119 Relocation, Alamance County, TIP U-3109* (NCDOT, 1994) was initially conducted in October 1994. Three prehistoric sites were discovered during a reconnaissance survey of portions of the project area. The results of the archaeological study indicated that severe erosion in much of the project area made it unlikely that any archaeological sites eligible for listing on the NRHP would be encountered. When one of the proposed corridors is selected, further investigation by the NCDOT will be recommended based on consultation with the OSA (NCDOT, 1994). In May 1996 and March 1997, an *Archaeological Survey, NC 119 Relocation, Alamance County, TIP U-3109* (NCDOT, 1996b & 1997) was conducted, which included an evaluation of the additional proposed study areas, such as the I-85/40 interchange area, West End community avoidance area, and the Cates Farm avoidance area. The survey of the newly proposed alternatives recorded two historic period sites. One of these sites, Cook’s Mill (31AM369**), was deemed eligible for listing on the NRHP under Criterion B, C, and D due to its association with Giles Mebane, its high level of integrity as shown in the number and variety of mill elements and mechanisms remaining which are representative of piedmont mills, and its ability to yield important information concerning the late nineteenth and early twentieth century milling industry in the piedmont. If avoidance of the site is not possible, further consultation with the HPO will be conducted to determine effects of the project upon the historic property. Mitigation, in the form of data recovery may be necessary. The second historic site lacked significance and did not warrant further investigation. Correspondence from the HPO regarding eligibility for these properties is included in Appendix B.

An *Addendum to the Archaeological Study, NC 119 Relocation from I-40/I-85 to north of SR 1917 (White Level Road), TIP No. U-3109* (NCDOT, 2000) was prepared in December 2000 and presented findings of an archaeological investigation of a new reported site and adjacent land that might be impacted by the project. However, no further investigation was warranted for this site since it was determined not to be eligible for the NRHP.

Once the three Detailed Study Alternatives (8, 9, and 10) were selected, NCDOT reviewed the previous archaeological work completed with the OSA on January 27, 2003. They concluded that the previous archaeological surveys covered the APE for the three alternatives considered and no

further archaeological work was expected for this project. However, a Phase I investigation of a newly reported site and adjacent land that may be impacted by one of the proposed alternatives was prepared in November 2004, *Phase I Investigation of 31AM392, Addendum to the Archaeological Study, NC 119 Relocation from I-40 to north of SR 1917 (White Level Road)* (NCDOT, 2004a). No further investigation was warranted for this site since it was determined not to be eligible for the NRHP.

An Archaeological Investigation of 19.4 Acres along Woodlawn Road (SR 1951) for the Proposed NC 119 Relocation in Alamance County, North Carolina, TIP U-3109 (Legacy Research Associates, 2009) was conducted in May 2009, which included an evaluation of the additional proposed study area along SR 1951 (Woodlawn Road). The survey in the vicinity of the realignment of SR 1951 (Woodlawn Road) recorded two archaeological sites. Based on the landform, the diversity of cultural material, and the integrity of one of these sites, 31AM394, it appears that this site has the potential to yield significant information about the prehistory of the area. This site dates to the Early Archaic period and is a possible lithic workshop that is situated on a western facing ridge toe. Based on the shovel tests, this site is recommended as being eligible for the NRHP and site avoidance is recommended. If avoidance of the site is not possible, then further archaeological work is recommended. Due to the heavily deflated nature of the second archaeological site, it is recommended as being not eligible for the NRHP. No additional work is recommended for the archaeological resources associated with the second site.

3.1.6 Visual Environment

The project study area contains a variety of visual environments ranging from undeveloped woodlands and farms to subdivisions and industrial areas. The general visual experience of someone traveling the existing NC 119 corridor is a shift from a rural context of farmlands and forests to a suburban environment around the I-85/40 interchange, eventually moving through the core area of a small, older downtown, before transitioning through suburban development to again reach a more rural setting.

The visual experience of someone traveling the proposed NC 119 corridor would start and end in much the same way but instead of passing through the core of a small town where highways become “main street,” the corridor would remain a suburban highway with views of newer development and open lands slated for redevelopment. The visual environment will shift from “town center” to “town outskirts.”

3.1.6.1 Areas Common to Detailed Study Alternatives

The proposed project begins at the existing interchange of I-85/40 with NC 119. Initially, the Detailed Study Alternatives utilize the existing NC 119 alignment toward the northeast. A group of industrial buildings and a shopping center are visible to the northwest, while a small shopping center, woodlands, and some single-family houses are located to the east and southeast.

The Detailed Study Alternatives then turn north on new alignment. The proposed project includes a realignment of SR 1962 (Third Street Extension) to the west with realigned Fifth Street to the east. Currently, commercial developments front SR 1962 (Third Street Extension) to the northwest and southeast of the Detailed Study Alternatives. These commercial buildings would have frontage along, and thus be visible from, the new corridor.

As the Detailed Study Alternatives extend north, the view to the west includes commercial development and woodlands. The view to the east is of woodlands and then the US Post Office facility. The realignment of SR 1962 (Third Street Extension), east of the proposed project would tie in with realigned Fifth Street, would serve as a new connector between the Detailed Study Alternatives and existing SR 1962 (Third Street Extension).

North of Realigned SR 1962 (Third Street Extension), the view to the west opens up onto what are currently agricultural fields and pastures that are associated with the NCIC. The view to the east is of the Fieldstone subdivision and woodlands. The view for residents of the Fieldstone subdivision to the west as they walk through the subdivision is currently a wooded area with a pond.

As the Detailed Study Alternatives intersect SR 1972 (Smith Drive), an electrical transmission tower easement crosses overhead running roughly east-west. The corridor alignment also shifts slightly to the northwest. The southern portion of SR 1972 (Smith Drive) is proposed for realignment to intersect with the Detailed Study Alternatives. The view to the west is fields that are anticipated to undergo industrial development, while the view to the east is of woodlands and some small, older houses scattered along SR 1972 (Smith Drive). Residents of the West End community currently have an undeveloped viewshed to the west of their homes.

A bridge is proposed to cross SR 1963 (Holt Street), the NCRRT tracks, and US 70. From the southern side of the bridge, the major views would be of the northern portion of the industrial park currently under development, railroad tracks and US 70 to the west, and of woodlands, isolated development along SR 1963 (Holt Street), railroad tracks, and US 70 to the east. From the northern side of the bridge, the major views would be of scattered houses and manufactured homes along SR 1949 (Edgewood Church Road) to the west, and the Craftique Furniture Company to the east. Residents of SR 1949 (Edgewood Church Road) currently have an undeveloped viewshed to the east of their homes.

The Detailed Study Alternatives then curve back to the northeast. Along the west side, the viewshed consists of a man-made farm pond, fields, and woodlands. To the east would be a proposed connector road traveling southeast to access US 70. This access road would connect to US 70 between the Craftique Furniture Company to the west and St. Luke's Christian Church along James Walker Road to the east. Residents of James Walker Road currently have a view of undeveloped lands.

From the US 70 connector road to the north, the predominant view on both sides of the Detailed Study Alternatives is of woodlands, with scattered residential development. At this point, three alternatives emerge as the study corridor moves north.

3.1.6.2 Areas Specific to Detailed Study Alternatives

Alternative 8 is the western-most corridor. This alternative would intersect SR 1921 (Mebane Rogers Road) at close to a right angle so no realignment of the crossing road is proposed. The initial view along both sides is of residential development fronting SR 1921 (Mebane Rogers Road). A small artificial pond may be visible to the west, depending on final alignment and grade. As Alternative 8 continues northward, the view is mainly of woodlands with some views of open fields and pastures. The viewshed becomes more open fields as the corridor extends to the north. The

corridor then curves to the east to rejoin existing NC 119 within a predominantly residential rural cluster development. Residents of the Woodlawn community, SR 1921 (Mebane Rogers Road), and the Cates Farm historic property currently have a view of undeveloped land, open fields, and pastures with scattered woodlands.

Alternative 9 is the middle corridor. In this alternative, SR 1921 (Mebane Rogers Road) would be realigned to the north slightly so the two roads would intersect almost perpendicular. The initial view along both sides is of residential development fronting SR 1921 (Mebane Rogers Road). As this alternative extends north, the view is a mix of woodlands, open fields, and pastures. This alternative would have an open view of the Cates Farm buildings. The viewshed becomes more open fields as the corridor extends to the north. The corridor then curves to the east to rejoin existing NC 119 within a predominantly residential rural cluster development. Residents of the Woodlawn community, SR 1921 (Mebane Rogers Road), and the Cates Farm historic property currently have a view of undeveloped land, open fields, and pastures with scattered woodlands.

Alternative 10 is the eastern-most corridor. In this alternative, SR 1921 (Mebane Rogers Road) would be realigned to the north so the two roads would intersect at close to a right angle. The initial view along both sides is of residential development fronting SR 1921 (Mebane Rogers Road). As this alternative extends north, the view is mainly of open fields and pastures with woodlands to the west. This alternative would have a close view of the Cates Farm buildings. The viewshed becomes more open fields as the corridor extends north. The corridor then curves to the northeast to rejoin existing NC 119 within a predominantly residential rural cluster development. Residents of the Woodlawn community, SR 1921 (Mebane Rogers Road), and the Cates Farm historic property currently have a view of undeveloped land, open fields, and pastures with scattered woodlands.

All three alternatives include a realignment of SR 1951 (Woodlawn Road) to tie into proposed NC 119 south of where existing SR 1951 (Woodlawn Road) would intersect the proposed roadway. The road would pass through open fields adjacent to the tree line to intersect with the proposed roadway. Residential development would be slightly visible to the north of this intersection as well as south along existing SR 1951 (Woodlawn Road).

All three alternatives include a realignment of existing NC 119 near the end project terminus that would connect existing NC 119 south towards town with the proposed roadway and north to provide access to existing subdivisions. The road would pass through open fields adjacent to the tree line to intersect with existing NC 119. Residential development would be slightly visible to the north of this intersection as well as south along existing NC 119.

Also part of this project is the connection of SR 1997 (Corrigidor Road) with SR 1973 (Tate Avenue) and SR 1970 (Roosevelt Street). SR 1997 (Corrigidor Road) extends north from SR 1962 (Third Street Extension) past the Mebane Arts and Community Center on the west and newly created, City-owned playfields to the east. The project would shift SR 1997 (Corrigidor Road) along new alignment to extend east of the City of Mebane WWTP and City of Mebane Maintenance Yard and connect with SR 1973 (Tate Avenue). SR 1973 (Tate Avenue) currently dead-ends at the maintenance yard. An extension of SR 1970 (Roosevelt Street) would intersect SR 1973 (Tate Avenue) from the east. This area currently consists mainly of undeveloped woodlands.

3.2 PHYSICAL ENVIRONMENT CHARACTERISTICS

This section describes the following aspects of the existing physical environment: air quality, noise, hazardous waste sites, climate and topography, geology and mineral resources, soils, farmland, water resources, and floodways and floodplains.

3.2.1 Air Quality

An *Air Quality Analysis for NC 119 Relocation* was prepared for the proposed project (NCDOT, 2004b) and is appended by reference.

Air pollution originates from a variety of sources (fire, industrial activity, and solid waste disposal), engine combustion is the most prevalent source. The impact resulting from highway construction ranges from intensifying existing air pollution problems to improving the ambient air quality. Changing traffic patterns are a primary concern when determining the impact of a new highway facility or the improvement of an existing highway facility. Motor vehicles emit carbon monoxide (CO), nitrogen oxide (NO), hydrocarbons (HC), particulate matter, sulfur dioxide (SO₂), and lead (Pb) (listed in order of decreasing emission rate). Of particular concern for transportation projects are hydrocarbons, which are one of the parent pollutants to ozone (O₃), and CO, which is the major pollutant from engine combustion and one that can cause headaches and dizziness in high concentrations. Automobiles are considered to be the major source of CO in the project study area.

Air quality is defined according to criteria established by the US Environmental Protection Agency (USEPA). Under the Clean Air Act (CAA), these criteria, designated as the National Ambient Air Quality Standards (NAAQS), have been established for six air pollutants: CO, Pb, nitrogen dioxide (NO₂), SO₂, particulate matter (PM₁₀), and O₃. The NAAQS for these pollutants are presented in Table 3.12. They represent levels of air pollutants and exposure periods that, according to the USEPA, pose no significant threat to human health or welfare. North Carolina has also adopted these air quality standards.

In 1997, USEPA proposed new standards for O₃ and particulate matter. As shown in Table 3.12, the new O₃ standard is an 8-hour standard of 0.08 parts per million (ppm) and the new particulate matter standard is for particulates less than 2.5 micrometers in diameter for an annual average and a 24-hour average. For several years, USEPA could not enforce these standards due to court proceedings. However, in February 2001, the US Supreme Court decided that USEPA can enforce the new ozone and particulate matter (PM_{2.5}) standards, overturning a 1999 federal court ruling blocking implementation.

**Table 3.12
National Ambient Air Quality Standards**

Pollutant	Averaging Time	Standard	Standard Type
Carbon Monoxide (CO)	8-hour Average	9 ppm	Primary
	1-hour Average	35 ppm	Primary
Nitrogen Dioxide (NO₂)	Annual Arithmetic Mean	0.053 ppm	Primary and Secondary
Ozone (O₃)	1-hour Average	0.12 ppm	Primary and Secondary
	8-hour Average	0.08 ppm	Primary and Secondary
Lead (Pb)	Quarterly Average	1.5 µg/m ³	Primary and Secondary
Particulate < 10 micrometers (PM₁₀)	Annual Arithmetic Mean	50 µg/m ³	Primary and Secondary
	24-hour Average	150 µg/m ³	Primary and Secondary
Particulate < 2.5 micrometers (PM_{2.5})	Annual Arithmetic Mean	15 µg/m ³	Primary and Secondary
	24-hour Average	35 µg/m ³	Primary and Secondary
Sulfur Dioxide (SO₂)	Annual Arithmetic Mean	0.03 ppm	Primary
	24-hour Average	0.14 ppm	Primary
	3-hour Average	0.50 ppm	Secondary

Notes: * µg/m³ = micrograms of pollutant per cubic meter of air
ppm = parts per million

Source: US Environmental Protection Agency Regulations on National Primary and Secondary Ambient Air Quality Standards, 40 CFR 50, as amended

The photochemical reactions with hydrocarbons forming O₃ cannot be accurately predicted on a project-level, micro-scale analysis. For this reason, O₃ modeling is completed regionally for urban areas and is not developed for specific transportation projects. However, the effects of transportation projects on local CO levels can be projected with computer-based dispersion modeling analysis. CO modeling for transportation projects is conducted as appropriate at differing levels of detail for environmental documents and is governed by 40 CFR Parts 51 and 93, USEPA's transportation conformity rule; 23 CFR Part 771, Environmental Impact and Related Procedures; and by the FHWA's Technical Advisory T6640.8A, *Guidance for Preparing and Processing Environmental and Section 4(f) Documents* (1987).

All areas within North Carolina are designated as either attainment, non-attainment, or unclassifiable with respect to each of the six pollutants under the NAAQS. Areas that have pollutant concentrations below the NAAQS are designated as attainment areas. Conversely, areas where the NAAQS are exceeded are designated as non-attainment areas. In non-attainment areas, a State Implementation Plan (SIP) is developed to bring the area into compliance with the NAAQS. Areas where available data are insufficient for classification are designated as unclassifiable.

The project is located in Alamance County, which has been determined to comply with the National Ambient Air Quality Standards. The proposed project is located in an attainment area; therefore, 40 CFR Parts 51 and 93 are not applicable. This project is not anticipated to create any adverse effects on the air quality of this attainment area.

3.2.2 Noise

A *Highway Traffic Noise/Construction Noise Analysis Report* for this project (NCDOT, 2004c) was updated based on NCDOT's 2004 Traffic Noise Policy (NCDOT, 2004d) and is appended by reference (Baker Engineering, 2006a).

3.2.2.1 Characteristics of Noise

Noise is defined as unwanted sound and it is usually described in decibels on the A-weighted scale (dBA). This scale most closely approximates the response characteristics of human hearing. Traffic noise levels are typically reported as an hourly equivalent sound level ($Leq_{(h)}$) in A-weighted decibels (dBA Leq). The $Leq_{(h)}$ descriptor is the constant sound level that contains the same acoustic energy as the actual fluctuating sound levels occurring over a one hour period. The $Leq_{(h)}$ is the descriptor used for the noise analysis in this document.

3.2.2.2 Existing Noise Levels

In order to evaluate possible noise impacts in the project study area, existing background noise levels were measured. Noise measurement sites were selected to represent sensitive land uses in communities within the project study area. Existing noise levels were determined using the FHWA Traffic Noise Model (TNM), version 2.1.

Ambient noise measurements were taken in the vicinity of the project to determine ambient (existing) noise levels for the identified land uses. This noise level information was used to quantify the existing acoustic environment and to provide a base for assessing the impact of noise level changes associated with the NC 119 project. The existing Leq noise levels in the project study area were measured at 50 feet from edge of pavement ranged from 58.3 dBA to 64.2 dBA. Background noise levels of 46.6 dBA and 44.0 dBA were taken for the project to be used in areas where traffic noise was not the predominant source. The ambient measurement locations are shown in Figure 3.5 and Table 3.13.

Table 3.13
Existing Noise Level Measurements

SITE	LOCATION	DESCRIPTION	LEVEL (dBA)
1	NC 119 at Cambridge Shopping Center	Paved	63.7
2	SR 1962 (Third St.) at Closed Business approximately 550 feet west of SR 1979	Paved	61.8
3	US 70 at Craftique Furniture approximately 200 feet east of SR 1949	Grassy	63.0
4	SR 1921 (Mebane Rogers Rd.) at SR 2032 (West Lake Trail)	Grassy	57.7
5	NC 119 at Mill Creek Golf Community	Grassy	64.2
6	SR 1952 (Woodlawn Rd.)	Modeled	58.3
7	SR 1980 (Holmes Rd.)	Modeled	61.0
BG 1	Left Rear Parking Lot of Fieldstone Apartments	Background Noise Level	46.6
BG 2	Fieldstone Subdivision at the End of Fieldstone Drive	Background Noise Level	44.0

The existing roadway and traffic conditions were used with the TNM model to calculate existing noise levels for comparison with the noise levels actually measured. The calculated existing noise level averages were within 1 dBA of the ambient noise level measurements. Based on this result, it was determined that the computer model is a reliable tool to predict noise levels in the project study area. Differences in dBA levels can be attributed to "bunching" of vehicles, low traffic volumes, and actual vehicle speeds versus the computer's "evenly-spaced" vehicles and single vehicular speed.

3.2.3 Hazardous Materials and Waste Sites

A field reconnaissance survey for hazardous materials and waste sites was conducted along existing roadways in the Detailed Study Alternatives by the NCDOT in February 1994 (NCDOT GeoEnvironmental Unit, 1994) and updated in July 1997 (NCDOT GeoEnvironmental Unit, 1997). Four potential sites were identified in the initial investigation and two additional sites were identified during the update. On July 1, 2003, the entire project area was again reviewed in the field to verify that there were no new sites that might contain hazardous materials (NCDOT GeoEnvironmental Unit, 2003). No additional sites were found. During a review of the Detailed Study Alternatives on October 19, 2006, the NCDOT GeoEnvironmental Unit indicated that the four parcels identified in February 1994 are now outside the Detailed Study Alternatives boundaries (NCDOT GeoEnvironmental Unit, 2006). Therefore, only the two sites identified in July 1997 are located within the proposed alignments. In addition to the field surveys, a file search of appropriate environmental agencies was conducted to identify any known sites along the proposed project alignments.

Based on the field reconnaissance survey, two facilities with the possibility for Underground Storage Tanks (USTs) were identified within the Detailed Study Alternatives. These sites are listed in Table 3.14 and shown in Figure 3.6.

**Table 3.14
Hazardous Materials Sites**

Site Name	Address
Southern States Crop Center	North Side of Holt Street
Craftique Furniture Company	1257 West Center Street (Highway 70)

Source: NCDOT GeoEnvironmental Unit, 1997 & 2006

In addition, one of these facilities is considered a small quantity generator of hazardous waste. While there was no obvious evidence of contamination at the Southern States Crop Center, given that the facility has operated at the site for such a long period, that so many USTs were utilized at the site, and that a railroad spur serviced the facility, there is the potential for contamination. The NC Division of Waste Management (NCDWM) registry lists four USTs as having been removed from Craftique Furniture Company site in 1989. NCDWM requested that work be performed in the region where the fuel oil UST was removed. This work indicated both soil and groundwater had been impacted. The NCDWM has been monitoring the area since 1991. No further information on contamination in the vicinity of the other USTs was located. Once right-of-way plans are complete, final investigations for hazardous materials/waste sites would be conducted according to those plans.

3.2.4 Climate and Topography

The climate of the project study area is mild, with freezing temperatures uncommon, and snowfall infrequent. High temperatures of around 100 Fahrenheit (°F) can occur between June and September. The average temperature for the City of Mebane in January is 39°F and the average July temperature is 78°F. The average rainfall is 46 inches (US Cities, 2008).

Topography within the project study area is gently sloping with some steeper areas occurring along drainageways. The project study area extends across three small ridges separated by the MoAdams and Mill Creek valleys. Elevations within the project study area range from a high of approximately 680 ft above Mean Sea Level (MSL) along an upland ridge where the existing NC 119 enters the southern end of the project study area, to a low of approximately 545 ft above MSL where the project study area crosses Mill Creek.

3.2.5 Geology, Soils, and Mineral Resources

3.2.5.1 Geology

The project study area lies within the north-central portion of the Piedmont Physiographic Province, more specifically within the Southern Outer Piedmont and Carolina Slate Belt Ecoregion (Griffith et al., 2002). Bedrock in the project study area consists of felsic metavolcanic rocks and intermediate metavolcanic deposits. These rocks are poorly exposed and are partially covered by Coastal Plain sediments. These rocks were originally deposited 500 to 600 million years ago and intruded by granitic rocks approximately 300 million years ago (NCDENR, 2006a).

3.2.5.2 Soils

The process of soil development depends upon both biotic and abiotic influences. These influences include past geologic activities, nature of parent material, environmental and human influences, plant and animal activity, time, climate, and topographical position. The project study area includes the Tirzah - Georgeville soil association. Most of this association is found on broad upland ridges that have slopes of less than ten percent. The Tirzah soils normally occur on the broader, more gentle slopes, while Georgeville soils occur on steeper slopes. Both soils are very productive for farming. Tirzah soils are characterized as well drained, dark reddish-brown or brown, moderately acidic soils on smooth or hilly uplands. The underlying rock consists of very fine-grained volcanic slate containing basic materials. Georgeville soils are characterized as well drained, reddish-brown or yellowish-brown, strongly acidic soils on uplands. The underlying rocks consist of various slates, but are dominantly rhyolites, quartz schists, and impure quartzites (USDA, 1960). Individual soil types within the project study area are described in Table 3.15 and mapped in Figure 3.7.

Table 3.15
Physical Properties of Soils in the Project Study Area

Soil	Name	General Properties
Aab	Alamance silt loam, 2 to 6 percent slopes (Callison)	Moderately deep, gently sloping, well drained soils on uplands.
Cd*	Chewacla fine sandy loam, 0 to 2 percent slopes, occasionally flooded	Very deep, gently sloping, somewhat poorly drained soils on floodplains.
Ce*	Colfax sandy loam, 2 to 6 percent slopes	Gently sloping soils in saddle-like areas.

Soil	Name	General Properties
Cf*	Colfax silt loam, 2 to 6 percent slopes	Very deep, somewhat poorly drained soils in low positions on uplands.
EaB2	Efland silt loam, 2 to 6 percent slopes, eroded (Badin)	Moderately deep, well drained soils on gently sloping uplands.
EaC	Efland silt loam, 6 to 10 percent slopes (Badin)	Moderately deep, well drained soils on moderately sloping uplands.
EaC2	Efland silt loam, 6 to 10 percent slopes, eroded (Badin)	Moderately deep, well drained soils on moderately sloping uplands.
EbC3	Efland silty clay loam, 6 to 10 percent slopes, severely eroded (Badin)	Moderately deep, well drained soils on moderately sloping uplands.
EbD3	Efland silty clay loam, 10 to 15 percent slopes, severely eroded (Badin)	Less deep, well drained soils on strongly sloping uplands.
GaB	Georgeville silt loam, 2 to 6 percent slopes	Very deep, well drained soils on uplands.
GaB2	Georgeville silt loam, 2 to 6 percent slopes, eroded	Very deep, well drained soils on uplands.
GaC	Georgeville silt loam, 6 to 10 percent slopes	Moderately deep, well drained soils on uplands.
GaC2	Georgeville silt loam, 6 to 10 percent slopes, eroded	Moderately deep, well drained soils on uplands.
GaD	Georgeville silt loam, 10 to 15 percent slopes (Tarrus)	Less deep, well drained soils on strongly sloping uplands.
GaD2	Georgeville silt loam, 10 to 15 percent slopes, eroded (Tarrus)	Less deep, well drained soils on strongly sloping uplands.
GaE	Georgeville silt loam, 15 to 25 percent slopes (Badin)	Relatively shallow, well drained soils on moderately steep uplands.
GbC3	Georgeville silty clay loam, 6 to 10 percent slopes, severely eroded (Tarrus)	Shallow, sloping soils occurring in downslope areas.
GbD3	Georgeville silty clay loam, 10 to 15 percent slopes, severely eroded (Tarrus)	Shallow, sloping soils found at stream breaks on smaller streams.
GbE3	Georgeville silty clay loam, 15 to 25 percent slopes, severely eroded (Badin)	Shallow, sloping soils found at stream breaks.
GcC	Goldston channery silt loam, 6 to 10 percent slopes	Shallow, well drained to excessively drained, sloping soils on uplands.
GcD	Goldston channery silt loam, 10 to 15 percent slopes	Shallow, well drained to excessively drained, strongly sloping soils on uplands.
GcE	Goldston channery silt loam, 15 to 25 percent slopes	Shallow, well drained to excessively drained, moderately steep soils on uplands.
HdB	Herndon silt loam, 2 to 6 percent slopes	Very deep, gently sloping, well drained soils on uplands.
HdB2	Herndon silt loam, 2 to 6 percent slopes, eroded	Very deep, gently sloping, well drained soils on uplands.
HdC	Herndon silt loam, 6 to 10 percent slopes	Very deep, sloping, well drained soils on uplands.
HdC2	Herndon silt loam, 6 to 10 percent slopes, eroded	Moderately deep, sloping, well drained soils on uplands.
HdD	Herndon silt loam, 10 to 15 percent slopes (Nanford)	Steep slopes on hilly uplands.
HdD2	Herndon silt loam, 10 to 15 percent slopes, eroded (Nanford)	Steep slopes on hilly uplands.
HeC3	Herndon silt loam, 6 to 10 percent slopes, severely eroded	Hill slopes on ridges.
HeD3	Herndon silty clay loam, 10 to 15 percent slopes, severely eroded (Nanford)	Shallow slopes on hilly uplands.

Soil	Name	General Properties
Lc*	Local alluvial land, poorly drained	Soils with no defined sequence that are found along small streams and drainways.
Ld	Local alluvial land, well drained	Soils with no defined sequence eroded from other soil series.
Mf	Moderately gullied land, Georgeville and Herndon materials, 6 to 25 percent slopes	Miscellaneous land type soils that have not been classified according to soil taxonomy.
OaB	Orange silt loam, 2 to 6 percent slopes (Pittsboro)	Deep, somewhat poorly drained, gently sloping soils found on uplands.
OaB2	Orange silt loam, 2 to 6 percent slopes, eroded (Pittsboro)	Deep, somewhat poorly drained, gently sloping soils found on uplands.
ObB	Orange silt loam, moderately well drained variant, 2 to 6 percent slopes (Pittsboro)	Deep, moderately well drained, gently sloping soils found on uplands.
ObB2	Orange silt loam, moderately well drained variant, 2 to 6 percent slopes, eroded (Pittsboro)	Less deep, moderately well drained, gently sloping soils found on uplands.
ObC2	Orange silt loam, moderately well drained variant, 6 to 10 percent slopes, eroded	Less deep, moderately well drained, gently sloping soils found on steeper slopes of smooth uplands.
Sb	Starr loam, 2 to 6 percent slopes, occasionally flooded	Well drained bottomland soils along small streams and drainageways.
TaB	Tirzah silt loam, 2 to 6 percent slopes (Tarrus)	Less deep, gently sloping, well drained soils that occur on the rounded crests between streams.
TaB2	Tirzah silt loam, 2 to 6 percent slopes, eroded (Tarrus)	Shallow, gently sloping, well drained soils that occur on the rounded crests between streams.
TaC2	Tirzah silt loam, 6 to 10 percent slopes, eroded (Tatum)**	Shallow, sloping, well drained soils that occur on hilly uplands or steeper slopes on hilly uplands.
Wd	Worsham sandy loam, 2 to 6 percent	Poorly drained soil found on foot slopes and saddles in low, wet depressions.
We*	Worsham silt loam, 2 to 6 percent slopes	Poorly drained soil found on foot slopes and saddles in low, wet depressions.

Notes: * denotes hydric soil
 ** Revision made on April 22, 1993
 Source: USDA, 1960 and USDA, 2007

3.2.5.3 Mineral Resources

Parts of the Slate Belt have been known to contain small amounts of metals, specifically molybdenum and gold, but the main economic use of this formation has been its use as a source of crushed stone and aggregate (NCDENR, 2006a). Based on a review of the NCDENR Division of Land Quality Land Resources database of active and inactive mining sites, there are no active or inactive permitted mines within one mile of the project study area (NCDENR, 2006b).

3.2.6 Prime and Important Farmland

The Farmland Protection Policy Act of 1981 (7 CFR Part 658) requires all federal agencies to consider the impact of their activities on prime, unique, statewide, and locally important farmland soils, as defined by the US Department of Agriculture (USDA), Natural Resources Conservation Service (NRCS) (Public Law 97-98, Subtitle 1, Section 1540). The NRCS, in cooperation with state and local agencies, developed a listing of Prime and Statewide Important Farmland of North Carolina.

Prime Farmland is defined as soils best suited for producing food, feed, fiber, forage, and oil seed crops. These soils are favorable for all major crops common to the county, have a favorable growing season, and receive the available moisture needed to produce high yields on an average of eight out of every ten years. Land already in or committed to urban development or water storage is not included.

Unique Farmlands are used for production and specific high-value food or fiber crops. They have the special combinations of soil quality, location, growing season, and moisture supply needed to economically produce sustained high quality or high yields of specific crops when treated and managed.

Statewide Importance and Locally Important are terms that are defined by the appropriate state or local government agency as soils important in the agriculture of an individual county. These definitions are based on measures of the soil’s capacity to support productive farm activity, not of current cultivation.

The NRCS completed soil surveys in Alamance County (USDA, 1960). Soils in the project study area considered to be Prime or of Statewide Importance are listed in Table 3.16 and mapped in Figure 3.7. There are no soils designated Unique Farmland in the project study area.

**Table 3.16
Prime and Important Farmland Soils in the Project Study Area**

Soil	Description	Farmland Status
Aab	Alamance silt loam, 2 to 6 percent slopes (Callison)	Prime Farmland
Cd	Chewacla fine sandy loam, 0 to 2 percent slopes, occasionally flooded	Prime Farmland (if drained and either protected from flooding or not frequently flooded during the growing season)
EaB2	Efland silt loam, 2 to 6 percent slopes, eroded (Badin)	Farmland of Statewide Importance
EaC	Efland silt loam, 6 to 10 percent slopes (Badin)	Farmland of Statewide Importance
EaC2	Efland silt loam, 6 to 10 percent slopes, eroded (Badin)	Farmland of Statewide Importance
GaB	Georgeville silt loam, 2 to 6 percent slopes	Prime Farmland
GaB2	Georgeville silt loam, 2 to 6 percent slopes, eroded	Prime Farmland
GaC	Georgeville silt loam, 6 to 10 percent slopes	Farmland of Statewide Importance
GaC2	Georgeville silt loam, 6 to 10 percent slopes, eroded	Farmland of Statewide Importance
GaD	Georgeville silt loam, 10 to 15 percent slopes (Tarrus)	Farmland of Statewide Importance
GaD2	Georgeville silt loam, 10 to 15 percent slopes, eroded (Tarrus)	Farmland of Statewide Importance
HdB	Herndon silt loam, 2 to 6 percent slopes	Farmland of Statewide Importance
HdB2	Herndon silt loam, 2 to 6 percent slopes, eroded	Farmland of Statewide Importance
HdC	Herndon silt loam, 6 to 10 percent slopes	Farmland of Statewide Importance
HdC2	Herndon silt loam, 6 to 10 percent slopes, eroded	Farmland of Statewide Importance
HdC2	Herndon silt loam, 10 to 15 percent slopes, eroded (Nanford)	Farmland of Statewide Importance
HdD2	Herndon silt loam, 10 to 15 percent slopes, eroded (Nanford)	Farmland of Statewide Importance

Soil	Description	Farmland Status
Ld	Local alluvial land, well drained	Prime Farmland
OaB	Orange silt loam, 2 to 6 percent slopes (Pittsboro)	Farmland of Statewide Importance
OaB2	Orange silt loam, 2 to 6 percent slopes, eroded (Pittsboro)	Farmland of Statewide Importance
ObB	Orange silt loam, moderately well drained variant, 2 to 6 percent slopes (Pittsboro)	Farmland of Statewide Importance
ObB2	Orange silt loam, moderately well drained variant, 2 to 6 percent slopes (Pittsboro)	Farmland of Statewide Importance
ObC2	Orange silt loam, moderately well drained variant, 6 to 10 percent slopes, eroded	Farmland of Statewide Importance
Sb	Starr loam, 2 to 6 percent slopes, occasionally flooded	Prime Farmland
TaB	Tirzah silt loam, 2 to 6 percent slopes (Tarrus)	Prime Farmland
TaB2	Tirzah silt loam, 2 to 6 percent slopes, eroded (Tarrus)	Prime Farmland
TaC2	Tirzah silt loam, 6 to 10 percent slopes, eroded (Tatum)*	Farmland of Statewide Importance

Note: * Revision made on April 22, 1993
Source: USDA, 2006

3.2.7 Water Resources

This section summarizes information contained in the *Hydraulic Aspects of the Environmental Impact for the Proposed Relocation (Alternates 8, 9, and 10) of NC 119* (NCDOT Hydraulics Unit, 2003), *TIP No. U-3109* (NCDOT Hydraulics Unit, 2005a and 2005b), *Natural Resources Technical Report* (Buck Engineering, 2003), *Natural Resources Technical Report Addendum* (Baker Engineering, 2006b), and *Technical Memorandum - Natural Resources (NC 119 – Woodlawn Road)* (Baker Engineering, 2009) prepared for the project. These reports are appended by reference.

3.2.7.1 Water Supply Resources

As shown in Figure 3.1, the project study area crosses the Water Supply Watershed Critical Area of the Graham-Mebane Reservoir. The Graham-Mebane Reservoir is located northwest of the City of Mebane, west of the project area, and north of Highway 70. The reservoir is an impoundment of Back Creek (Figure 1.1), and is classified as a Water Supply II (WS-II) water supply by the NC Division of Water Quality (NCDWQ) (NCDENR, 2006d).

WS-II waters are those used as sources of potable water where a WS-I classification is not feasible. These waters are also protected for Class C uses (aquatic life propagation and survival, fishing, wildlife, secondary recreation, and agriculture). WS-II waters are generally in predominantly undeveloped watersheds and only general permits for discharges are allowed. All WS-II waters are High Quality Waters (HQW) by definition.

North Carolina’s water supply regulations (15A NCAC 02B .0104(m)) require that “[t]o the extent practicable, the construction of new roads in the critical area shall be avoided.” The regulations also require that the construction of new roads within water supply watersheds minimize built-upon area, divert stormwater away from surface water supply waters as much as possible, and employ BMPs to minimize water quality impacts.

3.2.7.2 Drainage Basins, Streams, and Ponds

The project study area is located within the upper Cape Fear River Basin, NCDWQ subbasin 030602 (United States Geological Survey [USGS] 8-digit Hydrological Unit Code 03030002). The southernmost section of the project study area, from I-85/40 to SR 1962 (Third Street Extension), lies within the Haw Creek watershed. From SR 1962 (Third Street Extension) north to US 70, the project study area drains into Back Creek via MoAdams Creek below the Graham-Mebane Reservoir. The middle section of the project study area from US 70 north to SR 1921 (Mebane Rogers Road) drains into the Graham-Mebane Reservoir. The northern most section of the project study area from SR 1921 (Mebane Rogers Road) to SR 1918 (Mrs. White Lane) drains into Mill Creek, a major tributary to Back Creek (Graham-Mebane Reservoir).

A total of 32 streams are located in the project study area. Of these, 30 are perennial (i.e., flowing most of the year) and 2 are intermittent (i.e., flowing only periodically throughout the year). These include 13 unnamed tributaries (UTs) to MoAdams Creek, MoAdams Creek, 3 UTs to Back Creek (Graham-Mebane Reservoir), 9 UTs to Mill Creek, Mill Creek, and 5 UTs to Haw Creek. Descriptions of the streams are listed in Table 3.17. Two ponds are also located in the project study area. Surface waters within the project study area are shown in Figure 3.8. No streams within the project study area are currently listed on the NCDWQ Clean Water Act (CWA) Section 303(d) list of impaired streams.

Table 3.17
Physical Characteristics of Streams

Stream No. / Seasonality	Stream Name	NCDWQ Index	Average Wet Channel Width (feet)	Average Wet Channel Depth (inches)	Benthic (Bottom) Substrate Composition	NCDWQ Best Usage Classification*
UT1 Perennial	UT to MoAdams Creek	16-18-7	4-6	4-6	cobble, gravel, sand, silt, clay	C; NSW
UT2 Perennial	UT to MoAdams Creek	16-18-7	2-3	1-2	gravel, sand, silt, clay	C; NSW
UT3 Perennial	UT to MoAdams Creek	16-18-7	1.5-2	2-3	sand, silt, clay	C; NSW
UT4 Perennial	UT to MoAdams Creek	16-18-7	1-1.5	2-3	sand, silt, clay	C; NSW
Perennial	MoAdams Creek	16-18-7	10-12	18-30	gravel, sand, silt, clay	C; NSW
UT5 Perennial	UT to MoAdams Creek	16-18-7	1	1-2	sand, clay	C; NSW
UT6 Perennial	UT to MoAdams Creek	16-18-7	2-4	2-4	gravel, sand, clay	C; NSW
UT7 Perennial	UT to MoAdams Creek	16-18-7	5-6	3-4	gravel, sand, clay	C; NSW
UT7A Perennial	UT to UT7	16-18-7	1	1	gravel, sand, clay	C; NSW

Stream No. / Seasonality	Stream Name	NCDWQ Index	Average Wet Channel Width (feet)	Average Wet Channel Depth (inches)	Benthic (Bottom) Substrate Composition	NCDWQ Best Usage Classification*
UT8 Perennial	UT to MoAdams Creek	16-18-7	1-1.5	1	gravel, sand, clay	C; NSW
UT9 Perennial	UT to MoAdams Creek	16-18-7	1	1	gravel, sand, clay	C; NSW
UT10 Perennial	UT to Back Creek	16-18-(1.5)	2-4	3-6	bedrock, cobble, gravel, sand	WS-II; HQW, NSW
UT11 Perennial	UT to Back Creek	16-18-(1.5)	5-6	3-6	bedrock, cobble, gravel, sand	WS-II; HQW, NSW
UT12 Perennial	UT to Mill Creek	16-18-3-2- (2)	2-4	2-4	bedrock, cobble, gravel, sand, clay	WS-II; HQW, NSW, CA
UT13 Perennial	UT to Mill Creek	16-18-3-2- (2)	1-1.5	1	pipel, gravel, sand, clay	WS-II; HQW, NSW, CA
UT14 Perennial	UT to Mill Creek	16-18-3-2- (2)	6-10	4-6	boulder, cobble, gravel, sand, silt	WS-II; HQW, NSW, CA**
Perennial	Mill Creek	16-18-3- (1.5)	20-30	24-40	bedrock, boulder, cobble, gravel, sand	WS-II; HQW, NSW, CA**
UT15 Perennial	UT to Mill Creek	16-18-3- (1.5)	1-2	1	cobble, gravel, sand	WS-II; HQW, NSW
UT16 Perennial	UT to Mill Creek	16-18-3- (1.5)	3-6	3-4	bedrock, cobble, gravel, sand	WS-II; HQW, NSW
UT17 Perennial	UT to Mill Creek	16-18-3- (0.5)	1.5-3	3-4	sand, clay, silt	WS-II; HQW, NSW
UT18 Perennial	UT to Haw Creek	16-20-(1)	1-2	1-2	gravel, sand, silt	WS-V, NSW
UT19 Perennial	UT to Haw Creek	16-20-(1)	2-3	2-3	cobble, gravel, sand	WS-V, NSW
UT20 Perennial	UT to Haw Creek	16-20-(1)	3-4	3	cobble, gravel, sand	WS-V, NSW
UT21 Perennial	UT to Haw Creek	16-20-(1)	3-4	3	cobble, gravel, sand	WS-V, NSW
UT22 Perennial	UT to UT21	16-20-(1)	2-3	2	cobble, gravel, sand	WS-V, NSW
UT23 Perennial	UT to Back Creek	16-18-(6)	1-2	1	sand, clay, silt	C, NSW
UT24 Perennial	UT to MoAdams Creek	16-18-7	2-3	2	cobble, gravel, sand	C; NSW
UT25 Perennial	UT to MoAdams Creek	16-18-7	2-3	3-4	cobble, gravel, sand	C; NSW
UT26 Perennial	UT to MoAdams Creek	16-18-7	3-4	6	cobble, gravel, sand	C; NSW
UT27 Perennial	UT to UT14	16-18-3-2- (2)	3-4	4	cobble, gravel, sand	WS-II; HQW, NSW
UT28 *** Intermittent	UT to Mill Creek	16-18-3- (0.5)	1-4	0-6	bedrock, cobble, gravel, sand	WS-II; HQW, NSW

Stream No. / Seasonality	Stream Name	NCDWQ Index	Average Wet Channel Width (feet)	Average Wet Channel Depth (inches)	Benthic (Bottom) Substrate Composition	NCDWQ Best Usage Classification*
UT29 **** Intermittent	UT to UT28	16-18-3- (0.5)	2	0-6	cobble, gravel, sand	WS-II; HQW, NSW

- Notes: * Unnamed tributaries carry the same surface water classification as the water body to which they connect.
 ** Upstream section (Alternative 10) is outside of Water Supply Watershed Critical Area (CA).
 *** UT28 scored 27.5 using Version 3.1 of the DWQ Stream Identification Form (NCDENR, 2005)
 **** UT29 scored 23.5 using Version 3.1 of the DWQ Stream Identification Form (NCDENR, 2005)

3.2.7.3 Water Quality

Best Usage Classifications. NCDWQ classifies stream segments according to their highest supportable use. Unless otherwise stated, unnamed tributaries with no designated best usage classification share the classification of their respective receiving waters.

Back Creek and its tributaries, including MoAdams Creek, below the Graham-Mebane Reservoir are classified as Class C Nutrient Sensitive Waters (C NSW) (NCDENR, 2000a). Class C water resources are used for aquatic life propagation and survival, fishing, wildlife, secondary recreation, and agriculture. The NSW supplemental classification is intended for waters needing additional nutrient management due to their being subject to excessive growth of microscopic or macroscopic vegetation. In general, management strategies for point and non-point source pollution control require control of nutrients (nitrogen and/or phosphorus usually) such that excessive growths of vegetation are reduced or prevented and there is no increase in nutrients over target levels.

From a point 0.6 miles downstream of NC 119 to the Graham-Mebane Reservoir on Back Creek, Mill Creek is classified as a Water Supply II NSW High Quality Waters Critical Area (WS-II NSW HQW CA) stream. A Critical Area (CA) is defined as land within 0.5 mile and draining to a river intake or within 0.5 mile and draining to the normal pool elevation of water supply reservoirs. The WS-II classification also carries a HQW designation. The HQW supplemental classification is intended to protect waters with quality higher than state water quality standards. Mill Creek upstream of the Critical Area is classified as a WS-II NSW HQW stream. No waters classified as Outstanding Resources Waters (ORW) or WS-I occur within one mile of the project study area.

Haw Creek and its tributaries within the project study area are classified as Water Supply V (WS-V) water bodies (NCDENR, 2006c). Class WS-V waters have no categorical restrictions on watershed development or wastewater dischargers like other water supply classifications, and local governments are not required to adopt watershed protection ordinances.

Point Source Dischargers. The National Pollution Discharge Elimination System (NPDES) regulates permits involving the construction, alteration, and/or operation of any sewer system, treatment works, or disposal system, and for certain stormwater runoff which would result in a discharge into surface waters (USEPA, 1991). In North Carolina, the NPDES program is administered by NCDWQ. All dischargers are required to obtain a permit to discharge.

There is one NPDES permitted discharger in the project study area. The City of Mebane WWTP discharges into MoAdams Creek just upstream of the study area. The WWTP is permitted to

discharge 2.5 MGD (see Section 3.1.4.2 for more information). No other dischargers are located within one mile of the study area.

Water Quality Monitoring. There are no active water quality monitoring activities conducted by NCDWQ within the study area.

NCDWQ does not maintain a fish monitoring station on any surface waters within or adjacent to the study area. The North Carolina Wildlife Resources Commission (NCWRC) has not sampled fish populations in Mill Creek since before 1960, when it sampled at a location near existing NC 119 (Buck Engineering, 2003). During that period, Mill Creek contained various sunfishes (*Lepomis* spp.), chubs (*Nocomis* spp.), and shiners (*Notropis* spp.).

3.2.7.4 Floodways and Floodplains

The State of North Carolina, through the Federal Emergency Management Agency's (FEMA's) Cooperating Technical Community partnership initiative, has been designated as the first Cooperating Technical State (CTS). As a CTS, the State has assumed primary ownership and responsibility of the Flood Insurance Rate Maps (FIRMs) for all North Carolina communities as part of the National Flood Insurance Program (NFIP). This effort includes conducting flood hazard analyses and producing updated, digital FIRMs (DFIRMs). DFIRM data for the NC 119 project area, based on aerial photography collected in 2000 and finalized in September 2006, were downloaded from the North Carolina Floodplain Mapping Program website (NCFMP, 2006). These data define floodway boundaries as a tool for floodplain management.

Based on FEMA's definition, the floodplain is divided into a floodway and a floodway fringe. The floodway is the channel of the stream and the adjacent floodplain area that needs to be kept free of encroachment so the 100-year flood can be carried without increasing the level and extent of flood elevations. The 100-year flood is defined as an event that has a 1 percent chance of occurring in any year. The area between the floodway boundary and the 100-year floodplain boundary is known as the floodway fringe or the 100-year floodplain. Streams for which detailed hydrological studies have not been conducted do not have defined floodways, so only the 100-year floodplain boundaries are estimated and mapped.

Figure 3.9 shows the floodplains and floodways in the study area. The Detailed Study Alternatives cross the 100-year floodplains of Mill Creek and MoAdams Creek. The 100-year floodplain of Mill Creek is crossed twice, once along the proposed NC 119 and once along the extension of SR 1997 (Corrigidor Rd). All three of the floodplain crossings contain regulatory floodways and are crossed by Alternatives 8, 9 and 10.

3.3 NATURAL ENVIRONMENT CHARACTERISTICS

The following section is a summary of information contained in the *Natural Resources Technical Report* (Buck Engineering, 2003) and the *Natural Resources Technical Report Addendum* (Baker Engineering, 2006b). These reports are appended by reference.

3.3.1 Terrestrial Communities

3.3.1.1 Survey Methodology

Background research on soils, water resources, wetlands, protected species, and other area natural features was conducted in support of natural resource investigations. Published information and resources were collected prior to the field investigation. Information sources used to prepare this report include the following:

- USGS 7.5-Minute Topographic Maps, Mebane, NC Quadrangle, 1994, and Burlington NE, NC Quadrangle, 1994
- United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) Maps, Mebane, NC Quadrangle, 1992, and Burlington NE, NC Quadrangle, 1992
- USDA Soil Survey of Alamance County, 1960
- North Carolina Department of Environment and Natural Resources (NCDENR) basinwide assessment information (NCDENR, 2000b)
- USFWS list of protected and candidate species, 2009
- North Carolina Natural Heritage Program (NHP) files of rare species and unique habitats, 2009
- NCDOT Natural Resources Technical Reports on NC 119 Relocation (Buck Engineering, 2003 and Baker Engineering, 2006b and 2009).

Water resource information was obtained from publications posted on the World Wide Web by NCDENR, Division of Water Quality (DWQ). Citations are provided as they are referenced throughout the document. Information concerning the occurrence of federally protected species in the study area was obtained from the USFWS list of protected and candidate species (March 2009). Information about species under state protection was obtained from the NHP database of rare species and unique habitats. NHP files were reviewed for documented sightings of species on state or federal lists and locations of significant natural areas.

Field investigations along the Detailed Study Alternatives were conducted in December 2002 and May 2003. Additional field investigations were performed in November 2004, March and June 2005, August 2006, and February 2009.

Plant communities were identified by visually observing and recording dominant species. Plant taxonomy follows Radford et al. (1968). Vertebrate taxonomy follows Potter et al. (1980), Martof et al. (1980), Webster et al. (1985), and Menhinick (1991). Predictions regarding wildlife community composition involved general qualitative habitat assessment based on existing vegetative communities. A variety of observation techniques, including active searching, visual observations, and identifying characteristic signs of wildlife (sounds, tracks, scats, and burrows) were also utilized in identifying wildlife communities. When appropriate, community classifications were modified to reflect existing field conditions.

Surface waters intersecting the Detailed Study Alternatives were visited and evaluated to ascertain physical characteristics.

Jurisdictional wetlands were identified using the three-parameter approach (hydrophytic vegetation, hydric soils, and hydrology) based on criteria established in the *United States Army Corps of Engineers Wetlands Delineation Manual* (USACE, 1987) and *Guidance for Rating the Values of Wetlands in North Carolina* (NCDENR, 1995). Jurisdictional wetlands and open waters within the Detailed Study Alternatives were field delineated in December 2002; May 2003; November 2004; March and June, 2005; and August 2006 and mapped using global positioning system (GPS) technology.

3.3.1.2 Terrestrial Plant Communities

Distribution and composition of plant communities throughout the project study area reflect variations in topography, soils, hydrology, and past or present land use practice. Natural land disturbances such as fire, hurricanes, and tornadoes result in uneven-aged vegetative stands or a patchy mosaic within even-aged communities. Man-made disturbances such as logging, farming, selective cutting, residential and commercial development, and road construction also have contributed to the present landscape. Descriptions of the terrestrial systems are presented in the context of plant community classifications. Representative animal species that are likely to occur in these habitats (based on published range distributions) are also cited. Scientific nomenclature and common names (when applicable) are used for the plant and animal species described. Subsequent references to the same species are by the common name only. Dominant faunal components associated with these terrestrial areas are discussed in each community description. Many species are adapted to the entire range of habitats found along the project alignment, but may not be mentioned separately in each community description.

As described below and shown in Figure 3.8, three terrestrial plant communities are present within the project study area. These communities are oak-hickory forest, secondary pine forest, and maintained/disturbed.

Oak-Hickory Forest. This natural community occurs in large areas, often adjacent to agricultural fields and residential development, throughout the project study area. These areas support a variety of hardwood species including white oak (*Quercus alba*), red oak (*Q. rubra*), Spanish oak (*Q. falcata*), black oak (*Q. velutina*), scarlet oak (*Q. coccinea*), post oak (*Q. stellata*), mockernut hickory (*Carya alba*), shagbark hickory (*C. ovata*), pignut hickory (*C. glabra*), tulip poplar (*Liriodendron tulipifera*), American beech (*Fagus grandifolia*), southern sugar maple (*Acer barbatum*), and red maple (*A. rubrum*). Pine species including Virginia pine (*Pinus virginiana*), and to a lesser extent, loblolly pine (*P. taeda*) were abundant in the more recently disturbed areas. Understory species include saplings of many of the previously mentioned species as well as flowering dogwood (*Cornus florida*), sourwood (*Oxydendrum arboreum*), American holly (*Ilex opaca*), black gum (*Nyssa sylvatica*), red cedar (*Juniperus virginiana*), and Chinese privet (*Ligustrum sinense*). Herbaceous vegetation includes Japanese honeysuckle (*Lonicera japonica*), trumpet creeper (*Campsis radicans*), Japanese grass (*Microstegium vimineum*), common greenbrier (*Smilax rotundifolia*), poison ivy (*Toxicodendron radicans*), Virginia creeper (*Parthenocissus quiquefolia*), Christmas fern (*Polystichum acrostichoides*), may-apple (*Podophyllum peltatum*), trout lily (*Erythronium americanum*), muscadine grape (*Vitis rotundifolia*), heartleaf (*Hexastylis* spp.), pipsissewa (*Chimaphila maculata*), and partridgeberry (*Mitchella repens*). This forest community closely represents the Dry Mesic Oak-Hickory Forest natural community along the lower elevations and Dry Oak-Hickory Forest natural community along higher elevations, as described by Schafale and Weakley (1990). Transitional areas along Mill Creek, where mature American beech is prominent,

most resemble the Mesic Mixed Hardwood Forest natural community, as described by Schafale and Weakley (1990).

Secondary Pine Forest. This forested community occurs in small, fragmented areas along the project alignment. This fragmentation likely occurred from past timbering activities of hardwood species, and resulted in a canopy monoculture of planted or volunteer softwoods. Vegetation in these areas include Virginia pine, loblolly pine, and to a lesser extent, red cedar. The herbaceous layer includes such species such as Japanese honeysuckle, wild blackberry (*Rubus* spp.), and greenbrier.

Maintained/Disturbed. This community encompasses habitats that have recently been or are currently impacted by human disturbance, such as residential lawns, maintained roadside right-of-ways, agricultural fields, and utility line easements. Because of mowing and periodic clearing, this community is kept in a constant state of early succession. Regularly maintained areas are dominated by fescue (*Festuca* spp.), ryegrass (*Lolium* spp.), white clover (*Trifolium repens*), red clover (*T. pratense*), plantain (*Plantago rugelii*), wild onion, (*Allium* spp.), wood sorrel (*Oxalis* spp.), and dandelion (*Taraxacum officinale*). Irregularly maintained areas are dominated by those species previously listed as well as Japanese honeysuckle, tick seed sunflower (*Bidens* spp.), trumpet creeper, wild rose (*Rosa multiflora*), Johnson grass (*Sorghum halepense*), lespedeza (*Lespedeza* spp.), goldenrod (*Solidago* spp.), and wild blackberry. Transitions of this community with the other listed terrestrial communities also exist.

3.3.1.3 Terrestrial Wildlife

Oak-Hickory Forest. Animals that were observed in this community during the field survey included whitetail deer (*Odocoileus virginianus*), eastern cottontail (*Sylvilagus floridanus*), northern cardinal (*Cardinalis cardinalis*), Carolina chickadee (*Poecile carolinensis*), and tufted titmouse (*Baeolophus bicolor*). Other animals that would be expected to inhabit this community include the Virginia opossum (*Didelphis virginiana*), raccoon (*Procyon lotor*), gray squirrel (*Sciurus carolinensis*), eastern chipmunk (*Tamias striatus*), field mice (*Peromyscus* spp.), wild turkey (*Meleagris gallopavo*), red-eyed vireo (*Vireo olivaceus*), eastern phoebe (*Sayornis phoebe*), yellow-breasted chat (*Icteria virens*), blue jay (*Cyanocitta cristata*), Acadian flycatcher (*Empidonax virens*), Carolina wren (*Thryothorus ludovicianus*), white-breasted nuthatch (*Sitta carolinensis*), woodthrush (*Hylocichla mustelina*), downy woodpecker (*Picoides pubescens*), hairy woodpecker (*P. villosus*), red-bellied woodpecker (*Melanerpes carolinus*), common flicker (*Colaptes auratus*), yellow-bellied sapsucker (*Sphyrapicus varius*), copperhead (*Agkistrodon contortrix*), eastern garter snake (*Thamnophis sirtalis*), rat snake (*Elaphe obsoleta*), five-lined skink (*Eumeces fasciatus*), box turtle (*Terrapene carolina*), American toad (*Bufo americanus*), Fowler's toad (*B. woodhousei*), spring peeper (*Hyla crucifer*), and slimy salamander (*Plethodon glutinosus*).

Secondary Pine Forest. Animals previously listed in the Oak-Hickory Forest may also be found in this community.

Maintained/Disturbed. Maintained/disturbed communities adjacent to forested tracts provide rich ecotones for foraging, while the forests provide forage and cover. Many of the animals mentioned for the Oak-Hickory Forest community may also be associated with this community. Other common animals not previously mentioned that likely inhabit disturbed communities include red fox (*Vulpes vulpes*), gray fox (*Urocyon cinereoargenteus*), mockingbird (*Mimus polyglottos*), gray catbird (*Dumetella carolinensis*), brown thrasher (*Toxostoma rufum*), eastern meadowlark (*Sturnella*

magna), American robin (*Turdus migratorius*), eastern bluebird (*Sialia sialis*), starling (*Sturnus vulgaris*), common grackle (*Quiscalus quiscula*), brown-headed cowbird (*Molothrus ater*), red-tailed hawk (*Buteo jamaicensis*), turkey vulture (*Cathartes aura*), and eastern fence lizard (*Sceloporus undulatus*).

Migratory Birds. Migratory birds are those that fly long distances from their winter habitats to summer nesting grounds and back to their over-wintering grounds annually. The Migratory Bird Treaty Act (MBTA) is included in 50 CFR 10.13 and provides a list of species of birds protected by the Act. The US Fish and Wildlife Service (USFWS) interprets migratory bird protections under MBTA to extend to structures and trees that are being actively used by migratory birds for nesting. At those times, it is illegal to destroy migratory bird nests (including trees with nests) that contain eggs or young or cause an adult to abandon its nest due to disturbances from any sort of construction. However, it is not illegal to prevent birds from nesting during or prior to the construction period.

Executive Order 13186, Responsibilities of Federal Agencies to Protect Migratory Birds, requires federal agencies to take action to implement the MBTA. Appropriate actions include evaluating the effect agency actions have on migratory birds and identifying impacts with a measureable negative effect on migratory bird populations. If such actions are identified, the federal agency must mitigate the effects and consult with USFWS prior to initiating the action.

There are more than 800 species of birds covered under the MBTA; however, the NC 119 Relocation project is not located near a major bird migration flyway. The closest flyways are the Atlantic Flyway, the main branch of which passes over the North Carolina coast and the southwestern branch, which crosses western North Carolina and central South Carolina. However, several species of birds may migrate through the project area, while other migratory birds live in the North Carolina Piedmont during winter or summer. Examples of some of the more common species and when they are present in the Piedmont of North Carolina are listed in Table 3.18.

Table 3.18
Migratory Bird Species
of the North Carolina Piedmont

Common Name	Scientific Name	Residence Period
Wood duck	<i>Aix sponsa</i>	Yearlong
Ring-necked duck	<i>Athya collaris</i>	Winter
Red-tailed hawk	<i>Buteo jamaicensis</i>	Yearlong
Mourning dove	<i>Zenaida macroura</i>	Yearlong
Yellow-billed cuckoo	<i>Coccyzus americanus</i>	Summer
Chimney swift	<i>Chaetura pelagica</i>	Summer
Ruby-throated hummingbird	<i>Archilochus colubris</i>	Summer
Belted kingfisher	<i>Ceryle alcyon</i>	Yearlong
Red-headed woodpecker	<i>Melanerpes erythrocephalus</i>	Yearlong
Yellow-bellied sapsucker	<i>Sphyrapicus varius</i>	Summer
Eastern wood-pewee	<i>Contopus virens</i>	Summer

Common Name	Scientific Name	Residence Period
Eastern phoebe	<i>Sayornis phoebe</i>	Yearlong
Purple martin	<i>Progne subis</i>	Summer
Blue jay	<i>Cyanocitta cristata</i>	Yearlong
American crow	<i>Corvus brachyrhynchos</i>	Yearlong
Carolina chickadee	<i>Poecile carolinensis</i>	Yearlong
Red-breasted nuthatch	<i>Sitta canadensis</i>	Winter
Carolina wren	<i>Thryothorus ludovicianus</i>	Yearlong
Ruby-crowned kinglet	<i>Regulus calendula</i>	Winter
Eastern bluebird	<i>Sialia Sialis</i>	Yearlong
American robin	<i>Turdus migratorius</i>	Yearlong
Northern mockingbird	<i>Mimus polyglottos</i>	Yearlong
Red-eyed vireo	<i>Vireo olivaceus</i>	Summer
Northern parula	<i>Parula americana</i>	Spring/fall migrant
Black-throated blue warbler	<i>Dendroica caerulescens</i>	Spring/fall migrant
Scarlet tanager	<i>Piranga olivacea</i>	Summer
Northern cardinal	<i>Cardinalis cardinalis</i>	Yearlong
Indigo bunting	<i>Passerina cyanea</i>	Summer
Field sparrow	<i>Spizella pusilla</i>	Yearlong
Red-winged blackbird	<i>Agelaius phoeniceus</i>	Yearlong

Sources: American Bird Conservancy, 2009; North Carolina Division of Parks and Recreation, 2009; and Piedmont Bird Club, 2009.

3.3.2 Aquatic Communities

3.3.2.1 Aquatic Habitats

The aquatic communities throughout the study area include streams, man-made ponds, and associated jurisdictional wetlands. Most of the streams are well-defined with moderate, moderately sloping, or steep side slopes. Vegetation along the larger streams and ponds include riparian species such as sycamore (*Platanus occidentalis*), red maple, sweet gum (*Liquidambar styraciflua*), ironwood (*Carpinus caroliniana*), and tag alder (*Alnus serrulata*). These narrow forested areas immediately adjacent to the stream banks most closely resemble the Piedmont Alluvial Forest natural community as described by Schafale and Weakley (1990). Soft rush (*Juncus effusus*), sedges (*Carex* spp.), and Japanese grass were common along stream banks, ponds, and associated wetlands.

3.3.2.2 Aquatic Wildlife

The streams, ponds, and wetlands in the project study area provide breeding opportunities for many amphibians. Common amphibian residents in the study area may include northern dusky salamander (*Desmognathus fuscus*), two-lined salamander (*Eurycea bislineata*), three-lined salamander (*E. guttolineata*), eastern newt (*Notophthalmus viridescens*), red salamander (*Pseudotriton ruber*), bullfrog (*Rana catesbeiana*), green frog (*R. clamitans*), pickerel frog (*R. palustris*), and northern cricket frog (*Acris crepitans*).

The larger perennial streams within the project study area appear to support a variety of benthic macroinvertebrates including mayflies, stoneflies, caddisflies, dragonflies, damselflies, beetles, chironomid midges, craneflies, amphipods, isopods, and crayfish. The intermittent and smaller perennial streams most likely support only chironomid midges, beetles, oligochaetes, crayfish, isopods, and amphipods.

Animals observed in or near these aquatic communities during the site visit included the belted kingfisher (*Megaceryle alcyon*), great blue heron (*Ardea herodias*), and signs of beaver (*Castor canadensis*) activity. Other animals commonly associated with aquatic communities are water snakes (*Nerodia* spp.), snapping turtle (*Chelydra serpentina*), cooters and sliders (*Chrysemys* spp.), red-winged black bird (*Agelaius phoeniceus*), and the barred owl (*Strix varia*).

3.3.3 Important Natural Areas

Based on a search of the Natural Heritage Program (NHP) database, there are no important natural areas in the project study area.

3.3.4 Jurisdictional Issues

3.3.4.1 Wetlands

Section 404 of the Clean Water Act (CWA) requires regulation of discharges into “Waters of the United States.” Although the principal administrative agency of the CWA is the USEPA, the US Army Corps of Engineers (USACE) has major responsibility for implementation, permitting, and enforcement of provisions of the Act. The USACE regulatory program is defined in 33 CFR Parts 320-330.

Water bodies such as rivers, lakes, and streams are subject to jurisdictional consideration under the Section 404 program. A discussion of streams and ponds is presented in Section 3.2.7.

By regulation, wetlands are also considered “Waters of the United States.” Wetlands are described as:

Those areas that are inundated or saturated by groundwater at a frequency and duration sufficient to support, and that under normal circumstances, do support a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas. [33 CFR Section 328.3(b) (1986)]

The USACE requires the presence of three parameters (hydrophytic vegetation, hydric soils, and evidence of hydrology) in support of a jurisdictional determination. Thirteen wetland sites were identified within the project study area and are shown in Figure 3.8. Wetlands were rated using NCDWQ’s wetland rating procedures (NCDENR, 1995). This system rates six values of wetlands including: (1) water storage, (2) bank/shoreline stabilization, (3) pollutant removal, (4) wildlife habitat, (5) aquatic life value, and (6) recreation/education. The six ratings are summed for a maximum possible score of 100.

The southernmost wetland (WL1) along the project alignment is located within the floodplain of MoAdams Creek. Historically, this wetland was a beaver-created pond. Since then, the main beaver dam has been removed. The wetland consists of mostly soft rush and sedges. Soils within WL1 include both hydric (10YR6/2 matrix) and nonhydric (10YR 4/3 matrix, 10YR 4/4 mottles) pockets, indicating hydrology alteration caused by the beaver dam removal. (Hydric soils are characterized by the presence of water.) The western extent of WL1 appears on the NWI map as Palustrine Forested Broad-leaved Deciduous Temporarily Flooded (PF01A). However, the area now resembles a freshwater marsh with remnant tree snags, caused by the beaver pond construction. The NCDWQ wetland rating for this site is 38.

The second wetland (WL2) is adjacent to a stream (UT6) and encompasses sections of UT6 where its channel loses definition and spreads out. WL2 is located just north of the powerline easement, north of MoAdams Creek. While this wetland is not depicted on the NWI map, it would be classified as Palustrine Forested Broad-leaved Deciduous Temporarily Flooded (PFO1A) according to Cowardin (1979). WL2 resembles a headwater forest with dominant vegetation including green ash (*Fraxinus pennsylvanica*), Chinese privet, soft rush, sedges, Japanese grass, poison ivy, Japanese honeysuckle, and Virginia creeper. Hydric soil indicators include low chroma colors (10YR6/2 matrix). The NCDWQ wetland rating for WL2 is 43.

The third wetland (WL3) is a very small vernal pool (0.01 acres), located north of US 70 just west of the Craftique Furniture Company. While this wetland is not depicted on the NWI map, it would be classified as Palustrine Forested Broad-leaved Deciduous Seasonally Flooded (PFO1C) according to Cowardin (1979). WL3 is surrounded by sweetgum and red maple along its margin. The maximum depth of surface water in the pool was 0.6 feet. The soils displayed a sulfidic odor, a primary hydric soil indicator. While the NCDWQ wetland rating for this site is low (18), vernal pools such as WL3 provide excellent habitat required by amphibians such as the spotted and marbled salamanders (*Ambystoma maculatum* and *A. opacum*, respectively). Since the US Supreme Court ruling in January 9, 2001 (*Solid Waste Agency of Northern Cook County vs. USACE*, No. 99-1178), filling isolated wetlands such as WL3 may not be subject to the Section 404 permitting requirements of the CWA. However, the North Carolina Environmental Management Commission (EMC) ruled on April 12, 2001, that isolated wetlands are still regulated under state water quality standards.

The fourth wetland (WL4) is located just north of WL3 and includes the forebay section of a farm pond (Pond 1). Dominant vegetation present in WL4 includes tag alder and soft rush. The NWI classification for WL4 is Palustrine Unconsolidated Bottom Permanently Flooded Diked/Impounded (PUBHh). The NCDWQ wetland rating for this site is 64.

The fifth and sixth wetlands (WL5 and WL6) are located at the headwaters and along UT18, a perennial tributary to Haw Creek. While these wetlands are not depicted on the NWI map, they would be classified as Palustrine Emergent Persistent Temporarily Flooded (PEM1A) and Palustrine Forested Broad-leaved Deciduous Temporarily Flooded (PFO1A) respectively, according to Cowardin (1979). WL5 is a freshwater marsh dominated by soft rush and sedges. Hydric soil indicators include low chroma colors (10YR3/1 matrix with some 10YR6/6 mottles) and soil saturation was observed to the surface. The NCDWQ wetland rating for this site is 29. WL6 is a headwater forest dominated by red maple and elm trees (*Ulmus americana*). Soils in WL6 are

heavily mottled, mostly clay (10YR6/2 matrix with 10YR6/6 mottles). Inundation was observed in this wetland and the NCDWQ wetland rating for WL6 is 50.

The seventh wetland (WL7) is adjacent to UT19 on the north side of the existing I-85/40 right of way. This wetland resembles a headwater forest with dominant vegetation including sycamore, sweet gum, tag alder, river birch (*Betula nigra*), rushes (*Juncus* spp.), and sedges. Hydric soil indicators include low chroma colors (10YR5/2 matrix with abundant 10YR4/6 mottles). Surface inundation was observed and the NCDWQ wetland rating for WL7 is 55. While this wetland is not depicted on the NWI map, it would be classified as Palustrine Forested Broad-leaved Deciduous Temporarily Flooded (PFO1A) according to Cowardin (1979).

The eighth, ninth, and tenth wetlands (WL8, WL9, and WL10) are associated with UT23, located on the south side of the I-85/40 right of way below an impoundment (depicted on the NWI as Palustrine Unconsolidated Bottom Permanently Flooded Diked/Impounded [PUBHh]), approximately 1,500 feet west of existing NC 119. The WL8 headwater forest is dominated by sweet gum, overgrown with multiflora rose (*Rosa multiflora*), and sedges. Hydric soil indicators include low chroma colors (10YR5/2 matrix with abundant 10YR5/8 mottles). Recent inundation at WL8 may possibly be a result of water seepage through the dam wall. The NCDWQ wetland rating is 51. While WL8 is not depicted on the NWI map, it would be classified as Palustrine Forested Broad-leaved Deciduous Temporarily Flooded (PFO1A) according to Cowardin (1979). WL9 is the freshwater marsh downstream from WL8 dominated by black willow (*Salix nigra*), soft rush, and sedges. Hydric soil indicators include low chroma colors (10YR4/2 matrix with abundant 10YR5/4 mottles). Surface inundation was observed and the NCDWQ wetland rating for WL9 is 54. While WL9 is not depicted on the NWI map, it would be classified as Palustrine Emergent Persistent Temporarily Flooded (PEM1A), according to Cowardin (1979). WL10, southwest of WL9, is an isolated stormwater management pond. As mentioned previously, isolated wetlands are regulated under state water quality standards.

The eleventh, twelfth, and thirteenth wetlands (WL11, WL12, and WL13) are headwater forest associated with the confluence of UT25 and UT26, at the east side of the City of Mebane WWTP and Maintenance Yard. WL11 is dominated by green ash, knotweed (*Polygonum virginianum*), and soft rush in hydric soils indicated by low chroma silt (10YR6/2 matrix with distinct 10YR6/6 mottles). Surface drainage patterns and soil saturation were the primary hydrologic indicators and the NCDWQ wetland rating for WL11 is 44. WL12 is dominated by sycamore, red maple, and privet. Hydric soil indicators include low chroma silt/muck. Surface drainage patterns and soil saturation were the primary hydrologic indicators and the NCDWQ wetland rating for WL12 is 62. WL13 is dominated by sweet gum, red maple, and swamp rose (*Rosa palustris*) in low chroma (10YR6/1 matrix with 10YR6/8 mottles) silt/clay, saturated in the upper twelve inches and with surface drainage patterns. The NCDWQ wetland rating for WL13 is 45. While these wetlands are not depicted on the NWI map, they would be classified as Palustrine Forested Broad-leaved Deciduous Temporarily Flooded (PFO1A) according to Cowardin (1979).

The jurisdictional delineations and stream channel designations (perennial versus intermittent) within the Detailed Study Alternatives were reviewed and approved by the USACE. A "Notification of Jurisdictional Determination" for wetlands (WL1 through WL4) and streams (UT1 through UT17) was received to document the verification of potentially jurisdictional areas within the project study

area. This review was signed July 8, 2003. A second “Notification of Jurisdictional Determination” for wetlands (WL11 through WL13) and streams (UT25 through UT27) was received to document the USACE verification of potentially jurisdictional areas to include extension of SR 1997 (Corridor Road) and the SR 1951 (Woodlawn Road) area adjacent to MoAdams Creek and Mill Creek. This review was signed February 16, 2005. A third “Notification of Jurisdictional Determination” for wetlands (WL5 through WL10) and streams (UT18 through UT24) was received to document the USACE verification of potentially jurisdictional areas to include the I-85/40 interchange area. This review was signed June 16, 2005. A fourth “Notification of Jurisdictional Determination” for WL1 was received to document the USACE verification of this potentially jurisdictional area. WL1 is associated with a beaver pond; however, field surveys determined that the dam had been breached. Therefore, WL1 was re-delineated. This review was signed July 14, 2005. A request for jurisdictional determination was sent to the USACE for two additional streams (UT28 and UT29) that were delineated due to a revision to the preliminary design.

3.3.5 Rare and Protected Species

3.3.5.1 Species Under Federal Protection

Species with a federal classification of Endangered (E), Threatened (T), Proposed Endangered (PE), and Proposed Threatened (PT) are protected under the provisions of Section 7 and Section 9 of the Endangered Species Act (ESA) of 1973. The USFWS lists no species under federal protection in Alamance County as of January 31, 2008 (USFWS, 2009).

3.3.5.2 Federal Species of Concern and State Status

Federal Species of Concern (FSC) are not legally protected under the ESA and are not subject to any of its provisions, including Section 7, until they are formally proposed or listed as Threatened or Endangered. Table 3.19 includes FSC species listed for Alamance County and their state classifications. Organisms that are listed as Endangered (E), Threatened (T), or Special Concern (SC) on the Natural Heritage Program (NHP) list of Rare Plant and Animal Species are afforded state protection under the State Endangered Species Act and the North Carolina Plant Protection and Conservation Act of 1979. However, the level of protection given to state-listed species does not apply to NCDOT activities.

**Table 3.19
Federal Species of Concern for Alamance County**

Scientific Name	Common Name	NC Status	Habitat Present?
Vertebrates*			
<i>Etheostoma collis pop. 2</i>	Carolina darter	SC	Yes
Invertebrates			
<i>Lampsilis cariosa</i>	Yellow lampmussel	E	Yes
<i>Villosa vaughaniana</i>	Carolina creekshell	E	Yes

Scientific Name	Common Name	NC Status	Habitat Present?
Plants			
<i>Monotropsis odorata</i>	Sweet pinesap	SR-T	Yes
<i>Phacelia covillei</i>	Buttercup phacelia	SR-T	Yes

Notes:

- * According to the 2008 Natural Heritage Program List of the Rare Animal Species of North Carolina, the American eel (*Anguilla rostrata*) “taxa” has been removed from the watch list because it is too numerous in North Carolina to be monitored (NCDENR, 2009).
- E An Endangered species is one whose continued existence as a viable component of the State’s fauna is in jeopardy.
- SC A Special Concern species is one that requires monitoring but may be taken or collected and sold under regulations adopted under the provisions of Article 25 of Chapter 113 of the General Statutes (animals) and the Plant Protection and Conservation Act (plants). Only propagated material may be sold of Special Concern plants that are also listed as Threatened or Endangered.
- SR A Significantly Rare species is not listed as Endangered, Threatened, or Special Concern but which exists in the state in small numbers and has been determined to need monitoring.
- SR-T A Significantly Rare species that is rare throughout its range (populations of fewer than 100).

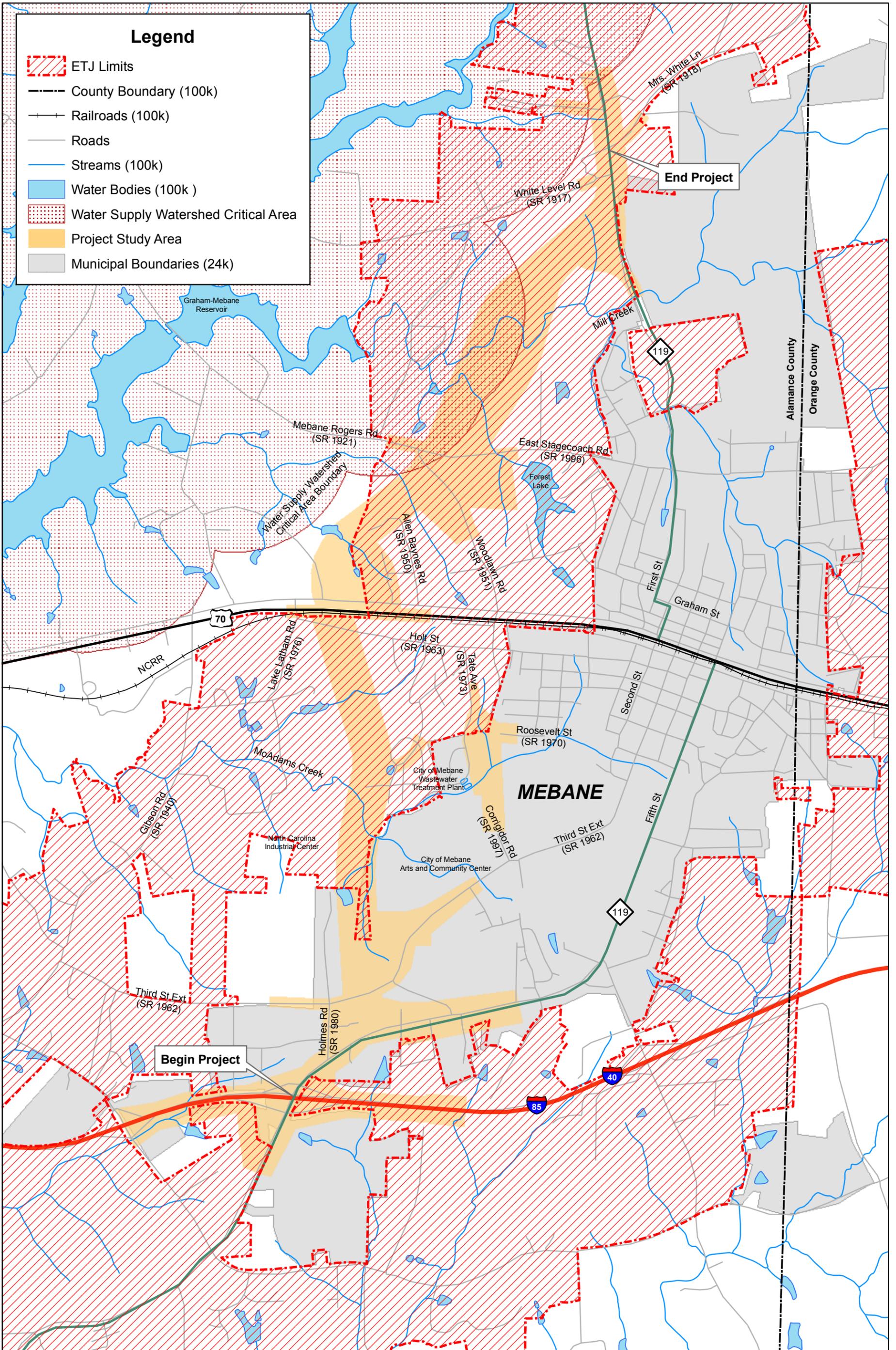
No FSC species have been recorded within one mile of the project study area based upon the NHP database (NCDENR, 2009).

3.3.5.3 *Bald Eagle and Golden Eagle Protection Act*

In the July 9, 2007 Federal Register (72:37346-37372), the bald eagle was declared recovered, and removed (de-listed) from the Federal List of Threatened and Endangered wildlife. This de-listing took effect August 8, 2007. After de-listing, the Bald and Golden Eagle Protection Act (Eagle Act) (16 U.S.C. 668-668d) becomes the primary law protecting bald eagles. The Eagle Act prohibits take of bald and golden eagles and provides a statutory definition of “take” that includes “disturb.” The USFWS has developed National Bald Eagle Management Guidelines to provide guidance to land managers, landowners, and others as to how to avoid disturbing bald eagles. For more information, visit <http://www.fws.gov/migratorybirds/baldeagle.htm>.

3.3.6 **Wild and Scenic Rivers**

The US Department of the Interior (USDOI) and the USDA maintain a list of designated rivers, as well as rivers which may be eligible, for wild and scenic rivers designation. These rivers are listed on the National Rivers Inventory and are afforded a degree of protection under the federal Wild and Scenic Rivers Act. The State of North Carolina also maintains a state river designation intended to protect certain free flowing rivers or segments with outstanding natural, scenic, educational, recreational, geologic, fish and wildlife, historic, scientific or other cultural values. No federally designated, state designated, or National River Inventory waters occur within the project study area (USDOI NPS, 2004).



Legend

- ETJ Limits
- County Boundary (100k)
- Railroads (100k)
- Roads
- Streams (100k)
- Water Bodies (100k)
- Water Supply Watershed Critical Area
- Project Study Area
- Municipal Boundaries (24k)



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 Mebane, Alamance County
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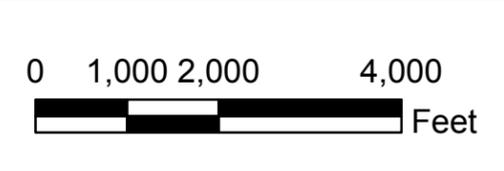
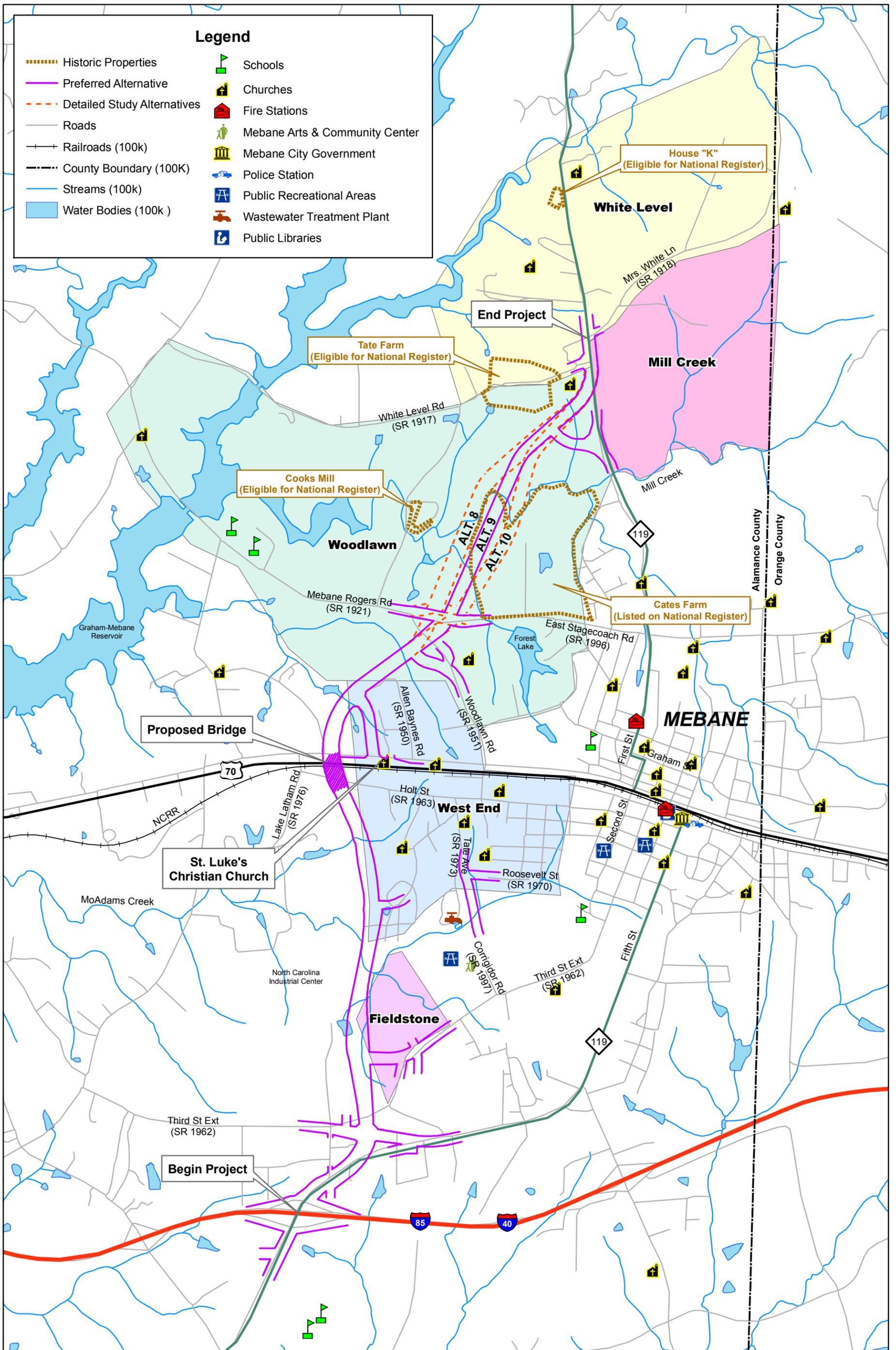


Figure 3.1
 Project Study Area

Legend

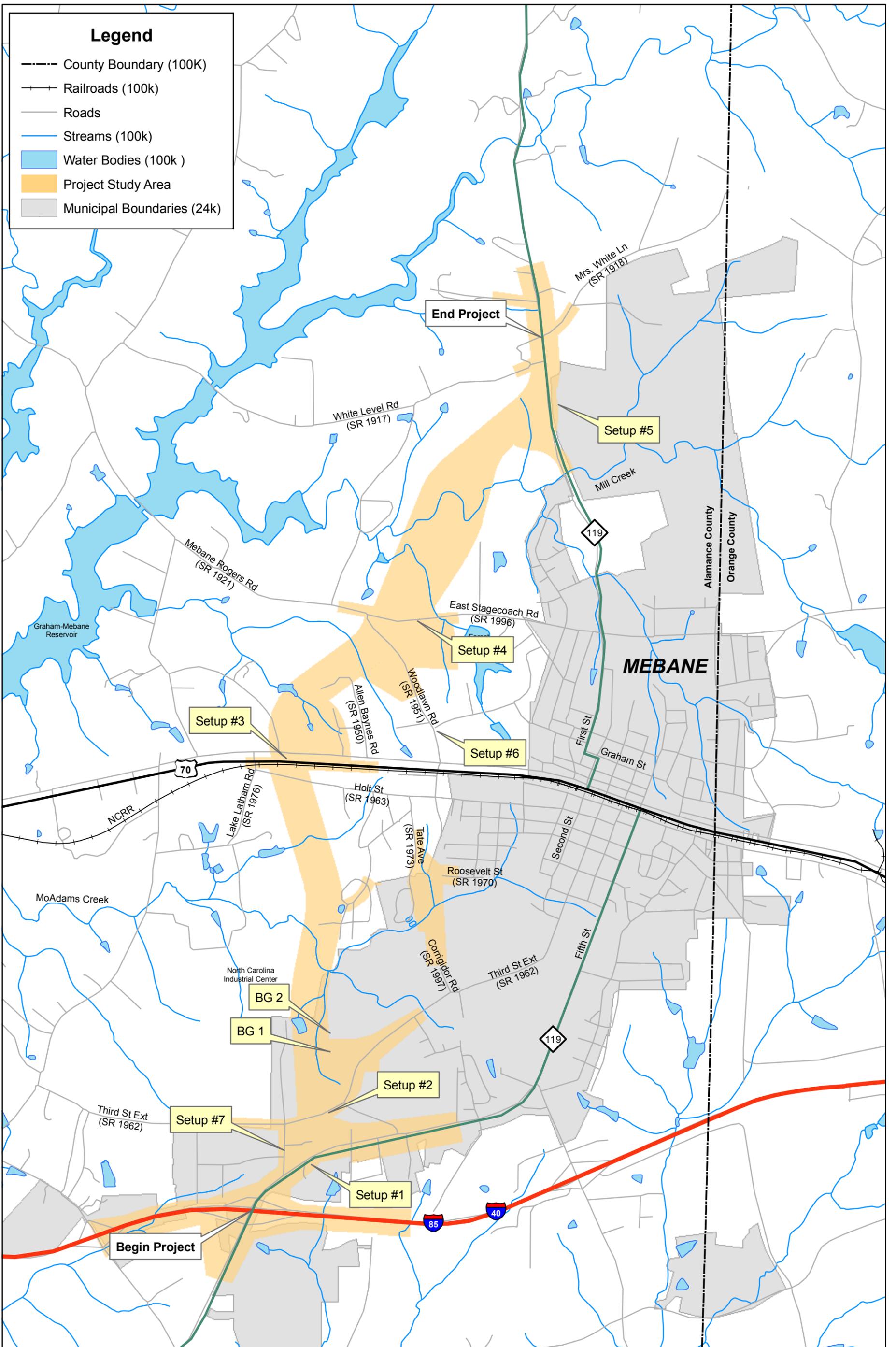
-  Historic Properties
-  Preferred Alternative
-  Detailed Study Alternatives
-  Roads
-  Railroads (100k)
-  County Boundary (100K)
-  Streams (100k)
-  Water Bodies (100k)
-  Schools
-  Churches
-  Fire Stations
-  Mebane Arts & Community Center
-  Mebane City Government
-  Police Station
-  Public Recreational Areas
-  Wastewater Treatment Plant
-  Public Libraries



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Figure 3.4
Mebane Area
Community Facilities



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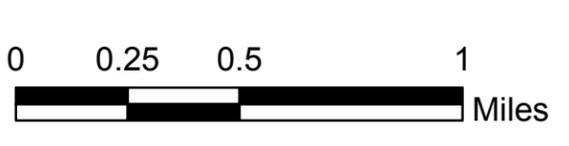
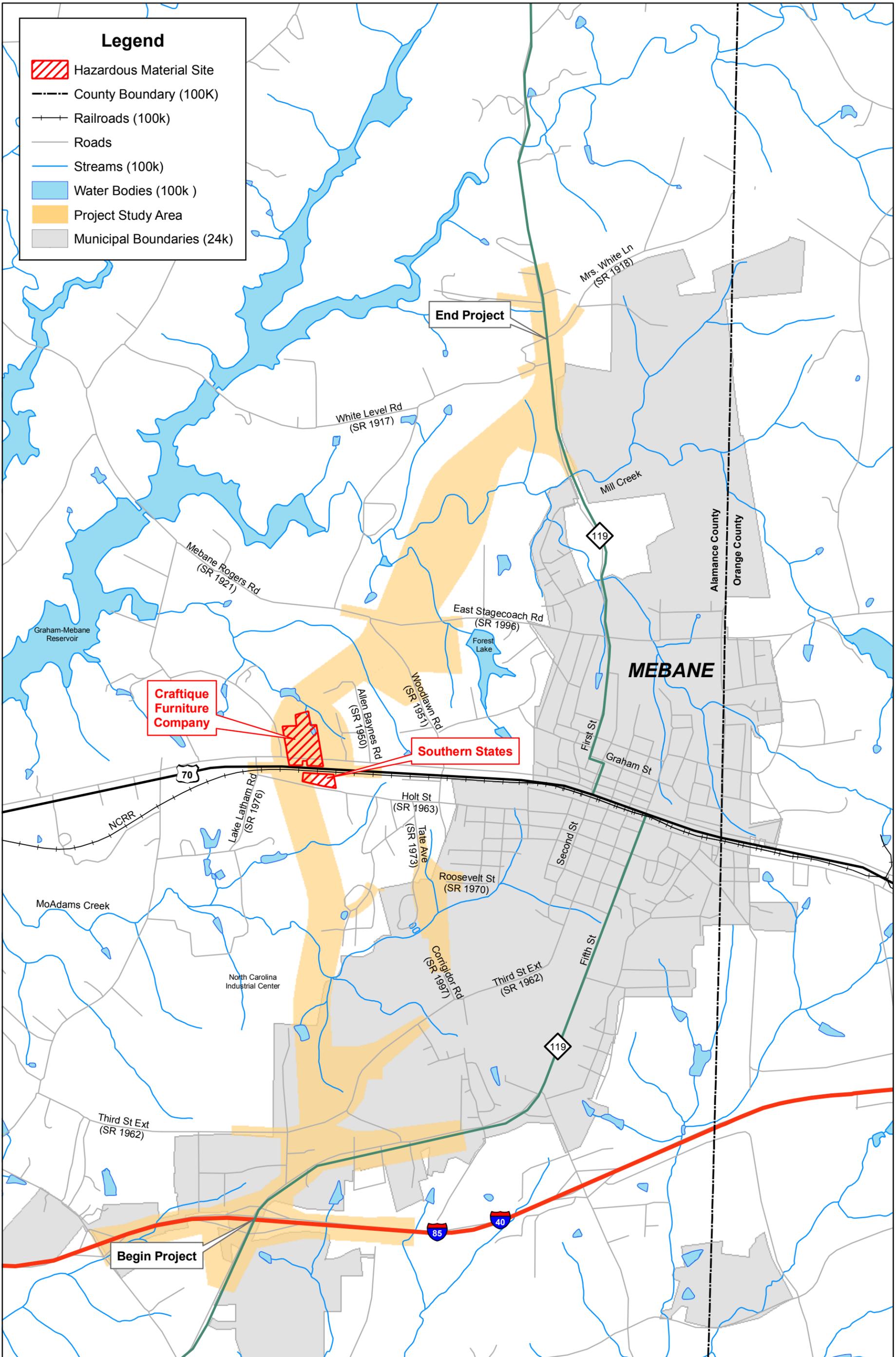


Figure 3.5
 Ambient Noise
 Measurement Locations



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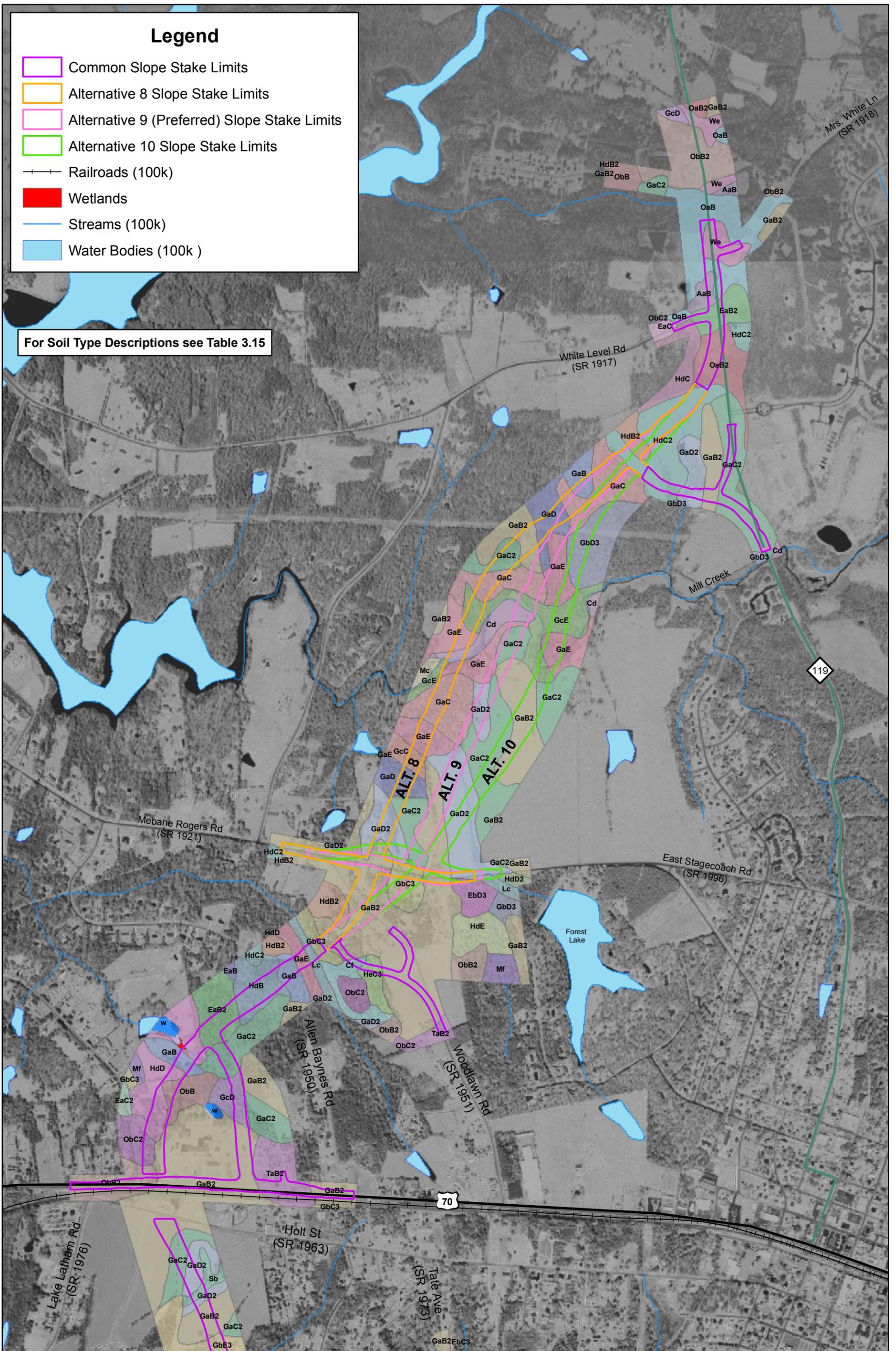


Figure 3.6
 Hazardous Material Sites
 in Project Study Area

Legend

- Common Slope Stake Limits
- Alternative 8 Slope Stake Limits
- Alternative 9 (Preferred) Slope Stake Limits
- Alternative 10 Slope Stake Limits
- Railroads (100k)
- Wetlands
- Streams (100k)
- Water Bodies (100k)

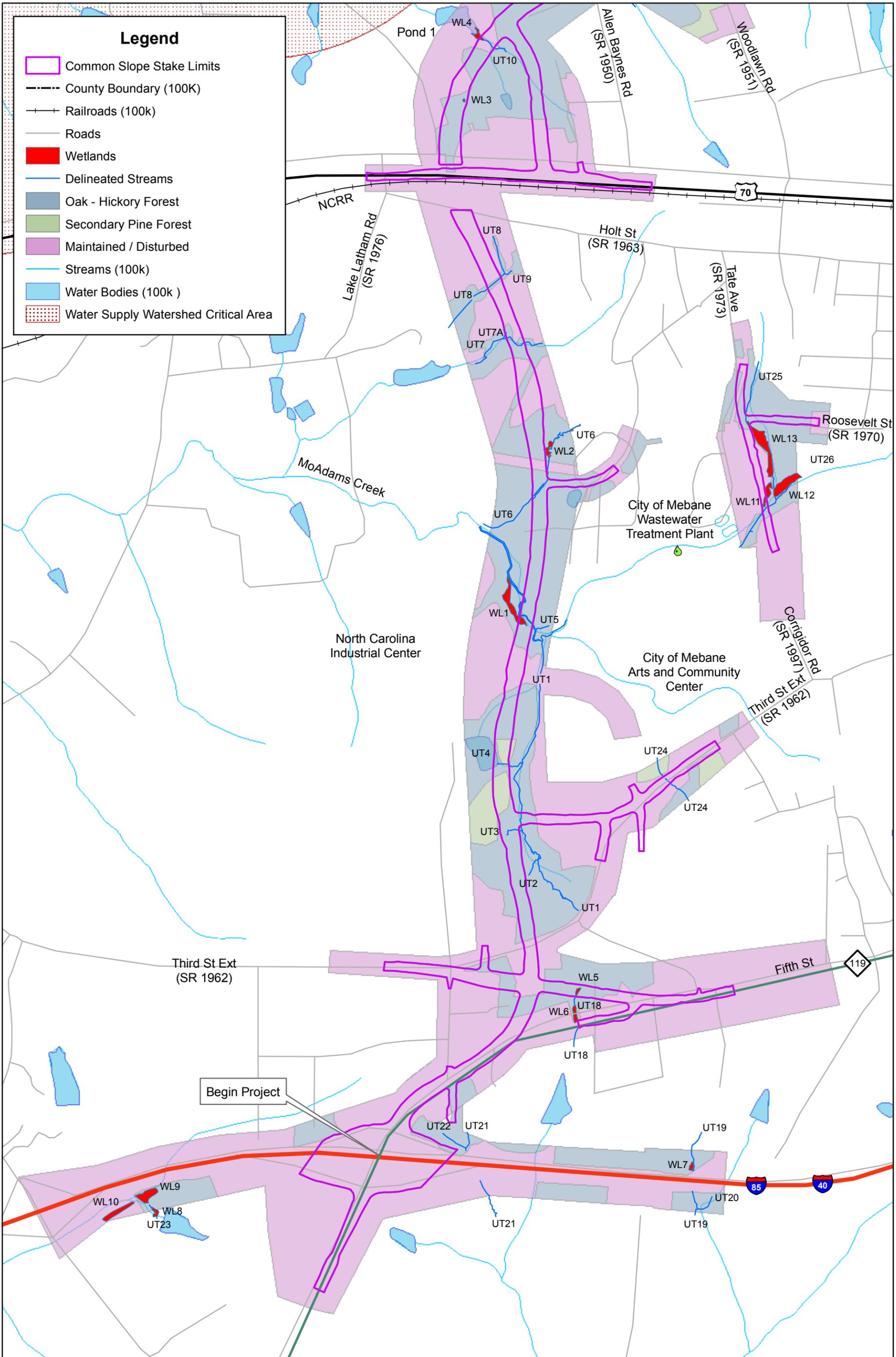
For Soil Type Descriptions see Table 3.15



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Figure 3.7
 Soils in
 Project Study Area
 Sheet 2 of 2



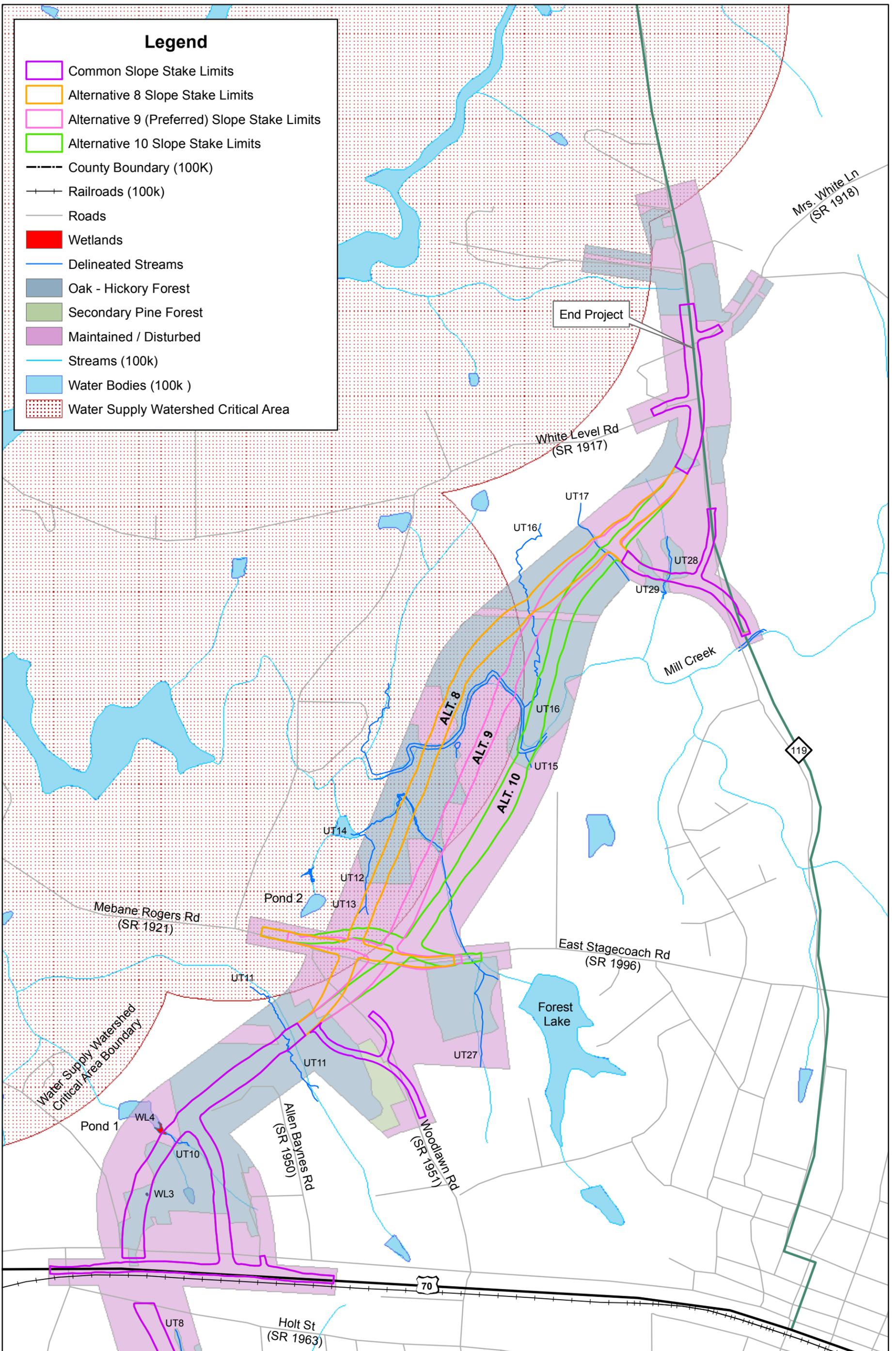
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Figure 3.8
Water Resources and Terrestrial Communities in Project Study Area
 Sheet 1 of 2

Legend

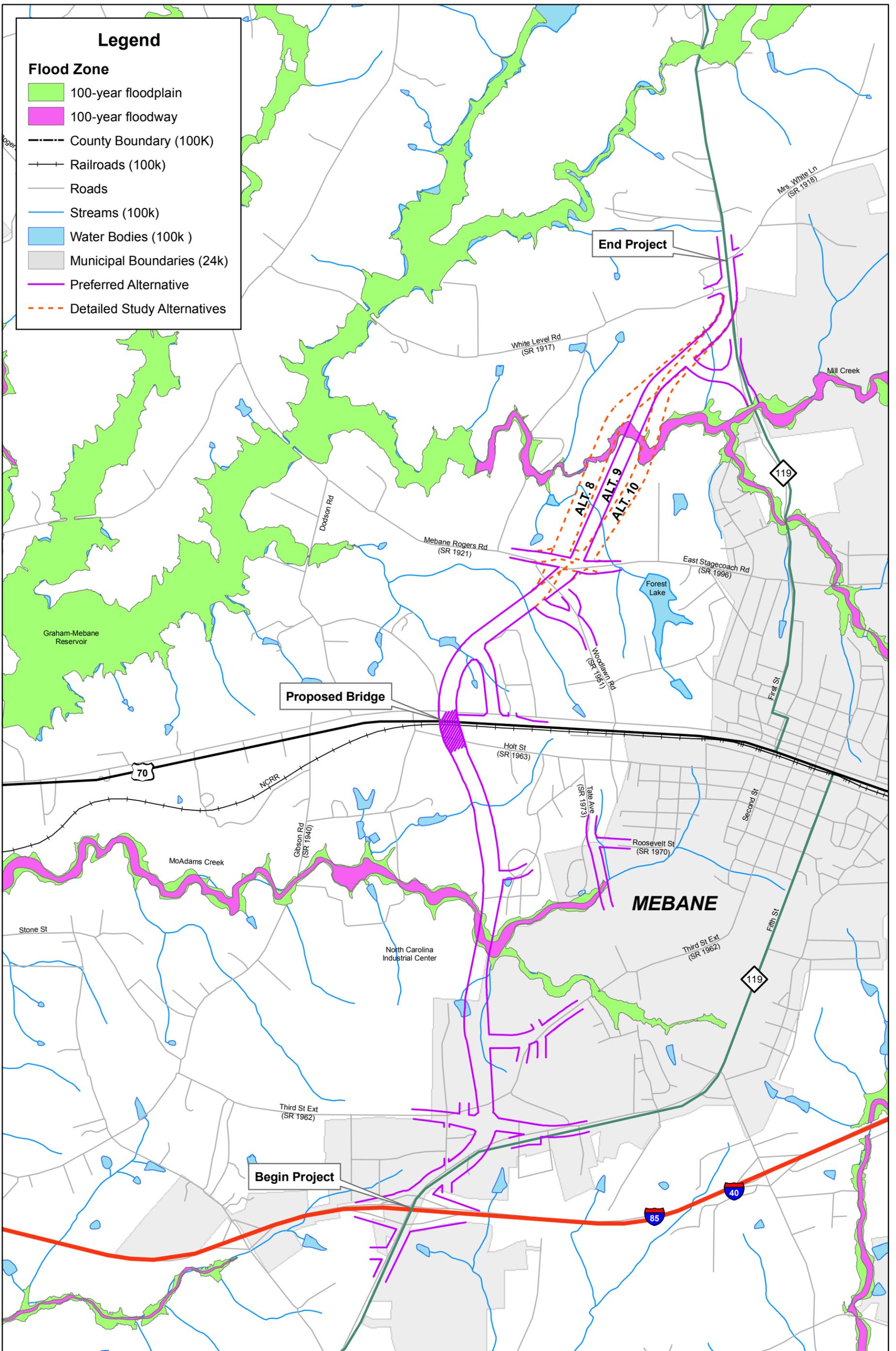
- Common Slope Stake Limits
- Alternative 8 Slope Stake Limits
- Alternative 9 (Preferred) Slope Stake Limits
- Alternative 10 Slope Stake Limits
- County Boundary (100k)
- Railroads (100k)
- Roads
- Wetlands
- Delineated Streams
- Oak - Hickory Forest
- Secondary Pine Forest
- Maintained / Disturbed
- Streams (100k)
- Water Bodies (100k)
- Water Supply Watershed Critical Area



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Figure 3.8
 Water Resources and
 Terrestrial Communities
 in Project Study Area
 Sheet 2 of 2



CHAPTER 4

This chapter summarizes the potential effects on the human, physical, and natural environments that may result from the construction and operation of the NC 119 Relocation project. The impacts described here are based on the preliminary engineering designs for the roadway within Alternative 8, Alternative 9 (Preferred), and Alternative 10 discussed in Chapter 2. Right-of-way widths for the preliminary designs range from 150 feet to 300 feet. Where applicable, the impacts of the No-Build Alternative are discussed. A summary of the anticipated consequences of the project is provided in Section 4.9.

4.1 IMPACTS TO THE HUMAN ENVIRONMENT

4.1.1 Land Use and Transportation Planning

4.1.1.1 Consistency with Transportation Plans

NCDOT Transportation Improvement Program

The proposed project is included in the NCDOT 2009-2015 State Transportation Improvement Program (TIP). As shown in Table 4.1, there are currently two projects associated with NC 119 that are included in NCDOT's 2009-2015 TIP. The NC 119 Relocation project, TIP Project No. U-3109, has been divided into two sections in the TIP. Section A extends from I-85/40 to north of US 70 and has been appropriated funding for planning, right-of-way acquisition, and construction, while Section B, which extends from north of US 70 to SR 1918 (Mrs. White Lane), is currently unfunded. Immediately north of the proposed project is TIP Project No. R-3105, which is the proposed widening of NC 119 between SR 1917 (White Level Road) in Alamance County and NC 62 in Caswell County; this project is currently unfunded.

There is one additional roadway improvement project listed in the TIP that is intended to address traffic improvement needs within the Mebane area. TIP Project No. U-2546 is the proposed widening of US 70 to a multi-lane roadway between the Haw River Bypass and Mebane City limits; this project is not yet funded.

TIP Project No. I-4918, also included in the TIP, includes improvements to I-85/40 through the project study area from NC 54 to the Orange County line. Pavement repair for this eight-mile stretch of roadway is underway.

**Table 4.1
Projects in the Vicinity of Mebane, 2009-2015 TIP**

Project Number	Description	Proposed Improvement	Projected Schedule
U-3109	NC 119 Relocation in Mebane, I-85/40 to South of SR 1918 (Mrs. White Lane)	Construct multi-lane roadway on new location; 4.2 miles	
	<u>U-3109 Section A</u> - I-85/40 to North of US 70		Right-of-way acquisition scheduled to begin in fiscal year 2011; construction to begin in fiscal year 2013
	<u>U-3109 Section B</u> – North of US 70 to South of SR 1918 (Mrs. White Lane)		Unfunded
R-3105	NC 119 from South of SR 1917 (White Level Road) in Alamance County to NC 62 in Caswell County	Widen NC 119 in Alamance County to SR 1901 and construct a connector to NC 62 on new location; 10.0 miles	Unfunded project
U-2546	US 70 in Mebane from Haw River Bypass to Mebane City Limits	Widen to multi-lanes; 4.6 miles	Unfunded project
I-4918	I-85/40 from NC 54 (Milepost 148) in Alamance County to west of SR 1114 (Buckhorn Rd) in Orange County (Milepost 154)	Pavement repair; 8.3 miles	Under construction

Source: NCDOT Program Development Branch, 2009.

Burlington-Graham Metropolitan Planning Organization

The City of Mebane is a member of the Burlington-Graham Metropolitan Planning Organization (MPO), which in 2004 adopted an update of its Transportation Plan for the years 2005 - 2030. The plan has a 25-year planning horizon and identifies existing and projected deficiencies in the region's thoroughfare system, which includes existing NC 119 in Mebane. The Thoroughfare Plan, an element of the overall Transportation Plan Update, identifies proposed roadway improvement projects for the region, including the proposed NC 119 Relocation project.

The following is a list of roadway improvement projects included in the Vision Plan of the Burlington-Graham MPO Thoroughfare Plan that are located within or near the project study area; however, these projects do not have specific funding allocations.

- US 70 – a 4.6-mile road-widening project (from 2-lane to 5-lane section) from NC 49 east to Charles Street in Mebane; TIP No. U-2546.

- North East Mebane (NC 119) Bypass – a new 2-lane, 2.3 mile facility from existing US 70 north to NC 119.
- South Mebane Cross Town Connector – a new 2-lane, 2.6 mile facility from Mattress Factory Road west to the new NC 119 Western Mebane Bypass.
- Fifth Street Extension – a new 2-lane, 0.3-mile facility from Third Street north to East Stagecoach Road.
- Brown Street Extension – a new 2-lane, 0.3-mile facility from Fifth Street west to First Street.
- Eighth Street Extension – a new 2-lane, 0.2-mile facility from Mebane Eye Road south to Mebane Oaks Road.
- NC 119/Fifth Street – a 2.1-mile road-widening project along NC 119 (from 2-lane to 5-lane), from I-85/40 south to Hawfields Road.
- Gibson Road – a 0.9-mile road-widening project along Gibson Road (from 2-lane to 4-lane), from Third Street Extension to Trollingwood Road.
- West Stagecoach Road – a 1.2-mile road-widening project along West Stagecoach Road (from 2-lane to 4-lane), from Cooks Mill Road east to NC 119.

2010 Land Development Plan - City of Mebane

The Transportation Systems Plan element of the 2010 Land Development Plan for the City of Mebane identifies the proposed NC 119 Relocation project as a priority roadway improvement project for the Mebane area and states the following (City of Mebane, 2001):

“Construction of the proposed NC 119 Bypass around the western edge of Mebane will have a significant impact on the City’s land development patterns. Large amounts of vacant land zoned for industrial uses will receive prime access to this new roadway facility over the next ten years. Access needs to be carefully managed to preserve the proposed function of the thoroughfare, and to preserve the community’s small town character and quality of life as growth occurs. In addition, proposed thoroughfare corridors designated on the Thoroughfare Plan and Vision Plan need to be protected from encroachment by new land development.”

The Transportation Systems Plan goals address safety, accessibility and mobility, congestion, and alternative transportation modes for the Mebane area. One of the City’s transportation goals that specifically address the Detailed Study Alternatives, including the Preferred Alternative, is “to reduce through traffic in our City by completing the proposed NC 119 Bypass, and other proposed projects listed on the Thoroughfare Plan and TIP.”

4.1.1.2 Consistency with Land Use Plans and Policies

This section addresses the consistency of the Detailed Study Alternatives, including the Preferred Alternative, with local land use plans, including the 2010 Land Development Plan for the City of Mebane. Detailed discussions on development trends and potential indirect and cumulative impacts as they relate to land use are included in Section 4.4.

2010 Land Development Plan – City of Mebane

The City of Mebane is the planning and zoning authority for the project study area, which is located within the Mebane City limits and its ETJ. The Mebane City Council adopted the 2010 Land Development Plan in June 2001. The primary purpose of the plan is to guide the community in making land development decisions and to help provide for the orderly growth and development of the City. The plan divides the City and its ETJ into smaller community planning areas based on established neighborhood areas and watersheds. The Detailed Study Alternatives, including the Preferred Alternative, traverse the Central Mebane, North Mebane, and West Mebane planning areas as designated by the City of Mebane.

The future land use goals and recommendations from the 2010 plan for the Central Mebane Planning Area that relate to the proposed project include:

- Limit most non-residential development to Activity Centers and Traditional Neighborhood Development (TND) Overlay areas
- Accommodate existing non-residential uses (in and near the critical area of the Graham-Mebane Reservoir watershed) west of the Central Business District (CBD) on the north side of US 70, but designate most vacant land as low density Watershed Residential
- Determine the appropriate amount and intensity of development to be allowed in the Graham-Mebane Reservoir watershed
- Accommodate existing non-residential uses along US 70 without expanding strip development
- Designate Mebane’s Downtown CBD as a mixed-use Town Center, encouraging a variety of commercial, office, industrial, civic, open space, and residential uses
- Designate most of the underdeveloped portion of Mill Creek Planned Unit Development (PUD) as a TND Overlay area
- Designate a Village Activity Center within the “donut hole” of unincorporated land south of the Mill Creek PUD, to serve as a potential location for the creation of a community focal point in the planning area
- Designate Commercial areas to accommodate existing commercial uses, and allow for some limited future development outside of designated Activity Centers where appropriate
- Designate Office and Institutional areas to accommodate existing office and institutional uses, and allow for some limited future development outside of designated Activity Centers where appropriate
- Designate Industrial areas to accommodate existing industrial uses, and to provide opportunities for some new industrial development in the most appropriate places, and while minimizing impacts to existing neighborhoods

The future land use goals and recommendations from the 2010 plan for the North Mebane Planning Area that relate to the proposed project include:

- Continue to protect the City’s drinking water supply by carefully managing land development
- Limit most non-residential development to Activity Centers and TND Overlay areas

- Limit extension of sewer services into Rural Conservation Areas, except in Activity Centers
- Seek to expand the City's ETJ within the Graham-Mebane Reservoir watershed, to help protect the City's drinking water supply
- Designate most of the North Planning Area as Watershed Residential (very-low density) areas, to continue to protect the City's drinking water supply, and to maintain the rural character of the area
- Designate a Village Activity Center at the intersection of existing NC 119 and the NC 119 Relocation project, to serve as a potential location for the creation of a community focal point in the planning area
- Designate the northern third of the historic Cates Farm property as a TND area, possibly to include a small Neighborhood Activity Center
- Designate the southern third of the Cates Farm property as permanently protected Open Space

The future land use goals and recommendations from the 2010 plan for the West Mebane Planning Area that relate to the proposed project include:

- Recognize the West Mebane Planning Area as a unique opportunity to balance unparalleled economic, job, and tax base growth, with the City's community building, aesthetic, and environmental interests
- Maintain pedestrian and vehicular access under the proposed NC 119 Relocation project, to maintain community connections and to minimize traffic impacts on existing roads
- Limit most vacant land west of SR 1940 (Gibson Road) as Suburban (low density) Residential uses, due to environmental constraints present in this area
- Designate most of the area east of SR 1940 (Gibson Road) as an Employment Center with a TND Overlay, to encourage community building and a wide range of uses – including industrial uses, but also a Village Center, and commercial, office, civic, and residential uses
- Designate most of the area east of SR 1940 (Gibson Road) as an Employment Center with a TND Overlay, to encourage a mixture of uses including Industrial, Commercial, Office and Institutional, Urban Residential, and Neighborhood Residential uses
- Include a Village Center within the Employment Center, to serve as a potential location for the creation of a community focal point in the planning area

According to recent data available from the City of Mebane, approximately 26 percent of the land in Mebane's City limits is vacant or excess, while approximately 52 percent of the land area in the city's ETJ is vacant or excess. ("Excess" refers to excess land on under-developed tracts). Most of this land, which includes the planned North Carolina Industrial Center (NCIC), is zoned for industrial uses. All of the undeveloped land north of US 70, approximately one-third of the total for the ETJ, is subject to watershed development constraints and stream buffer requirements.

Alamance County

The proposed NC 119 Relocation project is consistent with the development and transportation policies identified in the Alamance County Destination 2020 Strategic Plan adopted in 2003. The Alamance County Destination 2020 Strategic Plan includes policies and identifies key issues to “guide the future growth and development of the county and to help set priorities for county government in responding to the needs of future growth”. As is the nature of a strategic plan, the Alamance County Destination 2020 Strategic Plan offers policies but does not designate or map future land use for the county.

4.1.2 Social Effects

4.1.2.1 Community Facilities and Services

The No-Build Alternative would not directly impact community services and facilities.

Educational Facilities. No elementary, middle, or high schools would be directly impacted under any of the Detailed Study Alternatives, including the Preferred Alternative.

Churches and Cemeteries. The NC 119 Relocation project would require the displacement of St. Luke’s Christian Church, located at the intersection of US 70 and James Walker Road in the West End community. There appears to be vacant suitable land near the church; therefore, it is anticipated that the church will be able to relocate within the West End community. According to the City of Mebane Planning Department and the Alamance County Geographic Information System (GIS) Department, no cemeteries are located within the project study area.

Community Centers. The extension of SR 1997 (Corrigidor Road) would allow residents of the West End community to have improved access to the Mebane Arts and Community Center.

Fire Stations. No fire stations will be impacted by any of the Detailed Study Alternatives, including the Preferred Alternative. Two fire stations are located near existing NC 119 as shown in Figure 3.4. The reduction in congestion along existing NC 119 may result in travel time savings to areas within the Mebane City limits.

Other Community Services and Facilities. None of the following types of facilities are located within the Detailed Study Alternatives, including the Preferred Alternative. Therefore, no impacts to these facilities are anticipated.

Daycare Facilities	Parks and Recreation Areas
Social Services Agencies	Police Stations
Government Facilities	Medical Facilities

4.1.2.2 Relocations

The number and type of right-of-way acquisitions would be similar for each of the Detailed Study Alternatives, including the Preferred Alternative, with minor differences in the number of residential relocations in the vicinity of SR 1921 (Mebane Rogers Road) in the Woodlawn community. Potential residential and business relocation impacts based on the preliminary engineering designs

within each of the Detailed Study Alternatives, including the Preferred Alternative (including the extension of SR 1997 [Corrigidor Road]), are presented in Table 4.2. The NCDOT Relocation Reports (2007) are included in Appendix C. These estimates are based on preliminary engineering designs and are subject to change as the project progresses through the final, avoidance, minimization, and design phases.

Table 4.2
Estimated Relocations by Detailed Study Alternative

Detailed Study Alternative	Residential Relocations*	Business Relocations*	Churches Displaced*
Alternative 8	44 **	5	1
Alternative 9 (Preferred Alternative)	46 **	5	1
Alternative 10	46 **	5	1

Notes: * Based on NCDOT Relocation Reports included in Appendix C. Churches are listed as non-profit relocatees in the NCDOT Relocation Reports.
 ** Includes relocations associated with the improvements to SR 1997 (Corrigidor Road).

The majority of right-of-way to be acquired for the proposed project is currently undeveloped land within the low density residential areas west of the City of Mebane. However, construction of the proposed project would require acquisition of residential, commercial, and other privately-owned properties throughout the corridor. Based on the preliminary engineering designs, the majority of business and commercial right-of-way acquisitions would be located in the southern portion of the proposed corridor. Potential displacements and relocations are located primarily within the areas north of the NC 119 and I-85/40 interchange and in the vicinities of the SR 1962 (Third Street Extension) and Fifth Street (NC 119) realignments, US 70, SR 1921 (Mebane Rogers Road), SR 1951 (Woodlawn Road), and near SR 1917 (White Level Road). As shown in Table 4.2, all of the Detailed Study Alternatives, including the Preferred Alternative, would relocate the same number of businesses and churches; however, Alternative 8 would relocate 44 residences while the Preferred Alternative and Alternative 10 would relocate 46 residences.

The relocation reports included in Appendix C list the businesses anticipated to be displaced under each alternative. Review of these businesses suggests that none represent a unique type of business in the area. Accordingly, temporary disruption in their services during relocation is not anticipated to create any severe hardships to patrons in the area.

Relocation Assistance. NCDOT has determined that there is comparable replacement housing within the study area for displaced homeowners and tenants (see Appendix C). It is the policy of NCDOT to ensure that comparable replacement housing is available for relocatees prior to construction of state and/or federally-assisted projects. Furthermore, NCDOT has three programs to minimize the inconvenience of relocation: relocation assistance, relocation moving payments, and relocation replacement housing payments or rent supplements.

With the Relocation Assistance Program, experienced NCDOT staff would be available to assist displacees with information such as: availability and prices of homes, apartments, or businesses for sale or rent, and financing or other housing programs. The Relocation Moving Payment Program, in

general, provides for payment of actual moving expenses encountered in relocation. Where displacement would force an owner or tenant to purchase or rent property at higher cost or to lose a favorable financing arrangement (in case of ownership), the Relocation Replacement Housing Payments or Rent Supplement Program would compensate up to \$22,500 to owners who are eligible and qualify, and up to \$5,250 to tenants who are eligible and qualify.

The relocation program for the NC 119 Relocation project would be conducted in accordance with the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Public Law 91-646) and the North Carolina Relocation Assistance Act (GS-133-5 through 133-18). This program is designed to provide assistance to displaced persons in relocation to a replacement site in which to live or do business. At least one relocation officer is assigned to each highway project for this purpose.

The relocation officer would determine the needs of displaced families, individuals, businesses, non-profit organizations, and farm operations without regard to race, color, religion, sex, or national origin. NCDOT would schedule its work to allow ample time, prior to displacement, for negotiation and possession of replacement housing that meets decent, safe, and sanitary standards. The relocatees are given a 90-day written notice to vacate after NCDOT purchases the property. Relocation of displaced persons would be offered in areas not generally less desirable in regard to public utilities and commercial facilities. Rent and sale prices of replacement housing would be within the financial budget of the families and individuals displaced and would be reasonably accessible to their places of employment. The relocation officer also would assist owners of displaced businesses, non-profit organizations, and farm operations in searching for and moving to replacement property.

All tenant and owner residential occupants who may be displaced would receive an explanation regarding all available options, such as: 1) purchases of replacement housing; 2) rental of replacement housing, either private or public; and 3) moving existing owner-occupied housing to another site (if practicable). The relocation officer would also supply information concerning other state or federal programs offering assistance to displaced persons and would provide other advisory services as needed in order to minimize hardships to displaced persons in adjusting to a new location.

Last Resort Housing is a program used when comparable replacement housing is not available, or is unavailable within the displacee's financial means, and the replacement payment exceeds the federal and state legal limitation. The purpose of the program is to allow broad latitude in methods of implementation by the state so that decent, safe, and sanitary replacement housing can be provided. Since opportunities for replacement housing appear adequate within the demographic study area, it is not anticipated that the Last Resort Housing Program would be necessary for the proposed project. However, this program would still be considered as mandated by state law.

4.1.2.3 Community Cohesion

This section addresses the potential effects of the NC 119 Relocation project on neighborhoods and the community at large. Impacts can be both positive and negative, and are often subjective and difficult to quantify. Community cohesion impacts could include the effects of neighborhood

division, social isolation, changes in community character, increased/decreased neighborhood or community access, and shortened travel times.

The local impacts of the proposed project are generally associated with the changes in local traffic volumes, access points, and traffic circulation patterns within a community and with the proposed right-of-way acquisitions and relocations necessary to construct the new roadway. The right-of-way acquisition impacts are generally considered to be negative impacts, while the potential changes to traffic and accessibility can be considered beneficial or negative depending on the nature and location of these changes.

The community-related impacts of not constructing the proposed project would be primarily associated with increased traffic congestion and the lack of accessibility to and within the communities in the study area. The capacity of the existing NC 119 roadway would not be sufficient for the projected travel demand in the area and traffic congestion would greatly increase in future years along the existing NC 119 corridor and other major roadways in the study area. The No-Build Alternative would also not provide the safety improvements of the overpass over US 70, SR 1963 (Holt Street), and the North Carolina Railroad (NCR) as proposed with this project. The following sections describe the impacts specific to the neighborhoods identified in the study area.

Fieldstone. The proposed project would not require displacements or property acquisitions directly within the Fieldstone community; and therefore, would not result in neighborhood divisions or loss of community cohesion within the Fieldstone development. The proposed realignment of SR 1962 (Third Street Extension) to connect with the proposed roadway immediately south of the Fieldstone Apartments and north of the US Post Office would require displacement of approximately six single-family residences. The realigned roadway would provide improved access between the Fieldstone community and areas north and west of the community.

South of the Fieldstone community, the proposed realignment of Fifth Street to intersect with the proposed realignment of SR 1962 (Third Street Extension) would require displacement of approximately 10 single-family residences.

West End. The proposed access locations to the Detailed Study Alternatives, including the Preferred Alternative, in the vicinity of the West End community include the extension of SR 1972 (Smith Drive), as well as the connector road from the proposed roadway to US 70. The proposed project would provide an overpass of SR 1963 (Holt Street), the NCR, and US 70.

The extension of SR 1972 (Smith Drive) would intersect the Preferred Alternative and Alternatives 8 and 10 at a 'T' intersection. This connection would provide improved access to and from the West End community via the proposed roadway and enable more convenient travel to other areas of Mebane from this new access location. This new connection at SR 1972 (Smith Drive) would also increase the traffic volumes on SR 1972 (Smith Drive) and SR 1975 (Fitch Drive); however, the projected low traffic volumes are not anticipated to result in traffic congestion at any time of the day.

The proposed project would require three residential displacements within the West End community; however, it would not result in neighborhood divisions or loss of community cohesion. All of the Detailed Study Alternatives, including the Preferred Alternative, would also require the

displacement of St. Luke's Christian Church, located at the intersection of US 70 and James Walker Road, immediately east of the proposed connection between US 70 and the Detailed Study Alternatives, including the Preferred Alternative. The majority of the congregation at St. Luke's Christian Church is from Burlington, with some parishioners from West End and Durham. In discussions with NCDOT in 2000, 2001, and 2008, church officials stated a preference for relocation along US 70 rather than having the proposed NC 119 located close to the church, as it would limit future plans to expand church facilities. There appears to be vacant suitable land near the church; therefore, it is anticipated that it will be able to relocate within the West End community. Census data and project coordination and outreach indicate that both low-income and minority environmental justice populations are present in West End. Environmental justice impacts are discussed in Section 4.1.2.4.

Roadway improvements proposed in the West End community include the extension of SR 1997 (Corrigidor Road) to connect with SR 1973 (Tate Avenue) and a short extension of SR 1970 (Roosevelt Street) to connect with the SR 1997 (Corrigidor Road) extension. These proposed roadway extensions would provide much improved access for the West End community to community facilities and services, the commercial areas of Mebane, and the I-85/40 corridor. They would also create improved circulation patterns within the community that currently has several dead-end streets and poor street connectivity. This new connection would require the relocation of one single-family residence; however, it would not result in a neighborhood division or loss of community cohesion. It appears that there is vacant land available in the area that may be a suitable relocation site.

Downtown Mebane. The proposed project would not require displacements or property acquisitions within downtown Mebane; however, the proposed project could have both beneficial and negative impacts on Mebane residents and businesses. The proposed project is anticipated to result in decreased traffic volumes and congestion within the downtown area by removing through-traffic on existing NC 119. With the construction of the proposed roadway, the future 2030 daily traffic volumes along existing NC 119 in downtown Mebane are projected to be 20 to 40 percent less than if the proposed project is not built. North of the downtown area, the 2030 future daily traffic volumes are projected to decrease by 70 to 80 percent with the construction of the proposed roadway.

Although the proposed project would reduce traffic congestion in downtown Mebane, the diversion of through-traffic could also remove potential customers from businesses along existing NC 119 in the downtown area. If some of the businesses in downtown Mebane moved to the proposed roadway, it could result in changes to the character and type of businesses located in downtown Mebane.

A positive benefit to travel conditions in downtown Mebane would be the reduction in commercial truck traffic and congestion along existing NC 119. This reduction in truck traffic could enhance pedestrian safety in downtown Mebane and make the environment more conducive to shopping and other activities.

Another positive safety benefit that the proposed project would provide to Mebane residents and travelers is a bridge overpass of the NCR. There is a history of accidents and fatalities associated

with the existing NC 119 crossing of the railroad in downtown Mebane. The proposed project would provide an alternative to the existing at-grade crossing.

Woodlawn. The proposed roadway is located in the eastern half of the Woodlawn community, which is mostly open space and farmland with scattered rural residential development and areas of dense vegetation north of Mill Creek. The Preferred Alternative and Alternatives 8 and 10 have similar alignments; however, each alternative differs as to the impacts to the water supply watershed critical area and/or the historic Cates Farm property, which is listed on the National Register of Historic Places (NRHP). Alternative 8 would require acquisition of land that is within the water supply watershed critical area for the Graham-Mebane Reservoir; the Preferred Alternative would require acquisition of land within the water supply watershed critical area, as well as within the Cates Farm property NRHP listed boundary; and Alternative 10 would require acquisition of land within the Cates Farm property NRHP listed boundary.

Each alternative would require property acquisitions within the Woodlawn community. Alternative 8 would displace eight single-family residences and the Preferred Alternative and Alternative 10 would displace ten single-family residences. The proposed roadway would traverse diagonally across the eastern half of the Woodlawn community. The presence of the proposed roadway within the Woodlawn community could be perceived as a division of this community due to the location of the proposed corridor. An additional community-related impact would be associated with the acquisition of a portion of the Cates Farm historic property.

In general, access to community facilities and services would be maintained or enhanced in this area as a result of the proposed project because it would provide a direct route for north-south travel in the Woodlawn community area, particularly north of SR 1921 (Mebane Rogers Road)/SR 1996 (East Stagecoach Road). In response to requests from concerned citizens, the Preferred Alternative was modified south of SR 1921 (Mebane Rogers Road)/SR 1996 (East Stagecoach Road) to include a realignment of SR 1951 (Woodlawn Road) to tie into proposed NC 119 south of where existing SR 1951 (Woodlawn Road) would intersect the proposed roadway. The purpose of this realignment is to maintain continuity of the street system in the Woodlawn community by providing a connection from SR 1951 (Woodlawn Road) to the proposed NC 119 roadway. This proposed connection would improve access for the Woodlawn community to community facilities and services, the commercial areas of Mebane, and the I-85/40 corridor. This new connection would not require any relocations.

Mill Creek. Because existing NC 119 near the northern project terminus would become a T-turn around south of the alternatives, existing NC 119 would be realigned to intersect with the proposed project and provide access to area residents.

The realignment of existing NC 119 would intersect the Preferred Alternative and Alternatives 8 and 10 at a 'T' intersection. This connection would provide residents of the Mill Creek community with more direct access to I-85/40 and reduced travel times to destinations south and west of the community as compared to the current conditions. The Mill Creek community would not be directly affected by displacements or property acquisitions from the proposed project and would not experience neighborhood divisions or loss of community cohesion.

White Level. The proposed alignment for the Preferred Alternative and Alternatives 8 and 10 travels into the southernmost portion of the White Level community, and reconnects with existing NC 119 just south of its intersection with SR 1918 (Mrs. White Lane). Therefore, access to the White Level community would remain essentially the same with the proposed project, with a new transition from the proposed four-lane roadway to the existing two-lane roadway in this area.

The proposed tie-in near the intersections of SR 1917 (White Level Road), SR 1918 (Mrs. White Lane), and the proposed roadway would displace six single-family residences. It is anticipated that suitable relocation sites may be available in the nearby vicinity, which would minimize any long-term impacts associated with the relocation of the residences.

The proposed roadway would not isolate portions of the White Level community nor create a barrier to the interaction of remaining residents in this area. There appears to be vacant land in the vicinity of the displaced residences, so it is anticipated that suitable relocation sites would be identified within the White Level community in order to minimize any impacts associated with these relocations. This community has a relatively high percentage of minority residents; environmental justice impacts are discussed in Section 4.1.2.4.

Travel patterns are anticipated to remain essentially the same in the White Level community as a result of the proposed project. It is anticipated that the proposed roadway would provide residents of the White Level community with more direct access to I-85/40 and reduced travel times to destinations south and west of the community as compared to the current conditions.

Community Access. The travel analyses conducted for both the existing and future travel conditions within the study area indicates that the proposed project would enhance local travel within and among the communities in the study area by reducing traffic congestion along the existing NC 119 roadway and by providing an alternative north-south travel route in the Mebane area. Since through-traffic would be diverted from existing NC 119, accessibility to employment, facilities, and services within the developed community centers is expected to improve for local traffic.

While no major cross-street connecting to any of the residential areas would be closed as part of the proposed action, there may be individual property access impacts due to relocation of driveways and local roads.

Changes to local access would occur in the vicinity of the Fieldstone community due to proposed T-turn arounds (similar to cul-de-sacs) on South Fifth Street and SR 1962 (Third Street Extension) where these roadways intersect the Detailed Study Alternatives, including the Preferred Alternative. This would result in local travel pattern changes and relocation of the primary entrance to several businesses in this area.

The NC 119 Relocation project would improve accessibility for the West End community. The proposed access points to the proposed roadway in this community would be located at the intersection of the proposed NC 119 roadway and the proposed extension of SR 1972 (Smith Drive) and at the intersection of the proposed connector road to the Detailed Study Alternatives, including the Preferred Alternative, from US 70.

The NCRR line that runs through the City of Mebane is part of the proposed Southeast High-Speed Rail (SEHSR) corridor. Currently, NC 119 has an at-grade, quad-gate and signalized crossing of the railroad at Fifth Street and US 70. The Detailed Study Alternatives, including the Preferred Alternative, would be located west of the downtown area and would provide a new bridge overpass of the railroad, as well as SR 1963 (Holt Street) and US 70. This proposed grade-separated crossing of the NCRR and US 70 would provide a safer crossing of these facilities and also prevent delays at the railroad crossing when trains pass, thereby possibly improving the response time for emergency services vehicles to some areas of Mebane and the surrounding communities.

The Preferred Alternative was modified south of SR 1921 (Mebane Rogers Road)/SR 1996 (East Stagecoach Road) to include a realignment of existing SR 1951 (Woodlawn Road) to tie into proposed NC 119 approximately 520 feet south of where existing SR 1951 (Woodlawn Road) would intersect the proposed roadway. This realignment provides right-in/right-out access from SR 1951 (Woodlawn Road) onto the proposed NC 119. This proposed realignment would improve access for these residences to and from the Woodlawn community.

The NC 119 Relocation project would improve accessibility for the Mill Creek and White Level communities by providing direct access to I-85/40 and reduced travel times to destinations south and west of the community as compared to the current conditions.

4.1.2.4 Environmental Justice

It is important to take into consideration the effects that the project would have on minority and low-income groups. This is supported by several federal laws and regulations that require the evaluation of the effects of a transportation action on these communities that, historically, have not actively participated in the decision-making process.

Background. Title VI of the Civil Rights Act of 1964 and related statutes require that federal agencies ensure that no person is excluded from participation in, denied the benefit of, or subjected to discrimination under any program or activity that receives federal financial assistance on the basis of race, color, national origin, age, sex, disability, or religion.

The need to identify low-income and minority populations and include them in the project's decision-making process gained greater emphasis as a result of Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (February 11, 1994). This order directs all federal agencies to determine whether a proposed action would have a disproportionately high and adverse impact on minority and/or low-income populations. It also requires consideration of whether these populations would share equally in the benefits of proposed actions.

Environmental justice refers to the equitable treatment of people of all races, cultures, and income with respect to the development, implementation and enforcement of environmental laws, regulations and policies. Implementation of environmental justice regulations for highway projects is governed by the 1997 USDOT Order on Environmental Justice to Address Environmental Justice in Minority Populations and Low-Income Populations (DOT Order 5610.2). The environmental justice guidance particularly emphasizes the importance of the NEPA public participation process, directing that "each federal agency shall provide opportunities for community input in the NEPA

process.” Agencies are further directed to “identify potential effects and mitigation measures in consultation with affected communities, and improve the accessibility of meetings, crucial documents, and notices.” Federal Highway Administration (FHWA) guidelines regarding environmental justice are contained in *FHWA Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*” (FHWA, 1998). This publication requires all programs and activities of FHWA to comply with Executive Order 12898 and DOT Order 5610.2.

There are three fundamental environmental justice principals that are to be considered in the application of this FHWA order:

- To avoid, minimize, or mitigate disproportionately high and adverse human health and environmental affects, including social and economic effects, on minority populations and low-income populations.
- To ensure the full and fair participation by all potentially affected communities in the decision-making process.
- To prevent the denial of, reduction in, or significant delay in the receipt of benefits by minority and low-income populations.

For purposes of environmental justice, the US Department of Transportation (USDOT) defines “minority” as those persons identifying themselves as: Hispanic, Black or African American, American Indian and Alaska Native, Native Hawaiian and other Pacific Islander, and Asian. “Low-income” is defined as persons with household income at or below the poverty guidelines established by the US Department of Health and Human Services. The emphasis on populations in DOT guidance means that all populations should be identified and given meaningful opportunities for input, and that impacts to these populations should be evaluated and compared to the impacts to non-Environmental Justice populations and the community at large; the presence of environmental justice populations or impacts to those populations do not inherently establish disproportionality.

In accordance with FHWA’s approach to Environmental Justice, the following steps were included in this study process to address potential environmental justice consequences:

- Make active efforts to identify minority and low-income populations and include them in the transportation project development process;
- Provide for their participation and community representation in the process;
- Consider all reasonably foreseeable direct, indirect, and cumulative effects on minority and low-income populations;
- Compare the impacts to minority and low-income populations to those of non-minority and non-low-income populations to determine 1) whether minority and low-income populations share equally in the benefits of the transportation project, and 2) whether disproportionately high and adverse impacts to minority or low-income populations would occur with the transportation project; and
- To the extent practical, avoid, minimize, and mitigate adverse impacts to minority and low-income populations.

The environmental justice methodology relies upon a combination of US Census data, input from citizens and local officials, and windshield surveys to identify the impacts as outlined above.

Locations of environmental justice populations were identified early in the project development process to facilitate avoidance and minimization of adverse impacts. Demographic characteristics pertaining to race and income for the project demographic study area were collected from the US Census 2000 databases and are presented in Section 3.1.3 of this document. Local planning officials and community leaders were also interviewed to identify populations of minority and/or low-income households living within the demographic study area and whether any of the affected businesses would impact employment of primarily minorities and/or low-income groups.

Identification of Environmental Justice Populations. Census Block Groups are the smallest Census data unit for which all parameters needed to conduct an environmental justice assessment are available. However, race and ethnicity is available at the Census Block level. These data combined with observations from public outreach and coordination enabled the assessment of community-level racial and ethnic composition.

As identified in Table 4.3, the proportions of minority and ethnic populations residing in the demographic study area are similar to the proportions in Alamance County and the State of North Carolina. However, the proportion of minority and ethnic residents varies greatly among the communities within the demographic study area. The minority population ranges from approximately 9 percent in the downtown area of Mebane (Census Block Group 212.03-2), to 38 percent in the area located south and east of downtown Mebane (Census Block Group 212.03-4). Census Block Group 213.00-2 has a minority population of 34 percent and includes the White Level community and the northern portion of the NC 119 Relocation project. Census Block Group 212.03-4 has a minority population of 38 percent. This area is located approximately one mile east of the proposed project and includes existing NC 119. Figure 4.1 shows the minority populations by percentages for each of the Census Block Groups in the demographic study area based on 2000 Census data. The following information summarizes racial characteristics for communities within the study area.

- The Fieldstone community has a 20 to 50 percent minority population.
- The majority of the population within and north of downtown Mebane is white with less than 10 percent minority population. The areas within Mebane that are north of SR 1962 (Third Street Extension) have a 20 to 50 percent minority population.
- The population of the West End community is largely a minority population with the area south of US 70 having greater than 50 percent minority population and the area north of US 70 having a 20 to 50 percent minority population.
- The majority of the population within the Mill Creek community is white with less than 10 percent minority population.
- Within the Woodlawn community the majority of the population is white with a portion of the eastern half of the community having a 20 to 50 percent minority population.
- The population in the White Level community is largely a minority population with the area north of SR 1917 (White Level Road) and SR 1918 (Mrs. White Lane) having a greater than 50 percent minority population.

Thus, while the Census data point particularly to the White Level community and portions of downtown Mebane, the West End community and the eastern half of the Woodlawn community also have minority populations that may be affected by the proposed action.

The Hispanic population ranges from approximately 2 to 3 percent in most of the demographic study area and increases to 6 to 11 percent in the areas south of downtown Mebane (Census Block Group 212.03-3 and 212.03-4). The two Census Block Groups that have notably high Hispanic populations are located approximately one mile or more to the east of the proposed project and would not be directly impacted by the proposed project.

Also identified in Table 4.3 are the proportions of low-income populations residing in the demographic study area that are similar to the proportions in Alamance County and the State of North Carolina. However, the proportion of low-income residents varies greatly among the communities within the demographic study area ranging from approximately 6 percent in the area located south and east of downtown Mebane (Census Block Group 212.03-4), to 29 percent in the area located in the southwestern portion of downtown Mebane (Census Block Group 212.03-3). Figure 4.2 shows the low-income populations by percentages for each of the Census Block Groups in the demographic study area based on 2000 Census data. Based on this information, Census Block Group 212.03-3 is the only area with a share of the population below the poverty level that is substantially above the state and county averages. This area is located approximately ¾ of a mile east of the proposed project and includes existing NC 119. While this area will not have direct impacts from the project, there are indirect and cumulative effects, which are discussed in Section 4.4. Despite these statistics, and particularly due to the diversity of communities within the Census Block Group 0212.03-1, where the largest number of persons below the poverty level (477) is recorded, the potential for effects to low-income populations is considered throughout the demographic study area.

**Table 4.3
Environmental Justice Related Demographic Characteristics
of the Demographic Study Area Population**

Census Block Group	Minority	Hispanic	Population Below Poverty Level *
212.03-1	28%	2%	13%
212.03-2	9%	3%	7%
212.03-3	13%	6%	29%
212.03-4	38%	11%	6%
212.03-5	20%	2%	10%
213.00-2	34%	2%	7%
Demographic Study Area	26%	3%	11%
Alamance County	24%	7%	11%
North Carolina	28%	5%	12%

Note: * Based on 1999 poverty threshold established by the US Census Bureau, which is the best available indicator of populations meeting the Department of Health and Human Services Poverty guidelines referenced in the USDOT definition of environmental justice populations.

Source: US Census Bureau, 2000

Participation/Representation by Environmental Justice Populations in the Transportation Project Development Process. An important part of the environmental justice process is having an open public participation process that is sensitive to the needs of minorities and/or low-income households. The initiation of the public involvement program for the NC 119 Relocation project began in 1994 and these efforts have included numerous public meetings, citizen workshops, and interviews conducted by NCDOT.

Several communities in the NC 119 study area expressed interest in the project. Residents of the West End, a historically Black/African American community, presented specific concerns to NCDOT. NCDOT met with representatives of the West End Revitalization Association (WERA) on March 3, 1999, to establish a dialogue with the West End residents. WERA representatives placed the road project in the context of their past relationships with local and state agencies. Issues raised by WERA included annexation, improved accessibility to the larger Mebane area, the need for sewer service, and the removal of what they believed to be a substandard bridge. With regards to the proposed project, WERA requested the examination of alternative alignments to the west of those initially proposed that would avoid homes in the West End community. WERA presented NCDOT with a summary of their concerns, which is included in Appendix H.

NCDOT prepared a *Community Impact Assessment* (CIA) for the proposed project in November 2003 (Wilbur Smith Associates, 2003). As part of the CIA process, a series of one-on-one meetings was conducted with citizens in the Fieldstone, downtown Mebane, Mill Creek, White Level, and Woodlawn communities. The legal council for WERA asked that no interviews be conducted in the West End community due to a civil rights and environmental justice complaint filed in 1999 (see Title VI Complaint below).

During 2004, NCDOT retained the Wills Duncan Group, Inc. (WDG) to conduct a community facilitation program for the NC 119 Relocation project. The program was intended to increase citizen involvement and identify the most important issues regarding the proposed project from the perspective of the various communities within the study area. Key stakeholders in the minority communities were interviewed and several small group meetings were held with potentially affected neighborhoods in the study area including Fieldstone, West End, Woodlawn, Mill Creek, and White Level. Through these dialogues, NCDOT provided opportunities for the communities' issues and concerns to be expressed. In addition, WDG conducted one-on-one interviews with local officials, community leaders, and other stakeholders/citizens from all sectors of the study area, including minority neighborhoods, to gather information about the communities' concerns, perceived problems, and desires related to the NC 119 Relocation project (WDG, 2005).

As a result of these efforts, the NC 119 Relocation Steering Committee was formed. The committee is a diverse group of citizens representing the affected neighborhoods and the business community of the Greater Mebane area. Comprised of 18 community representatives and 2 members of the local business association, the Steering Committee has the responsibility of representing the Mebane area communities in future activities related to the relocation of NC 119. The Steering Committee met with NCDOT representatives during 2004, 2006, and 2008 to receive updated project information and to offer comments and input on the proposed project. The NCDOT will continue to keep the community and the Steering Committee informed about the project through the distribution of newsletters and information posted on the project website. The Steering Committee will continue to

work with the local communities they represent and NCDOT to organize community meetings and keep their neighborhoods informed about the progress of the NC 119 Relocation project.

In addition, NCDOT created a project website and issued newsletters to disseminate project information and provide status reports on the project. Documentation of all public involvement activities is provided in Chapter 8.

Reasonably Foreseeable Direct, Indirect, and Cumulative Effects on Minority and Low-Income Populations. In general, environmental justice populations will experience the impacts documented throughout the FEIS to the extent that they occur in the areas where these populations are located. The following discussion focuses on impacts to environmental justice populations that have the potential to be disproportionately high and adverse, or that affect the extent to which these populations will share equally in the benefits of the proposed action. These impacts include direct and/or indirect community cohesion, accessibility, displacement, economic, visual, and noise impacts.

No-Build Alternative

As discussed previously in this document, roads in the study area would be congested and many roadways would fail to serve the future traffic demand under the No-Build Alternative. Traffic congestion would continue to rise to inconvenient levels for many communities in and around Mebane. For the minority community of West End, the No-Build Alternative would fail to meet identified community concerns including lack of connections to Mebane and abundance of dead-end streets.

Detailed Study Alternatives

Because the relocation impacts and other types of community-related impacts are similar for the Preferred Alternative and Alternatives 8 and 10, no differences are expected between the alternatives in terms of potential environmental justice impacts.

Community Cohesion. Based on the preliminary design plans for the NC 119 Relocation project, the proposed Detailed Study Alternatives, including the Preferred Alternative, would not result in major divisions or isolation of close-knit neighborhoods or cohesive communities within the study area as a result of the proposed project. The West End community, a historically Black/African American community would benefit from improved accessibility resulting from the relocation of NC 119 as well as additional connections within their community to connect streets and provide access to community facilities.

Accessibility. The North Carolina Railroad (NCR) line that runs through the City of Mebane is part of the proposed Southeast High-Speed Rail Corridor. Currently, NC 119 has an at-grade crossing of the railroad at Fifth Street and US 70. The proposed NC 119 Relocation corridor would be located west of the downtown area and would provide a new bridge overpass of the railroad and US 70. This proposed grade-separated crossing of the NCR and US 70 would provide a safer crossing of these facilities and also provide uninterrupted travel across the railroad, thereby possibly

improving the response time for emergency services vehicles to some areas of Mebane and the surrounding communities.

Displacements and Relocations. Relocation impacts of the NC 119 Relocation project would be distributed throughout the communities of the study area, totaling one church and five business relocations, and 44 or 46 residential relocations depending on the alternative. Displacement effects to low-income and minority populations are addressed at the community level, focusing on West End and White Level community displacements, as well as the eastern half of the Woodlawn community. The community of West End would experience one church and three residential displacements. In addition, the extension of SR 1997 (Corrigidor Road) would require the relocation of one single-family residence within the West End community. The community of White Level would have six residential displacements. Alternative 8 would displace eight single-family residences within the eastern half of the Woodlawn community, while the Preferred Alternative and Alternative 10 would displace ten single-family residences. Relocation opportunities for all types of displacements in these communities are anticipated to be readily available.

Economic Impacts. The analysis of the potential economic impacts of the Detailed Study Alternatives, including the Preferred Alternative, is related to the expected growth in the industrial and commercial sectors that could result from the improved access to the North Carolina Industrial Center (NCIC) and other similar types of properties in the area and the additional traffic capacity provided by the NC 119 Relocation project. It is expected that the project would result in net economic benefits to the Mebane area in terms of potential increases in employment, income, and tax revenues generated by increased development within the study area.

Visual Impacts. Certain portions of the NC 119 Relocation project corridor would be visible to residences of the White Level community and the eastern half of the Woodlawn community. In addition, the proposed bridge over SR 1963 (Holt Street), the NCR tracks, and US 70 would be visible from the West End community. While the proposed bridge will be a prominent feature, area topography and the abundance of trees in the vicinity will limit the visual impacts of the project on downtown Mebane, located approximately a mile from the proposed bridge.

Noise Impacts. The Highway Traffic Noise/Construction Noise Analysis performed for the NC 119 Relocation project corridor indicated that the majority of the impacted receptors would be located primarily in the southern portion of the project study area and not within any areas of minority and/or low-income populations.

Potential Cumulative Effects of Other TIP Projects in the Vicinity. Several roadway improvement projects listed in the NCDOT 2009-2015 TIP that are intended to address traffic improvement needs within the Mebane area are discussed in Section 4.4.2. Among these is TIP Project No. R-3105, the proposed widening of NC 119 between SR 1917 (White Level Road) in Alamance County and NC 62 in Caswell County, and TIP Project No. U-2546, the proposed widening of US 70 to a multi-lane facility between the Haw River Bypass and Mebane city limits. Both of these projects are unfunded.

If TIP Project Nos. U-2546 and R-3105 are ultimately constructed, there is the potential for cumulative effects with the West End and White Level communities. The West End community is

located immediately south of TIP Project No. U-2546 and the White Level community is located along NC 119 both east and west of TIP Project No. R-3105. Due to the presence of the NC Railroad just south of US 70 in the vicinity of the West End community, it is likely that US 70 would be widened to the north, thereby avoiding effects to the West End community. However, the widening of NC 119 in Alamance County has the potential to result in additional relocations, noise effects, and natural and cultural resource effects within the White Level community. These effects would be described in the environmental planning document for TIP Project No. R-3105, if the project is ultimately funded.

Impacts to Environmental Justice Populations Compared to Impacts to Non-Minority and Non-Low-Income Populations. As described elsewhere in this section, the direct impacts to low-income and minority populations have been largely avoided, and at the same time, the project has been enhanced to facilitate the sharing of project benefits by low-income and minority populations. The direct impacts such as relocations will affect some low-income and minority residents, but given that relocation policies require the provision of safe, sanitary, and suitable replacement housing, and given that relocation opportunities within the communities appear to be readily available, the relocation impacts do not appear to be disproportionately high and adverse to low-income and/or minority residents. Similarly, the project is not expected to result in disproportionately high and adverse impacts to the visual environment within the White Level community as compared to the visual impacts that would be experienced throughout the project corridor.

The benefits of the project include accessibility and safety improvements and potential economic development opportunities. The project includes additional roadway improvements outside the corridor to enhance the accessibility benefits to the West End community. The other project benefits are anticipated to be available to and shared by both environmental justice and non-environmental justice populations in the study area.

Avoid, Minimize, and Mitigate Impacts to Minority and Low-Income Populations. The location of the study area, with the Preferred Alternative and Alternatives 8 and 10, is the result of efforts to avoid and minimize community impacts. Some proposed corridors were eliminated from further study by analyses that found substantial impacts, while others were eliminated following public input. The preliminary engineering designs within each alternative minimize relocations wherever possible.

The Preferred Alternative and Alternatives 8 and 10 avoid passing through the centers of neighborhoods and subdivisions. For example, in two areas where a small number of relocations are proposed, the study corridor passes between a shopping center and residential area and a factory and residential area. Public input was again an important factor in this regard, with St. Luke's Christian Church stating a preference for relocation.

Avoidance and minimization efforts have been advanced by NCDOT's use of this project as a catalyst for community planning. As noted earlier in this section, NCDOT participated in the formation of a Steering Committee to represent the greater Mebane community in activities related to the proposed project. The NC 119 Relocation Steering Committee was tasked with

project-specific efforts, such as assessing study alternatives, to general community efforts such as defining quality of life issues and their goals for the future of the Mebane area.

Input obtained from the public involvement process was used throughout the evaluation of project alternatives. Three alternatives that passed through the West End community (Alternatives 4, 5, and 7) were eliminated from consideration (see Chapter 2). Additional project alternatives were developed that passed to the west of the West End community, including the Preferred Alternative and Alternatives 8 and 10. These alternatives also include the realignment of SR 1997 (Corrigidor Road) to connect with SR 1973 (Tate Avenue), which will improve the accessibility of the West End community to the Mebane Arts and Community Center and provide a connection with SR 1970 (Roosevelt Street). In addition, a grade separation over SR 1963 (Holt Street) was included to avoid fragmentation of the West End community. The current alternatives also provide a signalized intersection at the relocated NC 119 and SR 1972 (Smith Drive).

When it became apparent that the alternatives carried forward would encroach on St. Luke's Christian Church, NCDOT held a meeting with the pastor and deacon board on August 28, 2000. Church officials stated a preference for relocation along US 70 rather than having the proposed NC 119 located close to the church, as it would limit future plans to expand church facilities. This preference was restated in a meeting with the pastor on January 23, 2001 and December 15, 2008, and the design of the project reflects this decision.

In addition to actions specific to the NC 119 Relocation project, NCDOT responded to several of the other issues presented by the West End community during the public involvement process. NCDOT participated in discussions between the West End community and the City of Mebane, which culminated in WERA obtaining several US Environmental Protection Agency (USEPA) grants, including an Environmental Justice Collaborative Problem-Solving (CPS) Cooperative Agreement grant. A result of this grant was the completion by the City of Mebane of the installation of sewer lines on three streets in the West End community, which provide 40 homes with water and sewer services. In addition, NCDOT completed the grading and paving of SR 1950 (Allen Baynes Road) in the West End community in April 2006 and also completed the grading and paving of SR 1969 (Madison Street) in 2004.

Based on the public input received from communities throughout the project study area, including Fieldstone, West End, Woodlawn, Mill Creek, and White Level, NCDOT eliminated some of the alternatives that were being considered and made adjustments to other alternatives to avoid and minimize to the extent possible the potential impacts of the proposed project to the human, natural, and physical environments within the study area. The preliminary alternatives analysis conducted for the project includes a review of the modifications made to the various alternatives that have been considered and is documented in Chapter 2. Coordination with low-income and minority residents in the study area has resulted in the avoidance of such impacts. The NCDOT will continue to coordinate with low-income and minority residents in the study area, as well as St. Luke's Christian Church, throughout the project.

Title VI Complaint. In 1999, WERA filed a complaint with the US Department of Justice under Title VI of the 1964 Civil Rights Act and Executive Order 12898: Environmental Justice against the City of Mebane, area transportation groups, and NCDOT. WERA claimed that these agencies had

discriminated against the West End community regarding the NC 119 Relocation project, the lack of basic amenities (e.g., water, sewer, paved streets), the redlining of Black/African American communities from the right to vote, housing and economic discrimination, and physical barriers of discrimination. The US Department of Justice referred the complaint to the appropriate federal agencies with jurisdiction over the individual allegations. With respect to the allegations regarding the NC 119 Relocation project, the complaint was referred to the FHWA Office of Civil Rights. The Office of Civil Rights did not respond to the complaint because FHWA, as the lead federal agency for the NC 119 Relocation project, had not yet taken any action or made any decision regarding the project. The DEIS served as an official draft evaluation of the predicted impacts of various possible project alternatives on the human and natural environments within the study area. However, the signing of this FEIS does not constitute final approval of the project by FHWA; such approval will occur when the Record of Decision (ROD) is signed.

4.1.3 Economic Effects

A new roadway project such as the NC 119 Relocation can have both positive and negative impacts on the economy of an area. The analysis of the potential economic impacts of the Detailed Study Alternatives, including the Preferred Alternative, is related to the expected growth in the industrial and commercial sectors that could result from improved access to the North Carolina Industrial Center (NCIC) and other similar types of properties in the area, as well as the additional traffic capacity provided by the proposed project. In addition, it is anticipated that increased state and local tax revenues would be generated in the study area during the construction phase of the proposed project, thereby providing additional financial support for public programs that aid low-income persons.

It is expected that the project will result in net economic benefits to the Mebane area in terms of increases in employment, income, and tax revenues generated by increased development within the study area. No disproportionately high and adverse impacts to minority and/or low-income populations in terms of economic development would be expected as a result of the proposed project. Potential indirect impacts to minority and/or low-income populations are discussed in Section 4.4.

4.1.3.1 Employment and Growth

Traditionally, manufacturing industries have been the predominant type of private sector employment for the local economy within the project study area; however, the manufacturing sector has experienced some decline during the past decade. The North Carolina Employment Security Commission reports that the unemployment rate for 2007 for Alamance County was 5.1 percent, which is slightly higher than the state unemployment rate of 4.7 percent. In an attempt to diversify the economic base, the City of Mebane has attracted and recruited a number of businesses to the Mebane area, including mostly retail/commercial establishments, as well as warehousing and distribution centers. According to the Burlington-Graham Metropolitan Planning Organization Transportation Plan Update 2005 – 2030, the increase in traffic volumes in proximity to the I-85/40 interstate corridor is, “a strong indicator that the strategic location of Mebane between the Triad and the Triangle and the increased regional mobility created by the widening of the I-85/40 corridor from west of Hillsborough to Greensboro has placed the Mebane area in an attractive situation for development.”

The proposed relocation of NC 119 would provide improved access to many parts of the study area, including the NCIC. The NCIC currently houses seven manufacturing and distribution facilities. Construction is underway for the expansion of Phase 1 of the NCIC, while future Phases 2 and 3, in addition to the remaining balance of Phase 1, are all planned to be developed in accordance with the NCIC's approved Master Plan. It is anticipated that construction of the proposed roadway would encourage the further development of this industrial park by providing direct access to a four-lane roadway with increased capacity as compared to the existing two-lane NC 119 roadway.

The proposed project could have both negative and beneficial impacts within the Mebane urban area. The relocation of NC 119 is anticipated to result in decreased traffic volumes and congestion within the downtown area by removing through-traffic on existing NC 119. With the construction of the proposed roadway, the projected daily traffic volumes in 2030 along existing NC 119 in downtown Mebane are anticipated to be 20 to 40 percent less than if the proposed project is not built. North of the downtown area, projected future (2030) average daily traffic (ADT) volumes along existing NC 119 are projected to decrease by 70 to 80 percent with the construction of the proposed project.

Although the proposed project would reduce traffic congestion in downtown Mebane, the diversion of through-traffic could also remove potential customers from businesses along existing NC 119 in the downtown area. If some of the businesses in downtown Mebane relocated to the proposed corridor, changes to the character and type of businesses located in downtown Mebane may result. These indirect effects are discussed in Section 4.4.

A positive benefit to travel conditions in downtown Mebane would be the reduction in commercial truck traffic and congestion along existing NC 119, which could enhance pedestrian safety in downtown Mebane and make the environment more conducive to shopping and other activities.

4.1.3.2 Business Relocations

Based on the preliminary engineering designs, each of the Detailed Study Alternatives, including the Preferred Alternative, would require the relocation of five businesses. The businesses include one gas station, three fast food/restaurants, and one other property.

4.1.3.3 Property Values and Tax Revenues

Construction of the proposed roadway would require conversion of privately-owned land to NCDOT right-of-way. Each of the Detailed Study Alternatives, including the Preferred Alternative, would require the conversion of approximately 180 acres. This conversion would represent about 0.07 percent of the area of Alamance County, which is 430 square miles (275,199 acres).

4.1.4 Infrastructure and Utilities

Major existing utilities within the study area include electrical transmission towers and lines, water mains, sanitary sewer lines, natural gas lines, and fiber optic cable. During the final design stage of the project, all utility providers would be contacted and coordinated with to ensure that the proposed design and construction of the new project would not substantially disrupt service.

Electrical Power Transmission. The project study area contains two major electrical transmission line easement operated and maintained by Duke Power. There are no electrical substations within the project study area.

All Detailed Study Alternatives, including the Preferred Alternative, cross the transmission line easements. The proposed preliminary designs within each alternative would require the relocation of the tower located near the proposed intersection of SR 1972 (Smith Drive) and the proposed roadway. In addition, the towers located on the west side of existing NC 119 south of SR 1917 (White Level Road) may also require relocation.

Any modifications to the transmission lines required by the proposed project are not anticipated to result in a negative impact to the transmission lines or consumer electrical service in the area. All impacts and relocations of power lines and/or towers would be closely coordinated with Duke Power during the final design of the Preferred Alternative and Right-of-Way Acquisition stage of the project.

Water and Sewer Facilities. Most of the project study area is serviced by the City of Mebane's Public Utilities Department. All three of the Detailed Study Alternatives, including the Preferred Alternative, would cross existing water lines in the area; however, disruption of water service is not expected to occur as a result of the proposed project. During the final design stage of the project, NCDOT would closely coordinate any necessary water line relocations or reconfigurations with the City of Mebane. An Orange-Alamance Water System, Inc., water tower near the Craftique Furniture Company will require relocation.

Rural areas near SR 1917 (White Level Road) and the northern reaches of the study area are served by private wells. Wells within the proposed project right-of-way would be identified and located prior to beginning construction on the project. For wells that can not be relocated, NCDOT will purchase the property and the wells will be capped and abandoned in accordance with state standards. Any subsurface contamination found in these wells would be reported to the regional office of the NC Department of Environment and Natural Resources (NCDENR).

The City of Mebane provides sanitary sewer service and sewage treatment for the majority of the homes and businesses located within the project study area, including the commercial area at the I-85/40 interchange with NC 119, the NCIC, the CBD, as well as the communities of Mill Creek and Fieldstone. In addition, the City has extended sewer service in areas located west of the City limits within the West End community with funds provided through federal programs. Phases 1 and 2 of the extensions of sewer service to this area have been completed. The remainder of the project study area is serviced by private septic tanks. None of the Detailed Study Alternatives, including the Preferred Alternative, would impact sewage treatment facilities or sewer service within the project study area. Any sewer line relocation or reconfiguration required for construction of the Preferred Alternative would be closely coordinated with the City of Mebane.

Natural Gas Service. Natural gas service lines are located within portions of the project study area; however, the Detailed Study Alternatives, including the Preferred Alternative, are not expected to impact consumer gas service. NCDOT would coordinate any necessary relocation or reconfiguration with the Public Service Company of North Carolina (PSNC) during the final design phase of the project.

Fiber Optic Cable. Bellsouth maintains a fiber optic cable easement located north of SR 1921 (Mebane Rogers Road) that is crossed by all three Detailed Study Alternatives, including the Preferred Alternative. NCDOT would coordinate any necessary relocation or reconfiguration with Bellsouth during the final design phase of the project.

Railroads. The Detailed Study Alternatives, including the Preferred Alternative, cross the NCRR near the intersection of US 70 and SR 1963 (Holt Street). Currently, NC 119 has a quad-gated and signalized at-grade crossing of the railroad at Fifth Street and US 70. The proposed project would be located west of the downtown area and include an overpass for NC 119 that crosses the railroad, SR 1963 (Holt Street), and US 70. This proposed overpass would provide a safer crossing of these facilities, as well as prevent delays at the railroad crossing when trains pass. The bridge would be constructed to include enough horizontal clearance to allow for the addition of one additional track, in anticipation of the Southeast High Speed Rail (SEHSR) eventually using this corridor. In addition, the proposed bridge would be constructed to meet the vertical clearance requirements of the NCRR, currently set at a minimum of 23 feet of clearance between the top of the rail and the bottom of the lowest steel beam of the bridge.

None of the Detailed Study Alternatives, including the Preferred Alternative, are expected to impact existing railroad operations; however, all of the alternatives propose the closure of the existing at-grade railroad crossing west of the proposed project in the vicinity of SR 1963 (Holt Street), SR 1976 (Lake Latham Road), and US 70. NCDOT would coordinate the crossing closure with the NCRR during the final design phase of the project.

4.1.5 Cultural Resources

4.1.5.1 Historic Architectural Resources

Section 106 of the National Historic Preservation Act (36 CFR Part 800), as amended, requires federal agencies to consider the effects of their actions on historic properties and to afford the Advisory Council on Historic Preservation an opportunity to comment if the action will result in an adverse effect on the property listed on or eligible for the NRHP.

The potential effect of the NC 119 Relocation project on historic architectural resources was evaluated in accordance with 36 CFR 800.5 (Assessing Effects). According to 36 CFR 800.9 (Criteria of Effect and Adverse Effect), an undertaking has an effect on a historic property when the undertaking may alter characteristics of the property that may qualify the property for inclusion in the NRHP. An undertaking is considered to have an adverse effect when the effect on a historic property may diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association.

As described in Section 3.1.5, of the four properties within the APE determined to be eligible for listing or listed on the NRHP, only one (the Cates Farm) is anticipated to be affected by the proposed project (Figure 4.3). Alternative 8 would not require the acquisition of right-of-way from the Cates Farm. However, the Preferred Alternative and Alternative 10 would require the acquisition of right-of-way from the Cates Farm.

The proposed project would not require the acquisition of any right-of-way from Cook’s Mill, the Dr. W.N. Tate Farm, or House “K.” Moreover, House “K” would not be affected because it lies approximately 0.75 miles north of the project terminus. Because of the rolling topography and wooded areas along the project alignment, Cook’s Mill and the Dr. W.N. Tate Farmhouse would be effectively visually screened from the project.

Determinations of effect for the Cates Farm, Cook’s Mill, Dr. W.N. Tate Farm, and House “K” are listed in Table 4.4. NCDOT and the North Carolina State Historic Preservation Office (HPO) concurred with these determinations of effect at a meeting on June 6, 2002. The determinations of effect were re-evaluated by NCDOT and HPO and concurred with at a meeting on August 21, 2007. Copies of the correspondence related to Section 106 coordination are provided in Appendix B.

**Table 4.4
Determinations of Effects to Historic Resources**

Historic Resource	Detailed Study Alternative		
	8	9 (Preferred Alternative)	10
Cates Farm	No Effect	Adverse Effect	Adverse Effect
Cook’s Mill	No Effect	No Effect	No Effect
Dr. W.N. Tate Farm	No Effect	No Effect	No Effect
House “K”	No Effect	No Effect	No Effect

As shown in the table, there would be “no effect” on Cook’s Mill, the Dr. W.N. Tate Farm, and House “K” under any of the Detailed Study Alternatives, including the Preferred Alternative. Alternative 8 would have “no effect” on the Cates Farm. However, the Preferred Alternative and Alternative 10 would have an “adverse effect” on the Cates Farm.

The Preferred Alternative and Alternative 10 of the proposed project would require the acquisition of right-of-way from the Cates Farm (Figure 4.3). For the Preferred Alternative, approximately 12.6 acres of land would be acquired from the approximately 100 acres listed on the NRHP. Alternative 10 would acquire approximately 13.4 acres of the area listed on the NRHP. An additional 4.6 acres of the farm would be isolated from the remaining historic property with the Preferred Alternative, compared to 23.4 acres with Alternative 10. The Preferred Alternative was developed to minimize the land taken and separated from the Cates Farm while also minimizing the crossing of the water supply watershed critical area of the Graham-Mebane Reservoir. Alternative 10 was developed to avoid the water supply watershed.

For both alignments, the proposed roadway is anticipated to be visible and audible from the farmhouse. However, the potential visual impacts are less with the Preferred Alternative than with Alternative 10, because it is located further west of the farmhouse than Alternative 10. In addition, the Preferred Alternative would not require the removal of any structures associated with the Cates Farm, while Alternative 10 would remove one structure. The structure is a late twentieth century run-in shed where cows are housed during inclement weather. The shed is not listed as a contributing element of the historic property.

4.1.5.2 Archaeological Resources

The common corridor of the Preferred Alternative and Alternatives 8 and 10 cross archaeological Site 31AM392, located on an upland flat on the Davis property, which is north of and adjacent to the Craftique Furniture Company property on the east side of SR 1949 (Edgewood Church Road). Preliminary archaeological test excavations of this site revealed the eroded nature of the ridge toe. The site has little potential to yield any information important to history or prehistory and does not meet the criterion for listing on the NRHP (NCDOT, 2004a). Therefore, no additional archaeological work is recommended at this site (see letter from HPO dated January 4, 2005, in Appendix B).

The common corridor of the Preferred Alternative and Alternatives 8 and 10 cross archaeological Site 31AM395, located on a ridgetop just west of SR 1951 (Woodlawn Road). Due to the heavily deflated nature of the site, it is recommended as being not eligible for the NRHP (Legacy Research Associates, 2009). Therefore, no additional archaeological work is recommended at this site.

All evidence points to a long history of erosion within Alamance County. While it is possible that prehistoric sites could be recorded within any of the Detailed Study Alternatives, including the Preferred Alternative, it is unlikely that the alternatives will impact any undiscovered archaeological sites eligible for listing on the NRHP (see memo from HPO dated January 27, 2003, in Appendix B). The Office of State Archaeology (OSA) commented that Cook's Mill (31AM369**), deemed eligible for listing on the NRHP under Criterion B, C, and D, should be avoided. The Preferred Alternative and Alternatives 8 and 10 avoid this property. The Preferred Alternative and Alternatives 8 and 10 also avoid Site 31AM394 near SR 1951 (Woodlawn Road), which is recommended as being eligible for the NRHP. Therefore, no further archaeological work is expected for this project.

4.1.6 Visual Impacts

The visual environment is a major factor in people's daily experience and quality of life. Major improvement projects and roadways can affect the visual environment in many ways and to varying degrees. Impacts can range from aesthetic improvements to an area, such as landscaping, to detrimental impacts, such as the destruction of parkland or local landmarks, which can substantially change the visual character of an area.

For the NC 119 project, visual impacts will generally be limited to the immediate vicinity of the roadway, except at the proposed bridge over SR 1963 (Holt Street), the NCCR tracks, and US 70. While the bridge will be a prominent feature, area topography and the abundance of trees in the vicinity will limit the visual impacts of the project to the areas discussed below.

4.1.6.1 Areas Common to Detailed Study Alternatives

For commercial development along highways, visibility is a precursor to access and is often an indicator of potential economic success. Just north of SR 1980 (Holmes Road), the Detailed Study Alternatives, including the Preferred Alternative, are proposed to be constructed on new alignment. This new roadway brings greater visibility to this shopping center by the traveling public, as well as to the commercial buildings currently fronting SR 1962 (Third Street Extension). Businesses west

of the proposed roadway would gain visibility from NC 119 along with enhanced access from the proposed Realigned Third Street Extension/Realigned Fifth Street intersection. Businesses east of the corridor would also gain visibility from NC 119, but with indirect access, via Realigned Third Street Extension in the vicinity of the US Post Office.

Further north is Realigned Third Street Extension, linking the eastern segment of SR 1962 (Third Street Extension) with the proposed roadway in the vicinity of the US Post Office. Although road users will see the US Post Office from a different side, it will still be highly visible along Realigned Third Street Extension.

Just north of Realigned Third Street Extension is the Fieldstone subdivision along the east side of the proposed roadway. This subdivision was developed after the dates of public knowledge for development of the NCIC and the proposed project, so buildings within the subdivision are oriented to minimize views to the west (in the direction of the NCIC). However, the view residents will encounter to the west as they walk through the subdivision will change from a wooded area with a pond to that of the relocated NC 119.

The electrical transmission lines passing over NC 119 near the SR 1972 (Smith Drive) intersection, as well as south of SR 1917 (White Level Road) should have minimal visual effects because they run perpendicular to the corridor rather than parallel to it. Towers are more visible to the west where the easement passes through open pastures, but as industrial development occurs, the towers will become less visible. Trees and vegetation should minimize views between the corridor and houses along SR 1972 (Smith Drive).

The Detailed Study Alternatives, including the Preferred Alternative, will pass over SR 1963 (Holt Street), the NCR tracks, and US 70. This bridge would be highly visible from US 70 and adjacent areas, including the West End community. This will be a change from the undeveloped viewshed currently to the west of the community. From the southern side of the bridge, the major views would include the northern portion of the NCIC, the NCR tracks, US 70, and development along SR 1976 (Lake Latham Road) to the west. To the east, users of the proposed roadway would see woodlands, development along SR 1963 (Holt Street) and SR 2209 (Curry Street), the NCR tracks, and US 70. Travelers from the north would see scattered houses and manufactured homes along SR 1949 (Edgewood Church Road) to the west and the Craftique Furniture Company to the east. The proposed bridge and roadway will relocate several residences along the east side of SR 1949 (Edgewood Church Road); however, for those residences that will not be relocated, the proposed bridge and roadway will expose the back yards of these homes to the traveling public. For residents of SR 1949 (Edgewood Church Road), they will now be bounded to both the south and east by major arterial roadways (US 70 and NC 119, respectively). In addition, the proposed NC 119 roadway will be elevated as a result of the proposed grade separation, increasing its visibility to area residents. This will be a change from the undeveloped viewshed currently to the east of their homes.

East of the proposed bridge, a connector road is proposed to provide access to US 70. This access road would go between the Craftique Furniture Company to the west and St. Luke's Christian Church along James Walker Road to the east, exposing the back yards of these properties and the side of the church. Residents of James Walker Road will also be bounded by US 70 to the south and

by NC 119 to the west, and their view to the west will change from that of undeveloped lands to the proposed roadway.

Between the US 70 connector road and SR 1951 (Woodlawn Road), the proposed roadway would be visible to a few residential properties. A highway passing through the area will add a new visual element changed from, but not necessarily incompatible with, the general suburban environment.

4.1.6.2 Areas Specific to Detailed Study Alternatives

Alternative 8 is the western-most Detailed Study Alternative. In the northbound direction, the traveling public views a woodlands area with some open fields and pastures. A bridge is proposed to cross Mill Creek but the narrowness, recessed floodway, and vegetated banks probably prevent it from being visible from the roadway. The viewshed transitions to more open fields as users continue north. Alternative 8 would have its greatest visual impacts on residents of SR 1921 (Mebane Rogers Road), who would encounter a change from fields to the proposed facility. Residents of the Cates Farm historic property will not be able to see the proposed facility from any of the buildings on site.

The Preferred Alternative is the middle Detailed Study Alternative. In the northbound direction, the traveling public views a woodlands area with some open fields and pastures. This alternative would have an open view of the Cates Farm buildings while being visible from the farmhouse near the tree line. A bridge is proposed to cross Mill Creek but the narrowness, recessed floodway and vegetated banks probably prevent it from being visible from the roadway. The viewshed transitions to more open fields as users continue north. Residents of the Cates Farm historic property will see the proposed facility to the west of the farm house.

Alternative 10 is the eastern-most Detailed Study Alternative. In the northbound direction, the traveling public views a woodlands area with some open fields and pastures. This alternative would have a close view of the Cates Farm buildings and would be clearly visible from the farmhouse as it would run through the middle of open lands. A bridge is proposed to cross Mill Creek but the narrowness, recessed floodway and vegetated banks probably prevent it from being visible from the roadway. The viewshed transitions to more open fields as users continue north. Residents of the Cates Farm historic property will have a substantial change in their viewshed under this alternative.

All three alternatives include a realignment of SR 1951 (Woodlawn Road) to tie into proposed NC 119 south of where existing SR 1951 (Woodlawn Road) would intersect the proposed roadway. The road would pass through open fields adjacent to the tree line to intersect with the proposed roadway.

All three alternatives include a realignment of existing NC 119 near the end project terminus that would connect existing NC 119 south towards town with the proposed roadway and north to provide access to existing subdivisions. The road would pass through open fields adjacent to the tree line to intersect with existing NC 119.

Also part of the NC 119 Relocation project is the connection of SR 1997 (Corrigidor Road) with SR 1973 (Tate Avenue) and SR 1970 (Roosevelt Street). SR 1997 (Corrigidor Road) extends north from SR 1962 (Third Street Extension) past the Mebane Arts and Community Center on the west

and newly created, City-owned ball fields to the east. The project would shift SR 1997 (Corrigidor Road) along new alignment to extend east of the City of Mebane wastewater treatment plant (WWTP) and City of Mebane Maintenance Yard and connect with SR 1973 (Tate Avenue). SR 1973 (Tate Avenue) currently dead-ends at the maintenance yard. An extension of SR 1970 (Roosevelt Street) would intersect SR 1973 (Tate Avenue) from the east. This area currently consists mainly of undeveloped woodlands.

4.2 IMPACTS TO THE PHYSICAL ENVIRONMENT

4.2.1 Air Quality

An air quality analysis evaluating micro-scale air quality effects was conducted for this project and documented in *Air Quality Analysis for the NC 119 Relocation* (NCDOT, 2004b) and is appended by reference. The report assumed a 2025 design year. A summary of the methodology, procedures, and results is provided below.

4.2.1.1 Air Quality Analysis Methodology

An air quality analysis was performed to estimate the maximum one-hour carbon monoxide (CO) concentrations caused by vehicular traffic along the preliminary engineering designs within the Detailed Study Alternatives, including the Preferred Alternative. Concentrations of CO were determined using USEPA-approved models and were compared to National Ambient Air Quality Standards (NAAQS) for construction and design year periods.

The guidance contained in the NCDENR Division of Air Quality's *Guidelines for Evaluating the Air Quality Impacts of Transportation Facilities* (NCDENR, 2006e) and the USEPA's *Guidelines for Modeling Carbon Monoxide from Roadway Intersections* (1992) were used in this analysis.

CO concentrations at a receiver near a roadway are comprised of two components; local and background concentrations. The local concentration is the CO emissions from motor vehicles on roadways in proximity to a receiver. The background concentration is the concentration at a receiver that is the result of emissions outside the local vicinity.

The background, or ambient, concentrations vary by region and are based on air quality monitoring data and regional modeling. For the study area, the background hourly average CO concentration is estimated to be 1.8 ppm. Estimates of 8-hour average concentrations are calculated by multiplying the 1-hour average levels by the persistence factor, which accounts for variations in traffic and meteorological conditions over time.

The local, micro-scale CO concentrations were estimated using the USEPA's line source dispersion model CAL3QHC, with input from the USEPA's emission factor model MOBILE6. The model results were added to the background concentration to determine the total 1-hour and 8-hour CO concentrations at a receiver near a roadway. These total values were then compared to the NAAQS to determine whether the receiver would experience air quality impacts.

The worst-case air quality scenario was determined to be in the vicinity of the intersection of the proposed roadway and SR 1962 (Third Street Extension) due to potential grade separation at other

intersections. CO vehicle emission factors were calculated for the years 2005, 2015, and 2025 using MOBILE6 and the traffic volumes are based on the annual ADT projections.

4.2.1.2 Analysis Results

Automobiles without catalytic converters can burn regular gasoline. The burning of regular gasoline emits lead as a result of regular gasoline containing tetraethyl lead, which is added by refineries to increase the octane rating of the fuel. Newer cars with catalytic converters burn unleaded gasoline eliminating lead emissions. Also, USEPA has required the reduction in the lead content of leaded gasoline. The overall average lead content of gasoline in 1974 was approximately 0.53 gram per liter. By 1989, this composite average had dropped to 0.003 gram per liter. In the future, lead emissions are expected to decrease as more cars use unleaded fuels and as the lead content of leaded gasoline is reduced. The CAA Amendments of 1990 make the sale, supply, or transport of leaded gasoline or lead additives unlawful after December 31, 1995. For these reasons, it is not expected that traffic on the proposed project will cause the NAAQS for lead to be exceeded.

The predicted 1-hour average CO concentrations for the evaluation years of 2005, 2015, and 2025 are 6.30, 6.90, and 7.30 parts per million (ppm), respectively. Information for the evaluation years is summarized in Table 4.5. Comparison of the predicted CO concentrations with the NAAQS (maximum permitted for 1-hour averaging period = 35 ppm; 8-hour averaging period = 9 ppm) indicates no violation of these standards. Since the results of the worst-case 1-hour CO analysis for the Detailed Study Alternatives, including the Preferred Alternative, are less than 9 ppm, it can be concluded that the 8-hour CO level does not exceed the standard.

**Table 4.5
Predicted Maximum One-Hour Average CO Concentrations**

Intersection	Year	Receiver Location	Wind Direction from North (degrees)	Maximum Average CO Concentration (ppm)	
				1-Hour Average	8-Hour Average
NC 119 Relocation at SR 1962 (Third Street Extension)	2005	Southwest Quadrant	113	6.3	<9
	2015	Southwest Quadrant	107	6.9	<9
	2025	Southwest Quadrant	116	7.3	<9

Comparison of the predicted CO concentrations with the NAAQS (see Table 3.12) indicates that standards would not be exceeded in 2005, 2015, or 2025. Therefore, none of the Detailed Study Alternatives, including the Preferred Alternative, are anticipated to create an adverse micro-scale effect on air quality in the study area.

4.2.1.3 State Implementation Plan (SIP) Consistency

Both the Clean Air Act (CAA) and TEA-21 (Transportation Equity Act for the 21st Century) require conformity between a proposed transportation system and the SIP. The transportation conformity regulations are intended to ensure that a state does not undertake federally funded or approved transportation projects, programs, or plans that are inconsistent with the state’s obligation to meet and maintain the NAAQS. MPOs must show that expected emissions from their transportation

system are within the mobile source emission budgets in the applicable SIP. Transportation projects must come from conforming transportation plans/programs, and conforming transportation plans/programs must come from conforming SIPs.

The project is located in Alamance County, which has been determined to comply with the National Ambient Air Quality Standards. The proposed project is located in an attainment area; therefore, 40 CFR Parts 51 and 93 are not applicable. This project is not anticipated to create any adverse effects on the air quality of this attainment area.

4.2.1.4 Mobile Source Air Toxics

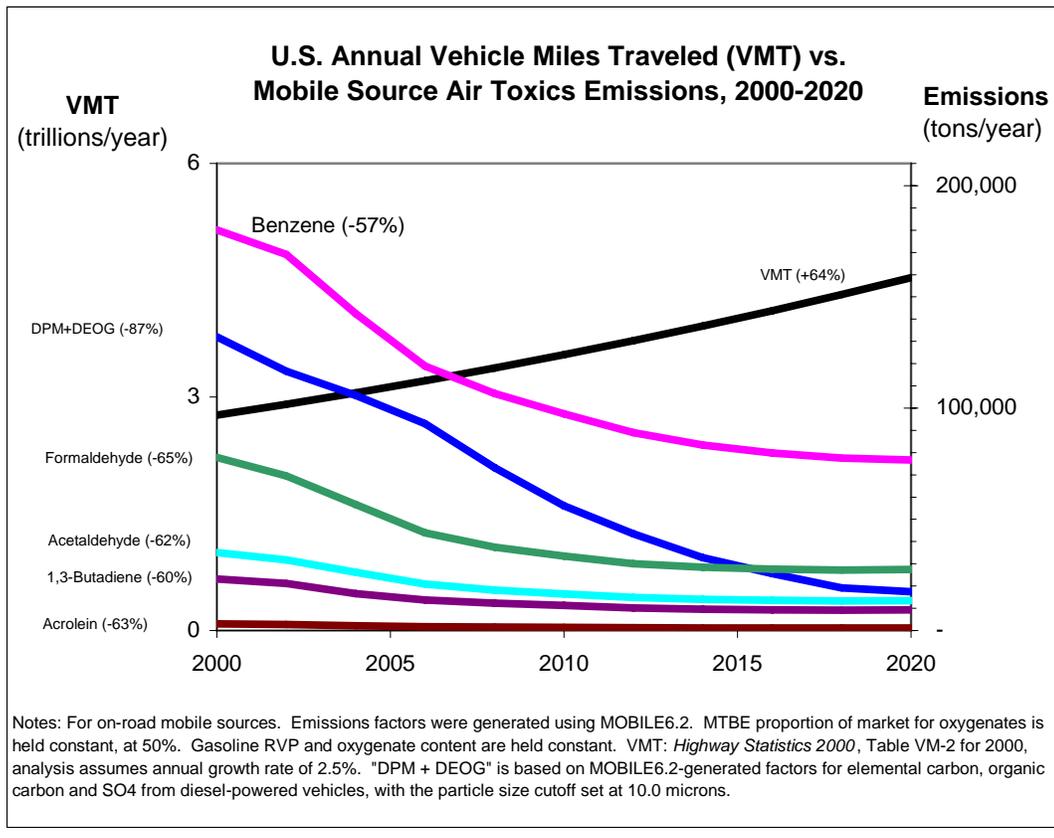
In addition to the criteria air pollutants for which there are NAAQS, USEPA also regulates air toxics. Most air toxics originate from human-made sources, including on-road mobile sources, non-road mobile sources (e.g., airplanes), area sources (e.g., dry cleaners) and stationary sources (e.g., factories or refineries).

Mobile Source Air Toxics (MSATs) are a subset of the 188 air toxics defined by the CAA (FHWA, 2006). The MSATs are compounds emitted from highway vehicles and non-road equipment. Some toxic compounds are present in fuel and are emitted to the air when the fuel evaporates or passes through the engine unburned. Other toxics are emitted from the incomplete combustion of fuels or as secondary combustion products. Metal air toxics also result from engine wear or from impurities in oil or gasoline.

The USEPA is the lead federal agency for administering the CAA and has certain responsibilities regarding the health effects of MSATs. The USEPA issued a Final Rule on Controlling Emissions of Hazardous Air Pollutants from Mobile Sources, 66 FR 17229 (March 29, 2001). This rule was issued under the authority in Section 202 of the CAA. In its rule, USEPA examined the impacts of existing and newly promulgated mobile source control programs, including its reformulated gasoline (RFG) program, its national low emission vehicle (NLEV) standards, its Tier 2 motor vehicle emissions standards and gasoline sulfur control requirements, and its proposed heavy duty engine and vehicle standards and on-highway diesel fuel sulfur control requirements. Between 2000 and 2020, FHWA estimates that even with a 64 percent increase in VMT, these programs will reduce on-highway emissions of benzene, formaldehyde, 1,3-butadiene, and acetaldehyde by 57 percent to 65 percent, and will reduce on-highway diesel particulate matter emissions by 87 percent, as shown in Graph 1 below.

As a result, USEPA concluded that no further motor vehicle emissions standards or fuel standards were necessary to further control MSATs. The agency is preparing another rule under authority of CAA Section 202(1) that will address these issues and could make adjustments to the full 21 and the primary six MSATs.

GRAPH 1



This FEIS includes a basic analysis of the likely MSAT emission impacts of this project. However, available technical tools do not enable us to predict the project-specific health impacts of the emission changes associated with the alternatives in this FEIS. Due to these limitations, the following discussion is included in accordance with CEQ regulations (40 CFR 1502.22(b)) regarding incomplete or unavailable information:

Information that is Unavailable or Incomplete. Evaluating the environmental and health impacts from MSATs on a proposed highway project would involve several key elements, including emissions modeling, dispersion modeling in order to estimate ambient concentrations resulting from the estimated emissions, exposure modeling in order to estimate human exposure to the estimated concentrations, and then final determination of health impacts based on the estimated exposure. Each of these steps is encumbered by technical shortcomings or uncertain science that prevents a more complete determination of the MSAT health impacts of this project.

1. Emissions. The USEPA tools to estimate MSAT emissions from motor vehicles are not sensitive to key variables determining emissions of MSATs in the context of highway projects. While MOBILE 6.2 is used to predict emissions at a regional level, it has limited applicability at the project level. MOBILE 6.2 is a trip-based model; emission factors are projected based on a typical trip of 7.5 miles and on average speeds for this typical trip. This means that MOBILE 6.2 does not have the ability to predict emission factors for a specific vehicle operating condition at a specific location at a specific time. Because of this

limitation, MOBILE 6.2 can only approximate the operating speeds and levels of congestion likely to be present on the largest-scale projects, and cannot adequately capture emissions effects of smaller projects. For particulate matter, the model results are not sensitive to average trip speed, although the other MSAT emission rates do change with changes in trip speed. Also, the emissions rates used in MOBILE 6.2 for both particulate matter and MSATs are based on a limited number of tests of mostly older-technology vehicles. Lastly, in its discussions of PM under the conformity rule, USEPA has identified problems with MOBILE 6.2 as an obstacle to quantitative analysis.

These deficiencies compromise the capability of MOBILE 6.2 to estimate MSAT emissions. MOBILE6.2 is an adequate tool for projecting emissions trends, and performing relative analyses between alternatives for very large projects, but it is not sensitive enough to capture the effects of travel changes tied to smaller projects or to predict emissions near specific roadside locations.

2. Dispersion. The tools to predict how MSATs disperse are also limited. The USEPA's current regulatory models, CALINE3 and CAL3QHC, were developed and validated more than a decade ago for the purpose of predicting episodic concentrations of carbon monoxide to determine compliance with the NAAQS. The performance of dispersion models is more accurate for predicting maximum concentrations that can occur at some time at some location within a geographic area. This limitation makes it difficult to predict accurate exposure patterns at specific times at specific highway project locations across an urban area to assess potential health risk. The National Cooperative Highway Research Program (NCHRP) is conducting research on best practices in applying models and other technical methods in the analysis of MSATs. This work also will focus on identifying appropriate methods of documenting and communicating MSAT impacts in the NEPA process and to the general public. Along with these general limitations of dispersion models, FHWA is also faced with a lack of monitoring data in most areas for use in establishing project-specific MSAT background concentrations.
3. Exposure Levels and Health Effects. Finally, even if emission levels and concentrations of MSATs could be accurately predicted, shortcomings in current techniques for exposure assessment and risk analysis preclude us from reaching meaningful conclusions about project-specific health impacts. Exposure assessments are difficult because it is difficult to accurately calculate annual concentrations of MSATs near roadways, and to determine the portion of a year that people are actually exposed to those concentrations at a specific location. These difficulties are magnified for 70-year cancer assessments, particularly because unsupported assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over a 70-year period. There are also considerable uncertainties associated with the existing estimates of toxicity of the various MSATs, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population. Because of these shortcomings, any calculated difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with calculating the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against other project impacts that are better suited for quantitative analysis.

Summary of Existing Credible Scientific Evidence Relevant to Evaluating the Impacts of MSATs.

Research into the health impacts of MSATs is ongoing. For different emission types, there are a variety of studies that show that some either are statistically associated with adverse health outcomes through epidemiological studies (frequently based on emissions levels found in occupational settings) or that animals demonstrate adverse health outcomes when exposed to large doses.

Exposure to toxics has been a focus of a number of USEPA efforts. Most notably, the agency conducted the National Air Toxics Assessment (NATA) in 1996 to evaluate modeled estimates of human exposure applicable to the county level. While not intended for use as a measure of or benchmark for local exposure, the modeled estimates in the NATA database best illustrate the levels of various toxics when aggregated to a national or state level.

The USEPA is in the process of assessing the risks of various kinds of exposures to these pollutants. The USEPA Integrated Risk Information System (IRIS) is a database of human health effects that may result from exposure to various substances found in the environment. The following toxicity information for the six prioritized MSATs was taken from the IRIS database *Weight of Evidence Characterization* summaries (USEPA, 2006). This information is taken verbatim from EPA's IRIS database and represents the Agency's most current evaluations of the potential hazards and toxicology of these chemicals or mixtures.

- **Benzene** is characterized as a known human carcinogen.
- The potential carcinogenicity of **acrolein** cannot be determined because the existing data are inadequate for an assessment of human carcinogenic potential for either the oral or inhalation route of exposure.
- **Formaldehyde** is a probable human carcinogen, based on limited evidence in humans, and sufficient evidence in animals.
- **1,3-butadiene** is characterized as carcinogenic to humans by inhalation.
- **Acetaldehyde** is a probable human carcinogen based on increased incidence of nasal tumors in male and female rats and laryngeal tumors in male and female hamsters after inhalation exposure.
- **Diesel exhaust** (DE) is likely to be carcinogenic to humans by inhalation from environmental exposures. Diesel exhaust as reviewed in this document is the combination of diesel particulate matter and diesel exhaust organic gases.
- **Diesel exhaust** also represents chronic respiratory effects, possibly the primary noncancer hazard from MSATs. Prolonged exposures may impair pulmonary function and could produce symptoms, such as cough, phlegm, and chronic bronchitis. Exposure relationships have not been developed from these studies.

There have been other studies that address MSAT health impacts in proximity to roadways. The Health Effects Institute, a non-profit organization funded by USEPA, FHWA, and industry, has undertaken a major series of studies to research near-roadway MSAT hot spots, the health implications of the entire mix of mobile source pollutants, and other topics. The final summary of the series is not expected for several years.

Some recent studies have reported that proximity to roadways is related to adverse health outcomes, particularly respiratory problems (Health Studies, 2000, 2004, 2005). Much of this research is not specific to MSATs, instead surveying the full spectrum of both criteria and other pollutants. The FHWA cannot evaluate the validity of these studies, but more importantly, they do not provide information that would be useful to alleviate the uncertainties listed above and enable us to perform a more comprehensive evaluation of the health impacts specific to this project.

Relevance of Unavailable or Incomplete Information to Evaluating Reasonably Foreseeable Significant Adverse Impacts on the Environment and Evaluation of Impacts based upon Theoretical Approaches or Research Methods generally accepted in the Scientific Community. Because of the uncertainties outlined above, a quantitative assessment of the effects of air toxic emissions impacts on human health cannot be made at the project level. While available tools do allow us to reasonably predict relative emissions changes between alternatives for larger projects, the amount of MSAT emissions from each of the project alternatives and MSAT concentrations or exposures created by each of the project alternatives cannot be predicted with enough accuracy to be useful in estimating health impacts. (As noted above, the current emissions model is not capable of serving as a meaningful emissions analysis tool for smaller projects.) Therefore, the relevance of the unavailable or incomplete information is that it is not possible to make a determination of whether any of the alternatives would have "significant adverse impacts on the human environment."

In this FEIS, FHWA has provided a quantitative analysis of MSAT emissions relative to the various alternatives, (or a qualitative assessment, as applicable) and has acknowledged that (some, all, or identify by alternative) the project alternatives may result in increased exposure to MSAT emissions in certain locations, although the concentrations and duration of exposures are uncertain, and because of this uncertainty, the health effects from these emissions cannot be estimated.

As discussed above, technical shortcomings of emissions and dispersion models and uncertain science with respect to health effects prevent meaningful or reliable estimates of MSAT emissions and effects of this project. However, even though reliable methods do not exist to accurately estimate the health impacts of MSATs at the project level, it is possible to qualitatively assess the levels of future MSAT emissions under the project. Although a qualitative analysis cannot identify and measure health impacts from MSATs, it can give a basis for identifying and comparing the potential differences among MSAT emissions-if any-from the various alternatives. The qualitative assessment presented below is derived in part from a study conducted by the FHWA entitled *A Methodology for Evaluating Mobile Source Air Toxic Emissions Among Transportation Project Alternatives*, found at:

<http://www.fhwa.dot.gov/environment/airtoxic/msatcompare/msatemissions.htm>

For each alternative in this FEIS, the amount of MSATs emitted would be proportional to the vehicle miles traveled, or VMT, assuming that other variables such as fleet mix are the same for each alternative. The VMT estimated for each of the Detailed Study Alternatives, including the Preferred Alternative, is slightly higher than that for the No-Build Alternative, because the additional capacity increases the efficiency of the roadway and attracts rerouted trips from elsewhere in the transportation network. (Refer to Figures 1.6 and 2.4 for 2030 Average Daily Traffic Volumes for the No-Build and Build Alternatives, respectively). This increase in VMT would lead to higher

MSAT emissions for the action alternative along the highway corridor, along with a corresponding decrease in MSAT emissions along the parallel routes. The emissions increase is offset somewhat by lower MSAT emission rates due to increased speeds; according to EPA's MOBILE6 emissions model, emissions of all of the priority MSATs except for diesel particulate matter decrease as speed increases. The extent to which these speed-related emissions decreases will offset VMT-related emissions increases cannot be reliably projected due to the inherent deficiencies of technical models.

Because the estimated VMT under each of the Detailed Study Alternatives, including the Preferred Alternative, are the same, it is expected there would be no appreciable difference in overall MSAT emissions among the various alternatives. Also, regardless of the alternative chosen, emissions will likely be lower than present levels in the design year as a result of USEPA's national control programs that are projected to reduce MSAT emissions by 57 to 87 percent between 2000 and 2020. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the USEPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in nearly all cases.

The relocation of the roadway contemplated as part of the project alternatives will have the effect of moving some traffic closer to nearby homes, schools and businesses; therefore, under each alternative there may be localized areas where ambient concentrations of MSATs could be higher under the Detailed Study Alternatives, including the Preferred Alternative, than the No-Build Alternative. The localized increases in MSAT concentrations would likely be most pronounced along the roadway sections that would be built near the Fieldstone community, residences located along the western boundary of the West End community, and near the Woodlawn community near SR 1921 (Mebane Rogers Road) under all of the Detailed Study Alternatives, including the Preferred Alternative. However, as discussed above, the magnitude and the duration of these potential increases compared to the No-Build Alternative cannot be accurately quantified due to the inherent deficiencies of current models. In sum, when a highway is relocated and, as a result, moves closer to receptors, the localized level of MSAT emissions for the Detailed Study Alternatives, including the Preferred Alternative, could be higher relative to the No-Build Alternative, but this could be offset due to increases in speeds and reductions in congestion (which are associated with lower MSAT emissions). Also, MSATs will be lower in other locations when traffic shifts away from them. However, on a regional basis, USEPA's vehicle and fuel regulations, coupled with fleet turnover, will over time cause substantial reductions that, in almost all cases, will cause region-wide MSAT levels to be significantly lower than today.

The NCDOT is not aware of any sensitive receptors (e.g., nursing homes, child care centers, hospitals, etc.) located along the proposed alignments for the Detailed Study Alternatives, including the Preferred Alternative. Therefore, the MSAT effects would be equivalent for all of the alternatives.

4.2.2 Noise

A noise analysis was conducted to determine if noise levels generated along the preliminary alignment proposed in each Detailed Study Alternative, including the Preferred Alternative, would exceed criteria established by the FHWA. Detailed results of the noise analysis are presented in the

Highway Traffic Noise/Construction Noise Analysis (NCDOT, 2004c) for the project, which was updated (Baker Engineering, 2006a) based on NCDOT’s 2004 Traffic Noise Policy (NCDOT, 2004d) and is appended by reference. The report assumed a 2025 design year and contains the noise impact analyses for Alternatives 8 and 10 and the Preferred Alternative. Noise impacts were re-evaluated after selection of the Preferred Alternative to determine if noise barriers should be re-considered. The following text provides a summary of the abatement criteria, analysis methodology, and results for the project.

4.2.2.1 Noise Impact Criteria

The noise analysis was conducted in accordance with FHWA requirements as detailed in 23 CFR Part 772, as well as NCDOT guidelines on highway noise.

Traffic noise impacts are defined in the FHWA regulations as project-generated noise levels that approach or exceed the FHWA’s Noise Abatement Criteria (NAC) or noise levels that are a substantial increase over existing noise levels. Noise abatement must be considered for impacted receivers in either category.

Table 4.6 lists the FHWA Noise Abatement Criteria. Approach values are defined by the NCDOT as being 1 decibel less than the NAC. The NCDOT considers noise level increases from existing conditions to be substantial as defined in Table 4.7.

**Table 4.6
FHWA Noise Abatement Criteria Activity Category
Hourly A-Weighted Sound Level – Decibels (dBA)**

Activity Category	Leq(h)	Description of Activity Category
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 (Exterior)	Developed lands, properties, or activities not included in Categories A or B.
D	--	Undeveloped lands.
E	52 (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

Source: Title 23 Code of Federal Regulations (CFR) Part 772, U. S. Department of Transportation, Federal Highway Administration.

Table 4.7
Noise Abatement Criteria - Criteria for Substantial Increase
Hourly A-Weighted Sound Level – Decibels (dBA)

Existing Noise Level in Leq(h)	Increase in dBA from Existing Noise Levels to Future Noise Levels
≤50	≥15
51	≥14
52	≥13
53	≥12
54	≥11
≥55	≥10

Source: NCDOT, 2004d

The sensitivity of an area to additional noise is a function of land use and background noise level. Some types of land use are more sensitive to noise than others, especially those associated with rest, relaxation, concentration, and communication. Examples of noise sensitive areas include residences, schools, churches, hospitals, libraries, public assembly halls, lodgings, and parks. Land use types that are less sensitive to noise include commercial, industrial, and agricultural uses.

4.2.2.2 Analysis Methodology

The Traffic Noise Model (TNM) 2.1 computer model was used to predict future noise levels in the study area. The TNM traffic noise prediction model uses the number and type of vehicles on the planned roadway, their speeds, the physical characteristics of the road (curves, hills, depressed, elevated, etc.), receptor location and height, and, if applicable, barrier type, barrier ground elevation, and barrier top elevation. Only those existing natural or man-made barriers were included in model development. The roadway sections and proposed intersections were assumed to be flat and at-grade to provide a "worst-case" for topographical conditions. The noise predictions were based on highway-related noise predictions for the traffic conditions during the design year of the project (2025).

Peak hour design and level-of-service (LOS) C volumes were compared and the volumes resulting in the noisiest conditions were used with the proposed posted speed limits. Hence, during all other time periods, the noise levels will be no greater than those indicated in the following section.

4.2.2.3 Noise Analysis Results

Table 4.8 lists the number of receptors in each activity category predicted to approach or exceed the FHWA NAC. Under Title 23 CFR Part 772, Alternatives 8 and 10 would incur the most noise impacts with 11 residences and 1 business impacted. The Preferred Alternative would impact 10 residences and 1 business. The maximum extent of the 72-dBA noise level contour is 72.3 feet from the center of the proposed roadway. The maximum extent of the 67-dBA noise level contour is 111.7 feet from the center of the proposed roadway. This information should assist local authorities in exercising land use control over the remaining undeveloped lands adjacent to the roadway within local jurisdiction. For example, with the proper information on noise, the local authorities can prevent further development of incompatible activities and land uses with the predicted noise levels of an adjacent highway.

**Table 4.8
Receptors by Activity Category
Approaching or Exceeding Noise Abatement Criteria**

	Number of Receptors	
	Activity Category*	
	B	C
Alternative 8	11	1
Alternative 9 (Preferred)	10	1
Alternative 10	11	1

Notes: * NCDOT guidelines consider 66 dBA Leq for residential areas and 71 dBA Leq for commercial areas as levels approaching FHWA noise abatement criteria. No Activity Category A, D, or E uses were present within the project study area.

Eight of the twelve receptors affected by Alternatives 8 and 10 and eight of the eleven receptors affected by the Preferred Alternative that approach or exceed noise abatement criteria for both Categories B and C experience a noise level increase of less than 5-dBA. When real-life noises are heard, it is possible barely to detect noise level changes of 2-3 dBA. A 5-dBA change is more readily noticeable.

Predicted exterior noise level increases are shown in Table 4.9 for each alternative. There are four substantial noise level impacts anticipated by this project by the selection of Alternatives 8 or 10. The Preferred Alternative has three anticipated substantial noise level impacts. The predicted noise level increases for this project range up to +18 dBA.

**Table 4.9
Traffic Noise Level Increase Summary**

	Number of Receptors per Range of Noise Level (dB) Increases							Substantial Noise Level Increase*	Substantial Noise Level Increase and Approach or Exceed the FHWA NAC**
	<=0	1-4	5-9	10-14	15-19	20-24	>=25		
Alternative 8	0	11	5	14	2	0	0	4	1
Alternative 9 (Preferred)	1	11	4	16	1	0	0	3	1
Alternative 10	0	11	4	16	2	0	0	4	1

Notes: * As defined by only a substantial increase (see Table 4.7)
** As defined by both criteria in Tables 4.6 and 4.7

The Date of Public Knowledge of the location and potential noise impacts of a proposed highway project will be the approval date of the final environmental document, e.g., Categorical Exclusion

(CE), state or federal Finding of No Significant Impact (FONSI) or state or federal Record of Decision (ROD) (NCDOT, 2004d).

- After the Date of Public Knowledge, the federal and state governments are no longer responsible for providing noise abatement measures for new development within the noise impact area of the proposed highway project.
- The criteria (e.g., trigger date) for determining when undeveloped land is “planned, designed and programmed” for development will be the approval of a building permit for an individual lot or site.
- It is the responsibility of local governments and private landowners to ensure that noise-compatible designs are used for development permitted after the Date of Public Knowledge.

4.2.2.4 Noise Abatement and Mitigation Measures

If traffic noise impacts are predicted, examination and evaluation of alternative noise abatement measures for reducing or eliminating the noise impacts must be considered. Consideration for noise abatement measures must be given to all impacted receptors. There are impacted receptors due to highway traffic noise in the study area. The following discussion addresses the applicability of these measures to the proposed project.

Highway Alignment Selection. Highway alignment selection involves the horizontal or vertical orientation of the proposed improvements in such a way as to minimize impacts and costs. The selection of alternative alignments for noise abatement purposes must consider the balance between noise impacts and other engineering and environmental parameters. For noise abatement, horizontal alignment selection is primarily a matter of constructing the roadway at a sufficient distance from noise sensitive areas. Changing the highway alignment is not a viable alternative for noise abatement for this project.

Traffic System Management Measures. Traffic system management measures, which limit vehicle type, speed, volume, and time of operations, are often effective noise abatement measures. For this project, traffic management measures are not considered appropriate for noise abatement due to their effect on the capacity and level of service of the proposed roadway.

Past project experience has shown that a reduction in the speed limit of 10 miles per hour (mph) would result in a noise level reduction of approximately 1 to 2 dBA. Because most people cannot detect a noise reduction of up to 3 dBA and because reducing the speed limit would reduce roadway capacity, it is not considered a viable noise abatement measure (FHWA, 1984). This and other traffic system management measures, including the prohibition of truck operations, are not considered to be consistent with the project’s objective of providing a high-speed, limited-access roadway.

Noise Barriers. Physical measures to abate anticipated traffic noise levels are often applied with measurable success on fully controlled facilities by the application of solid mass, attenuation measures strategically placed between the traffic sound source and the receptors to effectively diffract, absorb, and reflect highway traffic noise emissions. These attenuation measures may include earth berms or artificial abatement walls.

The proposed project will maintain limited control of access, meaning all intersections would adjoin the project at grade. For a noise barrier to provide sufficient noise reduction, it must be high enough and long enough to shield the receptor from significant sections of the highway. Access openings in the barrier severely reduce the noise reduction provided by the barrier. It then becomes economically unreasonable to construct a barrier for a small noise reduction. Safety at access openings (driveways, crossing streets, etc.) due to restricted sight distance is also a concern. Furthermore, to provide a sufficient reduction, a barrier's length would normally be 8 times the distance from the barrier to the receptor. For example, a receptor located 50 feet from the barrier would normally require a barrier 400 feet long. An access opening of 40 feet (10 percent of the area) would limit its noise reduction to approximately 4 dBA. In addition, businesses, churches, and other related establishments located along a particular highway normally require accessibility and high visibility. Noise barriers for traffic noise abatement would tend to reduce both of these qualities.

The Highway Traffic Noise/Construction Noise Analysis for the NC 119 Relocation project indicated that the majority of the impacted receptors would be located primarily in the southern portion of the project study area, near the I-85/40 interchange. While full control of access is being proposed at this interchange, the impacted receptors are scattered on either side of existing NC 119 in this area. In addition, several of these receptors are anticipated to be relocated or are businesses and are not as concerned with noise as visibility to the traveling public. Additional impacted receptors are scattered throughout the project study area in the vicinity of US 70 and SR 1921 (Mebane Rogers Road).

After the selection of the Preferred Alternative, noise impacts were re-evaluated. It was determined that the alignment for the Preferred Alternative, location and number of residential receptors, and proposed control of access remain relatively unchanged since completion of the initial noise investigation. Therefore, the conclusions from the initial investigation are still valid and traffic noise abatement is not recommended nor are noise abatement measures proposed.

Other Mitigation Measures Considered. The acquisition of property in order to provide buffer zones for noise minimization is not considered to be a feasible noise mitigation measure for this project. The cost to acquire impacted receptors for buffer zones would exceed the abatement threshold cost allowed per benefited receptor. The use of buffer zones to minimize impacts to future sensitive areas is not recommended because this could be accomplished through land use control.

The use of vegetation for noise mitigation is not considered reasonable for this project, due to the substantial amount of right-of-way necessary required to make vegetative barriers effective. FHWA research has shown that a vegetative barrier should be approximately 100 feet wide to provide a 3-dBA reduction in noise levels. In order to provide a 5-dBA reduction, an even greater amount of right-of-way would be required. The cost to acquire right-of-way and plant sufficient vegetation is estimated to exceed the abatement threshold of \$35,000 per benefited receptor plus an incremental increase of \$500 per dBA average increase in the predicted exterior noise levels of the impacted receptors. Noise insulation was also considered; however, no eligible public or non-profit institutions were identified that would be impacted by this project.

Construction Noise. The major construction elements of this project are expected to be earth removal, hauling, grading, and paving. General construction noise impacts, such as temporary

speech interference for passers-by and those individuals living or working near the project, can be expected particularly from paving operations and from the earth moving equipment during grading operations. However, considering the relatively short-term nature of construction noise and the limitation of construction to daytime hours, these impacts are not expected to be substantial. The transmission loss characteristics of nearby natural elements and man-made structures are believed to be sufficient to moderate the effects of intrusive construction noise.

Summary. Traffic noise impacts are an unavoidable consequence of transportation projects, especially in areas where there are not traffic noise sources. All traffic noise impacts were considered for noise mitigation. Based on these preliminary studies and subsequent noise re-evaluation after selection of the Preferred Alternative, traffic noise abatement is not recommended, and no noise abatement measures are proposed.

4.2.3 Hazardous Material and Waste Sites

Based on the field reconnaissance survey described in Section 3.2.3, two facilities with the possibility for underground storage tanks (USTs) were identified along all of the Detailed Study Alternatives, including the Preferred Alternative. If any potential hazardous materials/waste sites cannot be avoided during the avoidance and minimization stage of the project, further assessments of the properties will be conducted and the results will be reported in the Record of Decision (ROD). These assessments will evaluate the properties for specific types and amounts of hazardous materials and will include right-of-way acquisition recommendations. Based on current knowledge, it is not expected that any of these sites would preclude the construction of any of the Detailed Study Alternatives, including the Preferred Alternative. Once right-of-way plans are complete, final investigations for hazardous materials/waste sites would be conducted according to those plans.

4.2.4 Geology, Soils, and Mineral Resources

4.2.4.1 Geology

As stated in Section 3.2.5, the project study area lies within the Southern Outer Piedmont and Carolina Slate Belt Ecoregion (NCDENR, 2006a). Bedrock in the project study area consists of felsic metavolcanic rocks and intermediate metavolcanic deposits. It is not anticipated that the geology of the area would have a substantial impact in the construction of any of the Detailed Study Alternatives, including the Preferred Alternative.

4.2.4.2 Soils

The properties of soils, including shrink/swell potential, erosion hazard, risk of corrosion, and suitability as road fill, can affect the engineering design of a roadway. Figure 3.7 shows the soils within the Detailed Study Alternatives, including the Preferred Alternative, and Appendix D includes the properties and limitations of these soils for roadway construction.

Table 4.10 lists the acreages of each soil type within the construction limits of the preliminary engineering designs of the Detailed Study Alternatives, including the Preferred Alternative. Forty-five different soil types are present in the Detailed Study Alternatives, including the Preferred Alternative. The five soil types that make up over 55% of the Detailed Study Alternatives, including the Preferred Alternative, are GaB2, GaC2, GaD, HdB2, and TaB2.

Table 4.10
Acres of Soil Types in the Detailed Study Alternatives

Soil	Description	Acres of Soils for Each Alternative		
		8	9 (Preferred Alternative)	10
Aab	Alamance silt loam, 2 to 6 percent slopes (Callison)	0.7	0.7	0.7
Cd	Chewacla fine sandy loam, 0 to 2 percent slopes, occasionally flooded	0.6	0.7	0
Ce	Colfax sandy loam, 2 to 6 percent slopes	0.4	0.4	0.4
Cf	Colfax silt loam, 2 to 6 percent slopes	1.1	1.1	1.1
EaB2	Efland silt loam, 2 to 6 percent slopes, eroded (Badin)	5.2	5.2	5.2
EaC	Efland silt loam, 6 to 10 percent slopes (Badin)	0.1	0.06	0.06
EaC2	Efland silt loam, 6 to 10 percent slopes, eroded (Badin)	3.6	3.6	3.6
EbC3	Efland silty clay loam, 6 to 10 percent slopes, severely eroded (Badin)	1.1	1.1	1.1
EbD3	Efland silty clay loam, 10 to 15 percent slopes, severely eroded (Badin)	0.3	0.4	0.3
GaB	Georgeville silt loam, 2 to 6 percent slopes	4.3	4	3.4
GaB2	Georgeville silt loam, 2 to 6 percent slopes, eroded	37.3	37.6	39.5
GaC	Georgeville silt loam, 6 to 10 percent slopes	7.6	5.7	3.1
GaC2	Georgeville silt loam, 6 to 10 percent slopes, eroded	10.3	11.9	12.1
GaD	Georgeville silt loam, 10 to 15 percent slopes (Tarrus)	14.9	13.4	11.9
GaD2	Georgeville silt loam, 10 to 15 percent slopes, eroded (Tarrus)	6.4	9	8.7
GaE	Georgeville silt loam, 15 to 25 percent slopes (Badin)	3.6	2.3	3.3
GbC3	Georgeville silty clay loam, 6 to 10 percent slopes, severely eroded (Tarrus)	2.7	3.8	3.5
GbD3	Georgeville silty clay loam, 10 to 15 percent slopes, severely eroded (Tarrus)	1.9	1.9	5.2
GbE3	Georgeville silty clay loam, 15 to 25 percent slopes, severely eroded (Badin)	1.5	1.5	1.5
GcC	Goldston channery silt loam, 6 to 10 percent slopes	0.9	0	0
GcD	Goldston channery silt loam, 10 to 15 percent slopes	1.7	1.7	1.7
GcE	Goldston channery silt loam, 15 to 25 percent slopes	1.4	0.7	2.3
HdB	Herndon silt loam, 2 to 6 percent slopes	3.7	3.7	3.7
HdB2	Herndon silt loam, 2 to 6 percent slopes, eroded	22.6	22.2	21.9
HdC	Herndon silt loam, 6 to 10 percent slopes	0.3	0.3	0.3
HdC2	Herndon silt loam, 6 to 10 percent slopes, eroded	5.8	5.7	5.6
HdD	Herndon silt loam, 10 to 15 percent slopes (Nanford)	3.8	3.8	3.8
HdD2	Herndon silt loam, 10 to 15 percent slopes, eroded (Nanford)	0	0	0.05
HeC3	Herndon silt loam, 6 to 10 percent slopes, severely eroded	0.4	0.4	0.4
HeD3	Herndon silty clay loam, 10 to 15 percent slopes, severely eroded (Nanford)	1.7	1.7	1.7
Lc	Local alluvial land, poorly drained	3.5	3.5	3.7
Ld	Local alluvial land, well drained	0.01	0.01	0.01
Mf	Moderately gullied land, Georgeville and Herndon materials, 6 to 25 percent slopes	2.6	2.6	2.6

Soil	Description	Acres of Soils for Each Alternative		
		8	9 (Preferred Alternative)	10
OaB	Orange silt loam, 2 to 6 percent slopes (Pittsboro)	1.4	1.4	1.4
OaB2	Orange silt loam, 2 to 6 percent slopes, eroded (Pittsboro)	2.5	2.5	2.5
ObB	Orange silt loam, moderately well drained variant, 2 to 6 percent slopes (Pittsboro)	1	1	1
ObB2	Orange silt loam, moderately well drained variant, 2 to 6 percent slopes, eroded (Pittsboro)	2.4	2.4	2.4
ObC2	Orange silt loam, moderately well drained variant, 6 to 10 percent slopes, eroded	1	1	1
Sb	Starr loam, 2 to 6 percent slopes, occasionally flooded	0.4	0.4	0.4
TaB	Tirzah silt loam, 2 to 6 percent slopes (Tarrus)	1.1	1.1	1.1
TaB2	Tirzah silt loam, 2 to 6 percent slopes, eroded (Tarrus)	21.2	21.2	21.2
TaC2	Tirzah silt loam, 6 to 10 percent slopes, eroded (Tatum)*	0.1	0.1	0.1
W	Water	0.5	0.5	0.5
Wd	Worsham sandy loam, 2 to 6 percent	1.2	1.2	1.2
We	Worsham silt loam, 2 to 6 percent slopes	2.1	2.1	2.1
TOTAL:		186.91	185.57	187.32

Note: * Revision made on April 22, 1993
Source: USDA, 1960

The five primary soils within the Detailed Study Alternatives, including the Preferred Alternative, have similar properties (see Appendix D). The suitability of these soils as roadfill ranges from fair to poor. This is an indication that the roadbed may need to be undercut, removing several inches of the soil, and replacing it with a more suitable soil. These soils generally have a high risk of corrosion for both uncoated steel and concrete. To prevent corrosion, an epoxy-coated steel may be needed. The shrink/swell potential of these soils ranges from low to moderate.

Of the remaining soils in the Detailed Study Alternatives, including the Preferred Alternative, all have low to moderate shrink/swell potential, with the exception of the B horizon of the Orange soil series, which has a high shrink/swell potential (USDA, 1960). In soils of high shrink/swell potential, surcharging the roadbed may be required. To surcharge the roadbed, fill dirt would be brought in and laid on top of the roadbed for an extended period of time. The fill dirt would cause the soil underneath to settle. Then the fill dirt would be removed and paving could begin. Each of the Detailed Study Alternatives, including the Preferred Alternative, has approximately 8.3 acres of Orange type soils.

The expected soil limitations can be overcome through proper engineering design, including the incorporation of techniques such as soil modification, appropriate choice of fill material, use of non-corrosive subgrade materials, and design of drainage structures capable of conveying estimated peak flows. Decisions regarding soil limitations and methods to overcome them would be determined during final design.

The soil types found along the Preferred Alternative within the Water Supply Watershed Critical Area include Cd, GaB2, GaC, GaC2, GaD2, GaE, GcD, HdB2, ObB2, ObC2, and We. These soils

generally have a high risk of corrosion for both uncoated steel and concrete. To prevent corrosion, an epoxy-coated steel may be needed. The shrink/swell potential of these soils ranges from low to moderate, with the exception of the B horizon of the Orange soil series, which has a high shrink/swell potential. Soil types Cd, GcD, HdB2, ObB2, ObC2, and We are considered to be poor for use as either borrow or topsoil material. As stated above, the engineering properties of these soils may require the use of undercut techniques during road construction. However, based on a review of the soil properties, it is not anticipated that the soil types within the Water Supply Watershed Critical Area would provide unique challenges to the construction of the Preferred Alternative.

4.2.4.3 Mineral Resources

Currently, there are no mines within one mile of the project study area. The mineral resources of the study area are most commonly used as aggregate, which is readily available at other sites throughout the state. It is unlikely that the proposed roadway would limit the development of study area resources for that purpose should they become an economically viable product for the area.

4.2.5 Prime and Important Farmland

4.2.5.1 Farmland Protection Policy Act

In accordance with the Farmland Protection Policy Act (FPPA) of 1981 (7 CFR Part 658) and State Executive Order Number 96, an assessment was undertaken of the potential impacts of land acquisition and construction activities in prime, unique, and local or statewide important farmland soils, as defined by the US Department of Agriculture Natural Resources Conservation Service (NRCS). Prime and Important farmlands in the project study area are shown in Table 3.16.

As required by the FPPA, coordination with the NRCS for this project was initiated by submittal of Form AD-1006, *Farmland Conversion Impact Rating*. This coordination effort served as the basis for determining the farmland impacts of the Detailed Study Alternatives, including the Preferred Alternative. The NRCS responded by completing their portions of this form and providing a relative value of farmland that may be affected (converted) by the proposed project.

The NRCS assigns ratings to potential farmland impacts in order to determine the level of significance of these impacts. The ratings are comprised of two parts. The Land Evaluation Criterion Value represents the relative value of the farmland to be converted and is determined by the NRCS on a scale from 0 to 100 points. The Corridor Assessment, which is rated on a scale of 0 to 160 points, evaluates farmland soil based on its use in relation to the other land uses and resources in the immediate area. The two ratings are added together for a possible total rating of 260 points. Sites receiving a total score of less than 160 should be given a minimal level of protection, and sites receiving a total score of 160 or more are given increasingly higher levels of consideration for protection (7 CFR Section 658.4).

Completed AD-1006 Farmland Conversion Rating Forms for the project are provided in Appendix E. None of the proposed Detailed Study Alternatives, including the Preferred Alternative, resulted in a total site assessment score greater than 160 points. Therefore, in accordance with the FPPA, no mitigation for farmland loss is required for the project.

The amount of Prime and State Important farmland converted varies slightly among each of the alternatives. Alternative 10 has the lowest acreage of Prime and State Important farmland impacts (approximately 150 acres), while Alternative 8 and the Preferred Alternative would impact approximately 153 acres.

In the southern portion of the project study area, there are several parcels of land currently in agricultural use (crop fields and pastures). However, the majority of this area, located north of SR 1962 (Third Street Extension) and south of US 70, is within the boundaries of the NCIC, which is partially developed and is planned for industrial uses. All of the Detailed Study Alternatives, including the Preferred Alternative, would reduce the amount of acreage currently in agricultural use in this area.

Another area of agricultural use is in the vicinity of the Cates Farm historic property located north of SR 1921 (Mebane Rogers Road) and south of Mill Creek. The Preferred Alternative and Alternative 10 would reduce the amount of acreage currently in agricultural use (as pasture land) within the vicinity of Cates Farm. Alternative 8 would not convert any agricultural lands within the vicinity of Cates Farm. An additional area currently in agricultural use is located west of existing NC 119 and north and south of SR 1917 (White Level Road). All of the Detailed Study Alternatives, including the Preferred Alternative, would reduce the amount of acreage currently in agricultural use (crop fields) in this area.

In general, the Detailed Study Alternatives, including the Preferred Alternative, would have some impact on the agricultural activities in the project study area; however, the total acreage of farmland that would be acquired for the project (150 to 153 acres) is not considered to be substantial as compared to the overall agricultural activity in Alamance County (240,623 farmable acres, of which 179,301 acres are active farmland as defined in the Farmland Protection Policy Act of 1981).

4.2.5.2 Local Farmland Policies

Alamance County has a Voluntary Preservation Farmland Program that is designed to protect farmland from non-agricultural development and promote agricultural values and the general welfare of Alamance County by increasing identity and pride in the agricultural community and its way of life; encouraging the economic and financial health of agriculture; and increasing protection from non-farm development and other negative impacts on properly managed farms.

To qualify for the program, the following minimum amount of land is required:

- 5 acres in horticultural use
- 10 acres in general agricultural use
- 20 forested acres

The property must have a conservation plan certified by the NRCS or the North Carolina Forest Service (Alamance County Agricultural District, 2001).

4.2.6 Water Resources

4.2.6.1 Water Quality

Stormwater runoff from roadways carries substantial quantities of silt, heavy metals, petroleum products, nitrogen, and phosphorous. These materials can potentially degrade water quality and aquatic habitat integrity. The effects on water quality depend on the size of the waterways crossed, the number of such crossings, and the season of construction. Streams with low flow are more severely affected since they have less volume to dilute the runoff. However, construction during periods of low precipitation can result in reduced impacts since stormwater does not carry the pollutants downstream.

Short-term impacts on water quality within the project study area may result from soil erosion and sedimentation. Uncontrolled erosion and sedimentation can potentially destroy aquatic algae, eliminate benthic macroinvertebrate habitat, eradicate fish spawning habitat, and remove food resources for many stream species.

Temporary construction impacts due to erosion and sedimentation would be minimized through implementation of stringent erosion control schedule and use of best management practices (BMPs). Since the proposed project crosses waters classified as High Quality Waters (HQW), NCDOT must adhere to sediment and erosion control BMPs as described for HQW in *Design Standards in Sensitive Watersheds* (15A NCAC 04B .0124) throughout design and construction of the project. This would also apply for any area having Water Supply Critical Area (WS CA) classification. These regulations require that erosion and sedimentation control measures, structures, and devices within HQW zones be planned, designed, and constructed to provide protection from the runoff of the 25-year storm that produces the maximum peak rate of runoff.

The NCDOT would implement the appropriate sediment and erosion control measures as detailed in the most recent version of the North Carolina Erosion and Sediment Control Planning and Design Manual and the most recent version of Permit No. NCS000250. During final design of the Preferred Alternative, the NCDOT would investigate and implement appropriate stormwater treatment measures as detailed in the most recent version of NCDWQ Stormwater Best Management Practices Manual, which may include grassed swale treatment, preformed scour holes, pipe end-treatments, and level spreaders to the extent practicable. In addition, the NCDOT would develop a stormwater management plan and obtain a State Stormwater Permit prior to construction.

The three Detailed Study Alternatives, including the Preferred Alternative, cross the Graham-Mebane Reservoir water supply watershed. North Carolina law requires the construction of new roads located within a water supply watershed “shall minimize built-upon area, divert stormwater away from surface water supply waters as much as possible, and employ best management practices (BMPs) to minimize water quality impacts” (15A NCAC 02B .0104). The NCDOT must use the BMPs outlined in *Best Management Practices for Protection of Surface Waters* (NCDOT Hydraulics Unit, 1997).

The contractor would also be required to follow contract specifications pertaining to erosion control measures (as outlined in 23 CFR Part 650, Subpart B and Article 107-13) entitled *Control of*

Erosion, Siltation, and Pollution (NCDOT, Specification for Roads and Structures). These measures include the following:

- Use of dikes, berms, silt basins, and other containment measures to control runoff during construction. Regular maintenance and inspection of these structures is recommended to insure effectiveness.
- Elimination of construction staging areas in floodplains or adjacent to streams and tributaries will help reduce the potential for petroleum contamination or discharges of other hazardous materials into receiving waters.
- Rapid re-seeding of disturbed sites to help alleviate sediment loading and reduce runoff. Increased runoff from new highway surfaces can be partially mitigated by providing for grassed road shoulders and limited use of ditching.
- Careful management and use of herbicides, pesticides, de-icing compounds, or other chemical constituents will minimize potential negative impacts on water quality. Roadside maintenance crews should be well versed in the use of these chemicals.
- Avoid direct discharges into streams whenever feasible. Runoff effluent should be allowed to filter through roadside vegetation in order to remove contaminants and to minimize runoff velocities.

Hazardous spill protection measures will be provided at stream crossings within ½ mile of the water supply watershed critical area of the Graham-Mebane Reservoir during final design of the Preferred Alternative. The NCDOT's *Guidelines for Drainage Studies and Hydraulic Design* (1999) specifies the criteria regarding the location and design of hazardous spill basins.

Long-term impacts on water quality are also possible due to particulates, heavy metals, organic matter, pesticides, herbicides, nutrients, and bacteria that are often found in highway runoff.

The following mitigation measures to eliminate or reduce short-term and long-term water quality impacts would be incorporated wherever practicable:

- Development of roadway alignments that avoid streams and ponds to the extent possible.
- Use of design measures to protect water quality, including avoiding stormwater discharge into public water supplies, minimizing stream crossings, and minimizing segments of roadway that closely parallels streams.
- Use of grass shoulders, grass lined ditches, and vegetative buffers to intercept highway runoff.
- Implementation of construction practices that protect stream bottom habitat from siltation by sedimentation control, retention of riparian vegetation buffers, and restoration of stream bottom habitat taken by construction.
- Countersink culverts to allow unimpeded passage by fish and other aquatic organisms.
- Avoid installation of bridge bents in the creek.
- Avoid placing sediment and erosion control measures in wetlands or streams.
- Restricting the use of scuppers (bridge deck drains) in bridges.

Changes in stormwater runoff and nutrient loading in the project vicinity as a result of projected growth were estimated as part of the study on indirect and cumulative impacts of the NC 119 Relocation project. The results are discussed in Section 4.4.

4.2.6.2 Major Drainage Structures

Each Detailed Study Alternative, including the Preferred Alternative, crosses a number of streams and drainages for which bridges, box culverts, or pipe culverts would be required. Table 4.11 lists the major drainage structures associated with each alternative. The stream numbers referred to in the table are shown in Figure 4.4, which also contains floodplain information. Correspondence regarding hydraulic recommendations for the proposed project is included in Appendix F.

All hydraulic structures would be designed such that the proposed structures would not substantially increase upstream flooding and would not increase the flood hazard potential of the existing floodplain. No channel relocations are anticipated based on the preliminary engineering designs for any of the Detailed Study Alternatives, including the Preferred Alternative; however, if channel relocations are required in the final design, they would be designed according to the most recent guidelines for open channels and would match the existing channel as closely as possible. It should be noted that the recommended structure sizes are preliminary and could be subject to change during final design when more detailed information is available.

**Table 4.11
Major Drainage Structures**

Site Number	Stream	Detailed Study Alternative	Recommended Structure**
1	MoAdams Creek (& WL1)	8, 9 (Preferred), 10	3@10 ft x 7 ft RCBC*
2	Tributary to Mill Creek (UT 14)	8, 9 (Preferred), 10	1@6 ft x 6 ft RCBC*
3	Mill Creek	8	Bridge (165 ft)
	Mill Creek	9 (Preferred)	Bridge (210 ft)
	Mill Creek (includes UT 15)	10	Bridge (335 ft)
4	MoAdams Creek (& WL11)	8, 9 (Preferred), 10 (Corridor Road Extension)	2@10 ft x 6 ft RCBC*
5	Tributary to Mill Creek (UT 14)	10 (Mebane Rogers Road)	Retain and extend 72-inch CMP*

Notes: * RCBC indicates Reinforced Concrete Box Culvert, CMP indicates Corrugated Metal Pipe
 ** Culvert size was recommended for hydraulic requirements. Bridge structure was recommended at Mill Creek by the Merger Team at Concurrence Point 2a.

A spanning (three-sided) bottomless culvert will be investigated at major stream crossing Site 2 (Unnamed Tributary to Mill Creek [UT14]) if the site conditions permit it. Additionally, natural channel design techniques will be investigated and pursued in the area of the culvert for stabilization purposes. The standard sedimentation and erosion control measures for the installation of culverts will be followed and all measures to improve/maintain the condition/stability of UT14 will be utilized. The use of a bottomless culvert requires conditions where footings are put on bedrock.

Geotechnical Engineering typically performs foundation test borings during the final design phase of a project.

A bridge structure was recommended at Mill Creek by the Merger Team at Concurrence Point 2a to minimize impacts; therefore, a culvert design was never developed at this location. However, the original hydraulic recommendation at Site 3 – Mill Creek included three 12-foot by 12-foot reinforced concrete box culverts.

4.2.6.3 Stream Impacts

The number and length of impacted perennial stream channels for the preliminary engineering design of each Detailed Study Alternative, including the Preferred Alternative, as of February 2007 and April 2009 (Woodlawn Road realignment) are represented in Table 4.12. Anticipated surface water impacts were calculated based on the length of each stream within the estimated construction limits. Additional areas outside the project study area might be indirectly affected due to changes in water levels and siltation from construction activities; however, impacts to these areas were not calculated, nor are they anticipated to be substantial. No adjacent upstream or downstream flooding will occur solely as a result of this project. The *Natural Resources Technical Report* (Buck Engineering, 2003) and *Natural Resources Technical Report Addendum* (Baker Engineering, 2006b) include additional details about each stream.

Perennial streams are those meeting the criteria set forth by the North Carolina Division of Water Quality (NCDWQ). The perennial streams are considered to be significant, in that they possess the consistent hydrology to support aquatic populations. Important streams are classified based on guidance from the US Army Corps of Engineers (USACE). The USACE is responsible for making the final importance decision. Compensatory mitigation is required for important stream channel impacts greater than 150 linear feet.

**Table 4.12
Estimated Stream Impacts**

Stream / Seasonality	Stream Name	Estimated Impact* (linear feet)		
		Alternative 8	Alternative 9 (Preferred)	Alternative 10
UT1 / Perennial	UT to MoAdams Creek	149	149	149
UT3 / Perennial	UT to MoAdams Creek	187	187	187
UT4 / Perennial	UT to MoAdams Creek	132	132	132
Perennial	MoAdams Creek**	376	376	376
UT6 / Perennial	UT to MoAdams Creek	325	325	325
UT7 / Perennial	UT to MoAdams Creek	266	266	266
UT7A / Perennial	UT to UT7	22	22	22
UT8 / Perennial	UT to MoAdams Creek	195	195	195
UT10 / Perennial	UT to Back Creek	163	163	163
UT11 / Perennial	UT to Back Creek	323	323	323
UT12 / Perennial	UT to Mill Creek	274	0	0
UT13 / Perennial	UT to Mill Creek	35	0	0

Stream / Seasonality	Stream Name	Estimated Impact* (linear feet)		
		Alternative 8	Alternative 9 (Preferred)	Alternative 10
UT14 / Perennial	UT to Mill Creek	283	196	344
Perennial	Mill Creek***	0	0	0
UT15 / Perennial	UT to Mill Creek	0	0	0***
UT16 / Perennial	UT to Mill Creek	194	293	302
UT17 / Perennial	UT to Mill Creek	204	216	215
UT24 / Perennial	UT to MoAdams Creek	80	80	80
UT25 / Perennial	UT to MoAdams Creek	155	155	155
UT28 / Intermittent	UT to Mill Creek	91	100	94
TOTAL:		3,454	3,178	3,328

Notes: * Anticipated surface water impacts are based upon the construction limits (including fill, excavation, clearing) of the preliminary designs (February 2007 and April 2009 [Woodlawn Road realignment]) and include culverts or pipes at all stream crossings; except at the Mill Creek location which is recommended to be bridged. Surface waters not impacted by the proposed project are not included in the table.

** Two crossings at MoAdams Creek (282 linear feet and 94 linear feet of impacts).

*** Bridge structure was recommended at Mill Creek by the Merger Team at Concurrence Point 2a. Therefore, there would not be any stream impacts associated with this stream. Additionally, UT 15 (UT to Mill Creek) lies within the Alternative 10 corridor and would be spanned by the recommended bridge at Mill Creek.

Linear stream impacts are greatest for Alternative 8 and least for the Preferred Alternative. The differences in the length of impacts are attributed to the extra stream crossings encountered in Alternative 8 compared to the Preferred Alternative and Alternative 10.

At this phase in the planning process, the need for stream relocations is not anticipated. Should such actions be required, as determined during final design, coordination with the US Fish and Wildlife Service (USFWS) and the NC Wildlife Resources Commission (NCWRC) would be completed in accordance with mandates expressed in the Fish and Wildlife Coordination Act (72 Stat. 563, as amended, 16 USC 661 et seq. [1976]).

Mitigation must be provided for cumulative important stream channel impacts exceeding 150 linear feet. Complete bridging of the stream channel would not require mitigation, but construction of standard culverts would require mitigation for the disturbed stream channel. The preliminary engineering designs currently propose a bridge over Mill Creek for the Detailed Study Alternatives, including the Preferred Alternative, to accommodate flood passage.

The NCDOT began evaluating the project corridor for suitable on-site mitigation locations in August 2008. If on-site mitigation locations are infeasible or insufficient to mitigate all project impacts, mitigation will be provided by the North Carolina Ecosystem Enhancement Program (NCEEP) through their Memorandum of Agreement with the NCDOT and the USACE. The NCDOT will continue to coordinate with NCDWQ, USACE, and USEPA regarding mitigation through the Section 404/NEPA Merger process.

4.2.6.4 Floodplains and Floodways

Both Alamance County and the City of Mebane are participants in the National Flood Insurance Regular Program. Table 4.13 provides information regarding the area and length of the floodways and 100-year floodplains impacted by the proposed preliminary engineering designs within each Detailed Study Alternative, including the Preferred Alternative. All of the Detailed Study Alternatives cross the 100-year floodplains of Mill Creek and MoAdams Creek, where detailed flood studies have been performed. Due to stream meanders and minor variations in stream width, Alternative 10 crosses a wider floodplain and floodway of Mill Creek than Alternative 8 or the Preferred Alternative. However, NCDOT has recommended construction of a bridge for the crossing of Mill Creek for all three alternatives. Therefore, no substantial difference in impacts between the three alternatives is expected within the 100-year floodplains.

**Table 4.13
Floodplain Impacts**

Detailed Study Alternative	Floodplain Area Crossed (acres)	Floodway Area Crossed (acres)	Floodplain Crossed (linear feet)*	Floodway Crossed (linear feet)*
8	2.51	1.44	1,052	429
9 (Preferred Alternative)	3.15	2.09	1,029	519
10	4.12	2.87	1,215	691

Note: * Based on centerline of preliminary engineering designs

As part of a detailed flood study for Alamance County, MoAdams Creek, and Mill Creek have a regulated floodplain and floodway with associated established water surface elevations. As such, the proposed crossing for all of the Detailed Study Alternatives, including the Preferred Alternative, as well as the proposed extension of SR 1997 (Corrigidor Road) will require floodway revisions at the MoAdams Creek crossings. In addition, the proposed crossing for all of the Detailed Study Alternatives, including the Preferred Alternative, will require floodway revisions at the Mill Creek crossing. Even though a bridge is proposed at this crossing, it is anticipated that a floodway revision will also be required because the bridge lengths recommended were not based on spanning the floodway, but rather on NCDOT minimum bridge criteria applied to the latest available preliminary roadway design alignments and profiles.

Major drainage structures proposed for the project would cross the 100-year floodplains at or near perpendicular angles, resulting in floodplain encroachments that minimize the length of floodplain traversed. As a result, no substantial impacts are anticipated within the 100-year floodplains. All structures would be sized to ensure that no increases to the extent and level of flood hazard risk would result from encroachments. Therefore, none of the Detailed Study Alternatives nor the Preferred Alternative are anticipated to result in uneconomic, hazardous, or incompatible uses of any floodplains. However, the Hydraulics Unit will coordinate with the Federal Emergency Management Agency (FEMA) to determine if a Conditional Letter of Map Revision (CLOMR) and a subsequent final Letter of Map Revision (LOMR) are required for the project. If required, the

Division will submit sealed as-built construction plans to the Hydraulics Unit upon project completion certifying the project was built as shown on construction plans.

4.2.6.5 Water Supply Watershed Critical Area

The centerline for Alternative 8 and the Preferred Alternative cross the WCA of the Graham-Mebane Reservoir. Construction of these alternatives would add 5.78 acres and 4.10 acres of impervious surface within the WCA, respectively. The centerline for Alternative 10 is located completely outside of the WCA. Construction of Alternative 8 would require no realignment of SR 1921 (Mebane Rogers Road). However, construction of the Preferred Alternative and Alternative 10 would require a section of SR 1921 (Mebane Rogers Road) to be realigned to accommodate its proposed intersection with NC 119. Approximately half of this realignment length would be located within the watershed critical area, 0.24 and 0.27 miles, respectively. The SR 1921 (Mebane Rogers Road) realignment for the Preferred Alternative and Alternative 10 would add 1.04 and 1.27 acres of impervious surface within the WCA, respectively. Therefore, the total impervious surface of the Detailed Study Alternatives, including the Preferred Alternative, along the centerline lengths within the WCA, as well as the minor realignment of SR 1921 (Mebane Rogers Road) would be: Alternative 8 – 5.78 acres; Preferred Alternative – 5.14 acres; and Alternative 10 – 1.27 acres.

4.3 IMPACTS TO THE NATURAL ENVIRONMENT

4.3.1 Terrestrial Communities

4.3.1.1 Terrestrial Plant Communities

Three distinct terrestrial communities occur within the project study area. These include Oak-Hickory Forest, Secondary Pine Forest, and Maintained/Disturbed communities. Anticipated terrestrial community impacts are based upon the construction limits of the preliminary designs as of February 2007 and April 2009 (Woodlawn Road realignment). The estimated impacts are presented in Table 4.14.

Table 4.14
Estimated Impacts to Terrestrial Communities

Community Type	Estimated Impact* (acres)		
	Alternative 8	Alternative 9 (Preferred)	Alternative 10
Oak-Hickory Forest	69.5	61.7	62.7
Secondary Pine Forest	3.4	3.4	3.4
Maintained / Disturbed	113.5	120.1	120.9
TOTAL:	186.4	185.2	187.0

Note: * Anticipated terrestrial community impacts are based upon the construction limits (including fill, excavation, clearing) of the preliminary designs (February 2007 and April 2009 [Woodlawn Road realignment]).

All three Detailed Study Alternatives, including the Preferred Alternative, share the same alignment where they would impact the largest areas of maintained/disturbed community, predominantly

surrounding the I-85/40 interchange, US 70, and SR 1921 (Mebane Rogers Road) and along the realignments of SR 1962 (Third Street Extension) and Fifth Street (Figure 3.8). The differences in the Oak-Hickory Forest community among the alternatives are attributed to the location of the alternatives near the Cates Farm property. Alternative 8 crosses oak-hickory forested areas west of the property, while the Preferred Alternative and Alternative 10 intersect a large section of pasture on the Cates Farm property.

4.3.1.2 Terrestrial Wildlife

The *Natural Resources Technical Report* (Buck Engineering, 2003), the *Natural Resources Technical Report Addendum* (Baker Engineering, 2006b), as well as Sections 3.3.1 and 3.3.2, provide a discussion of wildlife commonly occurring within the study area.

Impacts to wildlife would include habitat fragmentation, loss of potential nesting and foraging areas, and displacement of wildlife population. Along new location sections of the Detailed Study Alternatives, including the Preferred Alternative, movement between habitats on one side of the road to the other would become more dangerous for many large and medium sized mammals such as deer, raccoon, rabbit, and opossum. Smaller mammals such as mice and squirrels, as well as reptiles and amphibians, are also expected to suffer increased mortality along the new alignment due to land clearing and traffic operations.

Impacts to forested areas generally represent the most valuable impacts in terms of wildlife habitat. Of the three proposed alternatives, the Preferred Alternative would have the least impacts to wildlife because it has the least amount of forested habitat. Alternative 8 would have the most impacts to forested habitat.

Measures to be implemented during design and construction of the project that can minimize impacts to wildlife include implementing NCDOT's BMPs for the Protection of Surface Waters to minimize erosion and sedimentation, and the construction of culverts and bridges that can provide passage for wildlife from one side of the road to the other. Bridging floodplain wetlands along the larger stream systems, such as Mill Creek, would decrease the degree of potential habitat fragmentation and reduce potential wildlife mortality due to traffic operations by providing riparian corridors for wildlife use. However, given the small drainage area of the streams and the urban nature of the small catchments upstream of the study area, habitat fragmentation and wildlife mortality resulting from the current designs are expected to be minor.

From a water quality perspective, the only stream crossing recommended for a bridge is the crossing of Mill Creek. Each Detailed Study Alternative, including the Preferred Alternative, would bridge Mill Creek.

Migratory Birds

New location projects such as the NC 119 Relocation project can have effects on migratory bird populations, including habitat loss, habitat degradation, and habitat fragmentation. Each of the Detailed Study Alternatives, including the Preferred Alternative, passes through areas of developed land, farm fields, and some forested areas. However, these alternatives do not split large areas of

undisturbed land. As stated above, the Preferred Alternative would have the least impacts to wildlife because it has the least amount of forested habitat.

4.3.2 Aquatic Communities

Resident aquatic species may be temporarily displaced during construction. However, impacts are expected to be minor and temporary. A bridge is proposed over Mill Creek for each Detailed Study Alternative, including the Preferred Alternative, and would be designed to avoid or minimize placement of structure foundations within these waters. Measures outlined in Section 4.2.6.1 to maximize sediment and erosion control during construction would protect water quality for aquatic organisms.

Other impacts to aquatic species that could occur as a result of the project include changes in water temperature and stormwater flow. Removal of stream-side vegetation during construction could increase exposure of the stream to sunlight, increasing water temperature. Other locations where bridges are constructed could experience a decrease in water temperature as a result of shading. Increases in impervious surfaces could lead to higher stormwater flows in stream channels. These impacts are expected to be minor and temporary in nature due to the limited amount of direct overall change in the surrounding areas and the commitment to implement BMPs during construction.

4.3.3 Jurisdictional Issues

4.3.3.1 Impacts to Jurisdictional Wetlands and Surface Waters

Table 4.15 provides a detailed listing of potential direct impacts to wetlands based upon the estimated construction limits shown on the preliminary engineering designs as of February 2007 and April 2009 (Woodlawn Road realignment). Impacts are the same for all three Detailed Study Alternatives, including the Preferred Alternative, because the wetlands are all in the common alignment. Further details regarding wetland types are contained in Section 3.3.4. Figure 4.4 shows the jurisdictional wetlands, streams, and ponds delineated within the Detailed Study Alternatives, including the Preferred Alternative. Section 4.2.6.3 and Table 4.12 discuss stream impacts in detail.

An assessment of the jurisdictional wetlands was performed using the fourth version of NCDWQ's *Guidance for Rating the Values of Wetlands in North Carolina*. This method assigns values to the wetland areas with respect to six criteria: 1) water storage, 2) bank/shoreline stabilization, 3) pollutant removal, 4) wildlife habitat, 5) aquatic life habitat, and 6) recreation/education. Jurisdictional wetlands were subdivided and characterized according to type, and then each distinct wetland was evaluated for the six criteria, based on current field conditions, using the applicable flow chart. The result is a numerical assignment between 0 and 100 for each wetland.

In addition to the direct impacts within the right-of-way of the preliminary engineering designs, other adverse impacts to wetlands and aquatic sites associated with project construction could include direct or indirect hydrologic impacts resulting from the alteration of drainage patterns. The concentration of overland flow into pipes and the potential increases in stormwater runoff could lead to downstream channel incision and consequent wetland hydrology alterations. In addition to permanent alterations, temporary adverse impacts also may occur, such as temporary pond

dewatering and stream diversion during the construction of bridges and culverts, and temporary clearing and filling associated with underground utility relocation and construction access.

**Table 4.15
Estimated Wetland Impacts**

Wetland	Impact* (acres)	Description	Type	NCDWQ Rating**
WL1***	0.105	Freshwater marsh	Riverine	38
WL2	0.002	Headwater forest	Riverine	43
WL3	0.008	Isolated vernal pool	Non-Riverine	18
WL4	0.021	Freshwater marsh	Riverine	64
WL5	0.045	Freshwater marsh	Riverine	29
WL6	0	Headwater forest	Riverine	50
WL7	0	Headwater forest	Riverine	55
WL8	0	Headwater forest	Riverine	51
WL9	0	Freshwater marsh	Riverine	54
WL10	0	Stormwater Pond	Non-Riverine	N/A
WL11	0.049	Headwater forest	Riverine	44
WL12	0	Headwater forest	Riverine	62
WL13	0.019	Headwater forest	Riverine	45
TOTAL:	0.249			

Notes: * Anticipated wetland impacts are based on the estimated construction limits (fill, excavation, clearing) of the preliminary engineering designs (February 2007 and April 2009 [Woodlawn Road realignment])
 ** NCDENR, 1995
 *** WL1 was re-delineated in June 2005 due to altered hydrology from beaver dam removal
 N/A denotes not applicable

A bridge structure was recommended as a part of this project at Mill Creek (Site 3) by the Merger Team at Concurrence Point 2a. None of the impacted wetlands are located in the area of this bridge. Therefore, there are no effects as a result of bridging on any of the wetlands located within the project study area.

4.3.3.2 Mitigation Evaluation

Mitigation is defined in NEPA regulations (40 CFR Section 1508.20 and 40 CFR Part 230) as efforts that a) avoid, b) minimize, c) rectify, d) reduce or eliminate, or e) compensate for adverse impacts to the environment. Mitigation of wetland impacts is recommended in accordance with Clean Water Act (CWA) Section 404(b)(1) Guidelines (40 CFR Part 230), FHWA stepdown procedures (23 CFR Sections 777.1 et seq.), mitigation policy mandates articulated in the USACE/USEPA Memorandum of Agreement (MOA; Page and Wilcher 1990), Executive Order 11990 (42 FR 26961 [1977]), and US Fish and Wildlife Service mitigation policy directives (46 FR 7644-7663 [1981]).

Section 404(b)(1) Guidelines, the USACE/USEPA MOA, and Executive Order 11990 stress avoidance and minimization as primary considerations for protection of Waters of the United States.

These efforts, and other measures that may be implemented later in the design process in consultation with the USACE, are described below.

Avoidance and Minimization. During the development of the preliminary engineering designs for each Detailed Study Alternative, including the Preferred Alternative, efforts were made to avoid and minimize impacts to wetlands and streams wherever practicable. Where stream crossings were unavoidable, they were located, within design constraints, as perpendicular as practicable, in order to minimize the length of stream impacted. Avoidance and minimization efforts for each impacted wetland area are described below.

The alignment for all three Detailed Study Alternatives, including the Preferred Alternative, proposed under the preliminary engineering designs crosses Wetland 1 (WL1) where the direct impacts would be the least; staying as much on the eastern edge of the wetland as possible while not encroaching upon a parallel section of MoAdams Creek to the west (Figure 4.4). The alignment skirts between Wetland 3 (WL3), which is near the eastern boundary of the alignment, and Wetland 4 (WL4), which is on the western boundary of the alignment, while avoiding impacts to Craftique Furniture Company. Wetlands 11 (WL11) and 13 (WL13) are associated with the extension of SR 1997 (Corrigidor Road). In addition, the alignment impacts the western edge of WL11 and WL13 to avoid impacting the City of Mebane WWTP operations.

Other Avoidance and Minimization Measures. Jurisdictional impacts would be further minimized by a reduction in side slopes to 2:1 in the areas of wetland impacts. Sensitive placement of drainage structures, during final design of the Preferred Alternative, would minimize degradation of water quality and reduce adverse impacts on aquatic habitat viability in streams and tributaries. Based on preliminary designs, there are no substantial fill slopes associated with this project. A determination would be made during final design if retaining walls should be included in the design. Once surveys of the project area are available, the preliminary design can be revised to further minimize impacts to the human and natural environments.

Additional minimization efforts employed during the design of this project are common practice in the design of a roadway and were included in the initial design efforts. Minimization efforts included:

- The Mebane Rogers Road tie-in near proposed NC 119 was designed to end before the creek crossing (Site 5) for Alternative 8 and the Preferred Alternative.
- The tie-in from proposed NC 119 to existing NC 119 south of the Mill Creek community was designed to end before the Mill Creek crossing for the Detailed Study Alternatives, including the Preferred Alternative, in this area.
- In the vicinity of the Fieldstone community, the mainline alignment was shifted slightly outside the corridor limits to reduce impacts to MoAdams Creek, necessitating a slight expansion of the corridor limits in this area.

A bridge over Mill Creek is an additional minimization component. Bridging floodplain wetlands along the larger stream systems, such as Mill Creek, would decrease the degree of potential habitat fragmentation and reduce potential wildlife mortality due to traffic operations by providing riparian corridors for wildlife use.

Compensatory Mitigation. The purpose of compensatory mitigation is to replace the lost functions and values from a project's impacts to Waters of the United States. Mitigation could include restoration, creation, enhancement or preservation of wetlands and streams. Mitigation should be implemented as close to the impacts, as possible. The amount of mitigation required is determined on a case-by-case basis. Typical mitigation ratios (amount of mitigation required compared to amount impacted) for the USACE for wetland mitigation are 2:1 for restoration (meaning 2 acres must be restored for every 1 acre impacted), 3:1 for creation, 4:1 for enhancement, and 10:1 for preservation. Typical ratios for stream mitigation are 2:1 (2 feet of mitigation for every 1 foot impacted), 2:1 for restoration, 4:1 for enhancement, and 10:1 for preservation. Currently, NCDWQ requires mitigation for streams at a 1:1 ratio. Stream mitigation can be provided by restoration, enhancement, or preservation. The NCDWQ requires mitigation for wetlands at a 2:1 ratio. At least half of the required wetland mitigation must be provided through restoration.

Opportunities exist for compensatory wetland and stream mitigation within the project vicinity. NCDOT prepared a feasibility study report to evaluate stream restoration options for Cates Farm (Buck Engineering, 2004). Further evaluation would be required to determine if any stream sites in the study area can feasibly be used for mitigation. In August 2008, the NCDOT began evaluating the project corridor for suitable on-site mitigation locations. Feasible sites would be coordinated with the regulatory agencies through the Section 404/NEPA Merger process. If on-site mitigation locations are infeasible or insufficient to mitigate all project impacts, or are not available for mitigation, off-site compensatory mitigation would be accomplished through coordination with the NCEEP. The USACE, NCDOT and NC Department of Environment and Natural Resources entered into a Memorandum of Agreement (MOA) in July 2003 that established procedures for providing compensatory mitigation through NCEEP to offset impacts to streams and wetlands from NCDOT projects. The three parties agreed that mitigation for transportation projects should occur before impacts and using a watershed approach. Appropriate compensatory mitigation requirements for wetland and stream impacts from the Preferred Alternative would be determined in consultation with the appropriate federal and state environmental resource and regulatory agencies.

4.3.3.3 Section 404/401 Permits

A final permitting strategy cannot be developed until an alignment footprint has been determined and construction impacts are quantified. However, a permit from the USACE will be required for an encroachment into wetland communities and Waters of the United States as a result of roadway construction, regardless of the alternative selected.

Section 401 of the CWA requires each state to certify that state water quality standards will not be violated for activities that either involve issuance of a federal permit or license or require discharges to Waters of the United States. The USACE issues a Section 404 permit in conjunction with a 401 Water Quality Certification. Therefore, NCDOT must apply to the NCDWQ for 401 Water Quality Certification as part of the permit process. Based on the assessments made in this document, it is likely that a Section 404 Individual Permit (IP) requiring mitigation will be required.

The USACE issues either general or individual permits. IPs are generally reserved for projects with potential for substantial environmental impacts. An IP requires a full public interest review, including public notices and coordination with involved agencies, interested parties, and the general

public. The general permit program, both through the Nationwide Permit and the Regional General Permit programs, are reserved for only the most minor impacts to streams, wetlands and other waters. An IP is required for impacts greater than 1/2-acre of wetlands and/or 300 linear feet streams. Impacts to jurisdictional wetlands and perennial streambed or important intermittent streambed that result from activities authorized under an IP require compensatory mitigation

4.3.4 Important Natural Areas

Based on a search of the Natural Heritage Program (NHP) database, there are no important natural areas in the project study area.

4.3.5 Protected Species

There are no species with federal status of Endangered (E), Threatened (T), Proposed Endangered (PE), or Proposed Threatened (PT) in the project study area, so no impacts to these species are anticipated for any of the Detailed Study Alternatives, including the Preferred Alternative.

Species with state designations of Endangered, Threatened, or Special Concern are granted protection by the State Endangered Species Act and the State of North Carolina Plant Protection and Conservation Act of 1979. Legal protection under North Carolina state law regulates the possession, propagation, or sale of protected species. North Carolina listed species do not have the legal protection with respect to road location decisions afforded federal Endangered or Threatened species.

As discussed in Section 3.3.5, there are Federal Species of Concern (FSC) listed for Alamance County, but no species with state designations of Endangered, Threatened, or Special Concern have been found within one mile of the project study area.

Also discussed in Section 3.3.5, bald and golden eagles are granted protection by the Bald and Golden Eagle Protection Act (Eagle Act). The Eagle Act prohibits take of bald and golden eagles and provides a statutory definition of “take” that includes “disturb.”

4.3.6 Wild and Scenic Rivers

No federally designated, state designated, or National River Inventory waters occur within the project study area.

4.4 INDIRECT AND CUMULATIVE EFFECTS

The purpose of this section is to examine the indirect and cumulative effects (ICEs) of the Proposed NC 119 Relocation project. NEPA, as amended, requires the assessment of direct, indirect, and cumulative impacts as part of the project decision-making process. The Council on Environmental Quality (CEQ) guidelines defines direct, indirect, and cumulative impacts as follows:

- Direct effects are caused by the action and occur at the same time and place. (40 CFR § 1508.8)

- Indirect effects are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems. (40 CFR § 1508.8)
- Cumulative impact is the impact on the environment, which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. (40 CFR § 1508.7)

ICEs to the human environment are primarily related to changes in land use, development, and infrastructure. Such changes can alter area economics, travel patterns, and demographics. A *Final Indirect and Cumulative Effects* (RS&H, 2006c) was prepared for the proposed project and is appended by reference in the following sections.

4.4.1 Boundaries for ICE Analysis

The proposed NC 119 Relocation project is located north and west of downtown Mebane. While only a portion of the southern section of the Detailed Study Alternatives, including the Preferred Alternative, traverses the City limits, all but a short section of the project is in Mebane's planning jurisdiction. In order to determine an appropriate study area boundary for ICE analysis, several factors were considered such as the location of the project in relation to planning and growth boundaries; drainage basins and watershed boundaries; the role the roadway will play in the local network; regional and local travel patterns; and the development patterns of the region. The ICE study area as shown in Figure 4.5 was determined based on these factors.

The ICE study area includes most of the incorporated area of the City of Mebane, the western and northern ETJ of the City, unincorporated areas of Alamance County located west and north of Mebane, and a small portion of unincorporated Orange County. The northern study area boundary extends north of the NC 119 intersection with NC 49. The resulting ICE study area includes the area in which potential ICEs may be expected to occur.

4.4.2 Cumulative Effects of TIP Projects in the Vicinity

As shown in Table 4.1, there are currently two projects involving NC 119 in the NCDOT 2009-2015 TIP. The proposed TIP Project No. U-3109 is the relocation of NC 119 between I-85/40 and SR 1918 (Mrs. White Lane) and has been divided into two sections. Section A extends from I-85/40 to north of US 70 and has been appropriated funding for planning, right-of-way acquisition, and construction, while Section B, which extends from north of US 70 to SR 1918 (Mrs. White Lane), is currently unfunded. Immediately north of the proposed NC 119 Relocation project is TIP Project No. R-3105, which is the proposed widening of NC 119 between SR 1917 (White Level Road) in Alamance County and NC 62 in Caswell County; this project is currently unfunded.

There are additional roadway improvement projects listed in the NCDOT 2009-2015 TIP that are intended to address traffic improvement needs within the Mebane area. TIP Project No. U-2546 is the proposed widening of US 70 to a multi-lane roadway between the Haw River Bypass and Mebane city limits; this project is not yet funded. TIP Project No. I-4918 includes pavement repair along I-85/40 from NC 54 (Milepost 148), west of Mebane, to the Orange County Line (Milepost 154). This project is under construction. In addition, the Mebane Oaks Road project, formerly TIP Project No. U-3445, widened the existing roadway to five lanes between I-85/40 and Fifth Street, as well as the I-85/40 bridge. This project was completed in 2005 to alleviate congestion on the southeastern side of Mebane near I-85/40. These projects would improve travel conditions and accessibility within the project study area as well as local traffic circulation in the Mebane vicinity.

If TIP Project Nos. U-2546 and R-3105 are ultimately constructed, there is the potential for cumulative effects to the West End and White Level communities. The West End community is located immediately south of TIP Project No. U-2546 and the White Level community is located along NC 119 both east and west of TIP Project No. R-3105. Due to the presence of the NC Railroad just south of US 70 in the vicinity of the West End community, it is likely that US 70 would be widened to the north, thereby avoiding effects to the West End community. However, the widening of NC 119 in Alamance County has the potential to result in additional relocations, noise effects, and natural and cultural resource effects within the White Level community. These effects would be described in the environmental planning document for TIP Project No. R-3105, if the project is ultimately funded.

4.4.3 Demographic Trends

Population growth in Mebane has increased beginning in the mid-1980s, after growing slowly through most of the twentieth century. Collectively, Mebane's population had a growth rate of 162 percent from 1980 to 2000, according to the US Census. This growth can largely be attributed to the annexation of new residential development (primarily between I-85/40 and US 70). In addition, the Mill Creek subdivision, in the north portion of Mebane's corporate limits, accounts for approximately 20 percent of the city's population growth from 1990 to 2000. Mebane's proximity to the Research Triangle Park (RTP) area to the east and the Piedmont Triad area to the west has also influenced population growth in the past and will continue to influence growth into the future.

Overall, the population of the ICE study area increased substantially during the 1990s. While census block groups in Mebane's core area exhibited slight increases in population, most of the block groups in surrounding areas exhibited large population increases. Census Tract 213.00 Block Group 2, which encompasses the northern portion of the ICE study area (Figure 3.2), added 779 persons for a population increase just under 60 percent from 1990 to 2000. Approximately two-thirds of the population increase is due to the construction of 300 homes in the Mill Creek subdivision on the east side of NC 119 just south of SR 1918 (Mrs. White Lane). Another area of population growth is near the intersection of NC 49 with Dickey Mill Road, west of the study area. According to local officials, development in this area of the County is occurring on a lot-by-lot basis as opposed to the development of conventional subdivisions. (Note that this census block group covers a larger land area than most of the other block groups in the demographic study area.)

The populations of the block groups comprising the southern portion of the demographic study area (Census Tract 212.03 Block Group 5, Census Tract 212.04 Block Groups 1 and 2) increased by over 62 percent. New residential development in this area occurred on Mebane’s southern fringe and in single-family subdivisions south of I-85/40. Field observations also identified some multi-family developments and mobile home parks south of the interstate. The population of Census Tract 212.03 Block Groups 1 and 6, which encompass the central portion of the ICE study area, grew by 36.2 percent during the same period. Most of the growth in this area occurred on Mebane’s eastern fringe. In contrast, Census Tract 212.01 Block Group 1 decreased in population from 1990 to 2000. This decrease could be attributed to an aging population in the Green Level community. Green Level is not in the ICE study area and only approximately 25 percent of the land area in this block group is in the ICE study area.

Table 4.16 shows the projected population growth forecasted through the year 2030 for the counties within and adjacent to the study area and indicates that a fairly high rate of growth is expected to continue in this region.

Table 4.16
2000 – 2030 Projected Population Growth for Counties and State

	April 2000	July 2005	April 2010	July 2015	April 2020	July 2025	April 2030
Alamance County*	130,800	143,343	154,914	167,587	181,031	194,703	208,799
		9.6%	8.1%	8.2%	8.0%	7.6%	7.2%
Orange County*	118,227	129,791	140,287	150,962	161,605	171,486	181,122
		9.8%	8.1%	7.6%	7.1%	6.1%	5.6%
North Carolina*	8,049,313	8,783,752	9,491,372	10,226,897	10,966,139	11,712,440	12,447,597
		9.1%	8.1%	7.7%	7.2%	6.8%	6.3%

Note: * Percent change from previous projection.

Source: North Carolina Office of State Budget and Management, 2002

Additional information on demographic trends in the study area is included in Section 3.1.3.

4.4.4 Economic Trends

The City of Mebane’s industrial growth began with the establishment of the White Furniture Company (later Hickory-White), followed by the Mebane Bedding Company (now Kingsdown) in 1904 and the Ridgeville Telephone Company (now Mebtel Communications) in 1907. Today the local economy is still dominated by the manufacturing industry. In Alamance County, 23 percent of the workforce is employed in the manufacturing sector, followed by 13 percent in retail trade, 12 percent in government, and 9 percent in the health care and social assistance sector, according to the North Carolina Employment Security Commission (Fourth Quarter 2005). Several of the county’s largest manufacturers are in Mebane.

Despite the influence of the manufacturing industry in Mebane, there has been a general decline in manufacturing in recent years. The employment outlook for Alamance County projects the continuing trend of reductions in the workforce employed in the manufacturing and agricultural sectors and continuing increases in the service related and retail trade sectors.

Additional information on the economic characteristics of the study area is included in Section 3.1.3.2.

4.4.5 Local Plans and Regulations

The following is a summary of the land use plans and regulations that apply to the NC 119 Relocation project area. These plans and regulations are expected to guide growth and development in the ICE study area. Planned developments are expected to conform to the overall patterns and densities allowed under the existing land use plans and regulations for the City of Mebane and Alamance and Orange counties. Additional information on land use plans and regulations for the City of Mebane and Alamance County can be found in Section 3.1. Orange County land use information is only discussed in the context of the ICE analysis because the ICE study area includes a small portion of unincorporated Orange County.

4.4.5.1 Mebane Land Use Plan

The City of Mebane 2010 Land Development Plan encourages economic development that enhances the lives of residents and is compatible with existing natural and man-made resources. Economic development efforts should encourage the revitalization of older parts of the City and investment in designated Economic Development Areas. Overall, development is encouraged for the purpose of building a better community, as opposed to “growth for growth’s sake.” Through the growth management goals, the City seeks to manage the quantity, location, quality, and patterns of growth.

To be used in conjunction with these goals and guidelines, the plan also includes a Growth Strategy map, which is included in Appendix A. The map indicates the level of support and encouragement the City is likely to offer to land development proposals within specific areas. Growth area definitions are described in Section 3.1.2.1.

4.4.5.2 Alamance County Strategic Plan

The Alamance County Destination 2020 Strategic Plan, adopted in 2003, encourages cluster-type residential development that includes open space to traditional large lot subdivisions. It directs new development toward municipalities, as well as in new compact urban enclaves. This development should be directed away from farmlands, wetlands, and sensitive environmental areas such as protected watershed areas. To support this development pattern, the water and sewer service policy endorses municipal extensions which focus these services within their targeted growth areas, where land is well-suited for development, and which steer development away from environmentally sensitive areas such as water supply watersheds (Alamance County, 2003).

4.4.5.3 Orange County

The Orange County Comprehensive Plan-Land Use Element (Orange County, 1981) includes policies and regulations indicating that the northwestern portion of the county should retain its rural character. A small portion of the ICE study area, located within a rural part of Orange County, is expected to experience only minimal development pressures over the next few decades. This area is

an important agricultural area of the county and is zoned as an “Agricultural Residential” (AR) district to “assist in the preservation of land suitable, as a result of location, existing farming operations, soils and topography, for agricultural, silvicultural or horticultural uses to protect such uses from the adverse effects of incompatible land uses.” The plan is being updated and development restrictions in this area are anticipated to limit development to low density residential uses in addition to agricultural uses. Orange County has also purchased several farm easements in this area; farmland preservation is an important county goal.

The northwestern portion of the county is also planned to remain without public water and sewer services. The entire area is designated in the Subdivision Ordinance as “Rural Designated” and requires a Planned Unit Development and re-zoning for subdivisions containing more than 41 lots. As stated in the Land Use Element for Orange County, the northwestern portion of the county is planned to support only agricultural and low density residential land uses and, therefore, should retain its rural character even as other parts of the county experience substantial non-farm development.

Travel conditions within this area are free from congestion and no major roadway improvement projects are planned. Watershed protection policies similar to those for Alamance County also apply to the headwaters of several watershed supply systems in the northwestern portion of Orange County.

4.4.5.4 Zoning

City of Mebane. The City of Mebane implemented its first zoning ordinance in the 1970s. Since that time the ordinance has evolved to include 13 general use districts, conditional use districts, and several overlay districts. The ICE study area includes the City of Mebane’s entire ETJ and additional land as shown on Figure 4.5. The zoning districts that are within the study area are listed in Table 3.1 and are shown on the Existing Zoning map in Appendix A.

Alamance County. There is no zoning in Alamance County in areas outside municipal planning jurisdictions. One of the suggested implementation actions in the Alamance County Destination 2020 Strategic Plan is to consider zoning the areas of the county that are experiencing the greatest development pressures.

Orange County. Portions of Orange County have been zoned since 1967; countywide zoning was implemented in 1994. The portion of the study area in Orange County is zoned as AR, which allows for only low density development and is intended to preserve the rural character of the area.

4.4.5.5 Water Supply Watershed Regulations

All of the study area located north of US 70 in Alamance and Orange counties is subject to water supply watershed ordinances adopted by the counties and the City of Mebane.

Alamance County and City of Mebane. The Alamance County Watershed Protection Ordinance established watershed protection areas adjacent to several water supply reservoirs in the county, including the Graham-Mebane Reservoir. The ordinance was adopted in 1987 and most recently revised in 1997.

Orange County. The Orange County watershed protection ordinances also establish areas of limited development and are consistent with state watershed management rules. The portion of the study area in Orange County is located within the Back Creek Protected Watershed overlay district, which limits development to a maximum of one dwelling unit per 40,000 square feet (0.92 acres) and has a limitation of 12 percent impervious surface. In addition, a 50-foot minimum stream buffer is required in most areas.

Additional information on water supply watershed regulations in the study area is included in Section 3.1.1.1.

4.4.5.6 Burlington-Graham Urban Area Transportation Plan

The Burlington-Graham MPO's Transportation Plan Update 2005 – 2030 identifies existing and projected deficiencies in the region's thoroughfare system. The NC 119 Relocation Travel Analysis Report (RS&H, 2006b) contains a detailed traffic capacity analysis of major roadways and intersections in the Mebane study area, and indicates that the average daily traffic (ADT) along portions of existing NC 119 and several major intersections in Mebane currently exceed the capacity of the two-lane roadway during peak travel periods. Additional information on the Burlington-Graham MPO is included in Section 4.1.1.1.

4.4.6 Water and Sewer Service

The Graham-Mebane Reservoir Water Treatment Plant has increased its capacity to 12 million gallons per day (MGD) to serve the City of Mebane and new development within the City's ETJ. According to the 2010 Land Development Plan for the City of Mebane, the City's existing water supply and treatment plant appears adequate to accommodate a moderate amount of growth over the next ten years.

The City of Mebane WWTP, located within the project study area on SR 1997 (Corrigidor Road), currently has a capacity of 2.5 MGD. Between July 2007 and June 2008, the City treated an average of 1.0 MGD, or less than half of its sewage treatment capacity (City of Mebane, 2008b). With an average of about 1.5 MGD in excess wastewater treatment capacity, the City can continue to provide excellent sewer service to existing customers, while accommodating a small to moderate amount of new development over the next ten years according to the 2010 Land Development Plan for the City of Mebane.

Mebane's wastewater collection system serves most of the area within existing City limits and a few industrial properties along I-85/40 within the City's ETJ. The City does not currently share in the cost of installing sewer pump stations or force mains to service new land development. The City has extended sewer service in areas located west of the City limits within the West End community with funds provided through federal programs. Phases 1 and 2 of the extensions of sewer service to this area have been completed.

4.4.7 Physical Limitations within ICE Study Area

There are several environmental factors that are to be considered in identifying physical limitations and regulatory constraints affecting future land development in the study area. These factors affect

the potential suitability of vacant and under-utilized land for development purposes and help to determine future growth patterns for an area.

The Physical Development Limitations Map from the City of Mebane 2010 Land Development Plan is included in Appendix A. The map indicates the areas that are not suitable for development based on floodplain, topographic slope limitations, soil limitations, and water supply watershed protected zones and watershed stream buffer regulations. This map shows that much of the undeveloped land north of US 70 has severe slope and soil limitations, particularly along the Graham-Mebane Reservoir, its tributaries, and Mill Creek. The generally undeveloped land that does not have substantial physical limitations is located north of SR 1921 (Mebane Rogers Road) and west of the existing NC 119 roadway; however, this area is within the watershed overlay district and is subject to development restrictions.

As shown on the City of Mebane Proposed Land Use and Existing Zoning maps, the northern portion of the study area is within either the Watershed Critical Area (WCA) or Balance of Watershed (BOW) overlay districts that restrict development within that area. Most of Mebane's planning jurisdiction north of US 70 and some of Orange County is within the Graham-Mebane Reservoir water supply watershed and is subject to associated state and local development regulations.

4.4.8 ICE Impact Evaluation – No-Build Alternative

The ICE assessment for the No-Build alternative is an evaluation of the anticipated land use changes and development patterns that would occur in the ICE study area if the proposed NC 119 Relocation project was not built. Even if the project is not constructed, the recent growth trends and development activity are expected to continue in the study area due primarily to Mebane's proximity to urban employment centers, regional accessibility, excess water and sewer capacity, and the availability of developable land. Historic growth patterns are expected to continue with most of Mebane's growth occurring south of US 70. This growth is largely influenced by the proximity to the I-85/40 corridor and the availability of vacant developable land.

The portion of the study area north of US 70 is located within the water supply watershed overlay districts that limit development densities in this area. Although there is some vacant land in this area, future development would be constrained by the watershed protection regulations that apply to this area and the physical limitations of severe slopes, soil suitability, and floodplains. Therefore, limited growth is forecasted for the northern portion of the study area either with or without the proposed NC 119 Relocation project.

Mebane's local land use plans and growth strategy plans are generally supportive of economic development and managed growth as stated in the City's 2010 Land Development Plan (City of Mebane, 2001). Overall, these factors contribute to a good investment climate for the area. There has been substantial growth in both residential and commercial developments in the Mebane area and Alamance County during the past decade. In order to provide a more detailed analysis of the expected growth and development in the ICE study area if the proposed project is not built, the study area has been divided into 10 sub-areas as delineated in Figure 4.6.

The projected growth and development patterns for each sub-area is based on the forecasted population and employment levels within the ICE study area and the assumption that future development will be consistent with the City of Mebane Proposed Land Use and Growth Strategy maps included in Appendix A. The future land use plan was developed based on the desired growth scenario for the Mebane area and is not directly dependent on the implementation of the NC 119 Relocation project. While the proposed project is shown on the Proposed Land Use and Growth Strategy maps, it does not greatly influence the City's projected land use plans with the exception of a few smaller areas where higher intensities and/or densities of uses are proposed to be concentrated around key intersections of the proposed project.

4.4.8.1 Mebane Central

This sub-area includes downtown Mebane and surrounding areas and is bordered on the north by SR 1996 (East Stagecoach Road) and on the south by SR 1970 (Roosevelt Street). The sub-area is within the Mebane City limits.

Existing Land Use and Character – Mebane's traditional downtown is delineated by a grid street system with a core of mostly commercial and office uses surrounded by residential development.

Zoning – The majority of properties along US 70 are zoned business (B-1, B-3, and B-3) and industrial (M-1, M-2). Properties surrounding the downtown core are zoned primarily for moderate density residential development (R-10, R-12). The BOW overlay district applies to all properties north of US 70.

Land Use Plans – The Mebane land use plan designates the downtown area as a “City Activity Center” (CAC), which is defined as a large-scale, mixed-use activity center, serving the entire community. The area is also within the “Primary Growth Area” indicating that suitable development sites should be given the highest level of encouragement and incentives for short-range development.

Availability of Developable Land – The area is primarily developed with only a few small vacant lots remaining. Development of a few vacant tracts within the sub-area appear to be constrained by a UT to Mill Creek, steep slopes, floodplain, soil limitations, and the BOW district zoning.

Proximity and Access to Urban Centers – Direct access to regional centers is provided via US 70 and to I-85/40 via NC 119. According to the *NC 119 Relocation Travel Analysis Report* (RS&H, 2006b), the downtown Mebane area experiences congestion at most major intersections and along portions of existing NC 119, US 70, and I-85/40 access points during peak periods of travel. Within this sub-area, ADT is expected to increase from 13,600 vehicles per day (vpd) in 2005 to 32,000 vpd in 2030 if the NC 119 Relocation project is not built. These volumes greatly exceed the capacity of this two-lane roadway and would result in severely congested travel conditions in this area.

Presence of Water and Sewer Service – The sub-area is within the Mebane City limits; therefore, water and sewer services are available.

Past and Present Growth Trends – Growth has been slow due to the developed nature of the area. This trend is expected to continue with or without construction of the NC 119 Relocation project.

Projected Growth and Development – Vacant land is limited and minimal growth is expected. Redevelopment is more likely to occur than new development. The vacant White Furniture Company building on US 70 at Fifth Street, which is listed on the NRHP, is being considered for commercial and residential redevelopment. This level of redevelopment activity is expected to continue with or without the construction of the NC 119 Relocation project.

4.4.8.2 *Mebane South*

This sub-area is generally bordered by SR 1970 (Roosevelt Street) and US 70 on the north and the east-west portion of NC 119 (Fifth Street) on the south. The majority of this sub-area is within the Mebane City limits.

Existing Land Use and Character - Predominantly residential uses are found in the sub-area, including several institutional uses such as churches, the Mebane Arts and Community Center, the Mebane Wastewater Treatment Plant (WWTP), and retail uses in proximity to SR 1007 (Mebane Oaks Road). One of Mebane’s largest residential developments in this area is the Fieldstone community located between South Fifth Street and South Third Street, just north of Skyview Drive.

Zoning – Most of the area is zoned for low to moderate density residential uses (R-15, R-20), with business zoning (B-1) at the SR 1007 (Mebane Oaks Road) intersection with NC 119. The Fieldstone subdivision (South Third Street) is zoned as a PUD.

Land Use Plans – The Mebane land use plan indicates that the majority of this area is planned for medium density, single-family, and limited multi-family residential uses as a “Neighborhood Residential” area. The area is a “Primary Growth Area” for the City of Mebane.

Availability of Developable Land – This sub-area is mostly developed, although some vacant tracts remain. Development constraints include some small areas with slopes over 20 percent, especially along MoAdams Creek.

Proximity and Access to Urban Centers - The sub-area has direct access to I-85/40 via NC 119, South Third Street, and SR 1007 (Mebane Oaks Road). According to the *NC 119 Relocation Travel Analysis Report* (RS&H, 2006b), the downtown Mebane area experiences congestion at most major intersections and along portions of existing NC 119, US 70, and I-85/40 access points during peak periods of travel. Within the sub-area, ADT is expected to increase from 9,000 vpd in 2005 to 28,000 vpd in 2030 if the NC 119 Relocation project is not built. The future traffic volume greatly exceeds the capacity of this two-lane roadway and would result in severely congested travel conditions in this area which would also hamper the accessibility to and within this sub-area.

Presence of Water and Sewer Service - The sub-area is within the Mebane City limits; therefore, water and sewer services are available.

Past and Present Growth Trends - The sub-area has experienced moderate to high growth in recent years and this trend is expected to continue with or without the construction of the proposed NC 119 Relocation project. Development has included a number of residential subdivisions, including the Fieldstone community located west of South Third Street. Fieldstone includes 96 single-family lots and 240 apartments. Much of this area was annexed in the 1980s.

Projected Growth and Development – With good access and availability of water and sewer services, the potential is high for the development of vacant land remaining in this sub-area, both with and without the proposed project. The sub-area is in a “Primary Growth Area,” indicating strong support by the City of Mebane for suitable development.

4.4.8.3 *Mebane North*

This sub-area is bordered by SR 1996 (East Stagecoach Road) on the south and by the City limits on the north. The area is within the Mebane City limits, with the exception of two parcels that are surrounded by the City limits.

Existing Land Use and Character – The sub-area includes predominantly single-family residential uses, including the Mill Creek PUD and golf course. There are also several apartment complexes in the area.

Zoning – The sub-area is zoned mostly for moderate density residential (R-15) uses, although several properties are zoned for high density residential (R-6) uses. The Mill Creek community is zoned as a PUD. All of the area is in the BOW overlay district.

Land Use Plans - Most of the sub-area is shown on Mebane’s proposed land use plan as a “Neighborhood Residential” area. The plan indicates a “Neighborhood Activity Center,” in the Mill Creek subdivision and at the existing NC 119 intersection with SR 1996 (East Stagecoach Road). A “Neighborhood Activity Center” is defined as a small, pedestrian-oriented, activity center with a mix of uses. A TND overlay district is shown for the Mill Creek development. The TND is applied to medium- to large-scale areas to be a “town within a town,” containing a variety of complementary uses and amenities within walking distance.” This area is in Mebane’s “Primary Growth Area,” with the exception of the two lots surrounded by City limits, which are in the “Secondary Growth Area.” In addition, a “Conservation Corridor,” designating areas encouraged to remain in a natural state, is applied along Mill Creek and several tributaries.

Availability of Developable Land – The 655-acre Mill Creek PUD has approximately 400 approved residential lots and is approximately 50 percent built-out. Other vacant parcels include areas on the east and west side of NC 119, both outside of, but surrounded by, City limits. Development of this area is somewhat limited by Mill Creek, with some areas of steep slopes and floodplain and the BOW overlay district.

Proximity and Access to Urban Centers – The sub-area has direct access to downtown Mebane via existing NC 119; however, access to regional urban centers via US 70 or I-85/40 is less direct and hampered by congestion in downtown Mebane during peak travel periods. Within this sub-area, ADT is expected to increase from 6,800 vpd in 2005 to 23,000 vpd in 2030 if the NC 119 Relocation project is not built. The future traffic volume greatly exceeds the capacity of this two-lane roadway and would result in severely congested travel conditions in this area.

Presence of Water and Sewer Service – Water and sewer are available to properties in the City limits. The two parcels outside City limits would require annexation before they could be connected to city water and sewer services.

Past and Present Growth Trends – With the development and annexation of the Mill Creek PUD, there has been substantial growth in this area. A commercial/retail center that includes a grocery store and other services has recently been constructed at the NC 119 intersection with SR 1996 (East Stagecoach Road).

Projected Growth and Development – The development of the Mill Creek PUD is expected to continue with or without the proposed project. Vacant land outside of the Mill Creek PUD is somewhat limited; however, a few vacant parcels offer development opportunities. These parcels are within the “Secondary Growth Area,” indicating that suitable development sites should be given a moderately high level of encouragement and incentives for mid-range development.

4.4.8.4 North ETJ

This is the northern area of Mebane’s ETJ. The sub-area is north of SR 1921 (Mebane Rogers Road) and extends east to the Alamance/Orange county line and west to the Graham-Mebane Reservoir. The area is outside of Mebane’s corporate limits.

Existing Land Use and Character - The sub-area primarily includes single-family residences on large lots resulting in an overall rural character. Non-residential uses include a small commercial parcel, and a few schools, churches, and historic sites. The Cates Farm property, which is listed on the NRHP, is north of SR 1996 (East Stagecoach Road) and adjacent to the City limits. Other historic properties in this sub-area include Woodlawn School, Cooks Mill, Tate Farm, and House “K.”

Zoning - The area is zoned for low density residential (R-20) development and is within the watershed overlay districts. The western portion of the sub-area is in the WCA; the eastern portion is within the BOW protected area.

Land Use Plans - The Mebane land use plan designates most of the area as “Conservation Residential,” defined as very low density single-family residential uses intended to accommodate existing and limit new low density residential uses and encourage cluster development. One exception is a large portion of the Cates Farm property (outside the NRHP boundary) north of Mill Creek and west of existing NC 119, which is designated “Neighborhood Residential” with TND overlay. Two “Neighborhood Activity Centers” are designated along existing NC 119, one of which is at the intersection of existing NC 119 with the proposed NC 119 Relocation project. The NHRP-listed component of the Cates Farm property south of Mill Creek is designated as open space, with the intent of providing an area for recreation and/or resource protection as the city grows. The growth strategy for most of this area, “Rural Conservation,” reflects the city’s desire to discourage development other than “very low density, rural uses.” The northern portion of the Cates Farm property fronting existing NC 119 is designated as a “Secondary Growth Area.” A “Conservation Corridor” is designated along Mill Creek and several tributaries.

Availability of Developable Land - There is a good supply of undeveloped land in this area. Development constraints include the watershed protection zones, floodplain areas and steep slopes along and in proximity to Mill Creek and Back Creek, and areas with soil limitations along existing NC 119 in proximity to its intersection with SR 1917 (White Level Road).

Proximity and Access to Urban Centers - Access is via existing NC 119 or secondary roads, and therefore, no direct access is available to urban centers. Under the No-Build Alternative, access to this area would remain essentially unchanged.

Presence of Water and Sewer Service – The area is not served by water and sewer service. The City would provide water and sewer service to any annexed properties.

Past and Present Growth Trends – The area includes some established rural communities, but growth in most of this area has been slow. The City of Mebane has received conceptual proposals for mixed-use developments in the area to the north of Cates Farm; however, none of them have been approved to date.

Projected Growth and Development – The area north of the Cates Farm property and north of Mill Creek is the only portion of this sub-area that is planned for growth as designated in Mebane’s land use plan. While vacant land is available, development within much of this sub-area would be restricted by watershed protection regulations and the City’s desire to limit the area to very low density rural uses or to remain in an undeveloped state. The watershed protection regulations allow development of one or two acre residential lots in accordance with all other applicable development regulations within the watershed area.

It is not likely that the designated “Neighborhood Activity Center” would be developed near the intersection of existing NC 119 and SR 1917 (White Level Road) if the proposed NC 119 Relocation project is not constructed.

4.4.8.5 North

This sub-area is the northwestern-most portion of the study area and is in Alamance County’s planning jurisdiction.

Existing Land Use and Character - The majority of this sub-area is primarily rural with scattered single-family residences, agricultural uses, and vacant land.

Zoning – There is no general use zoning in Alamance County’s planning jurisdiction. However, water supply watershed overlay districts apply to the entire area, with approximately one-third of this sub-area being located within the WCA and the remainder within the BOW area.

Land Use Plans - The proposed NC 119 Relocation project is consistent with the development and transportation policies identified in the Alamance County Destination 2020 Strategic Plan adopted in 2003. The Alamance County Destination 2020 Strategic Plan includes policies and identifies key issues to “guide the future growth and development of the county and to help set priorities for county government in responding to the needs of future growth”. As is the nature of a strategic plan, the Alamance County Destination 2020 Strategic Plan offers policies but does not designate or map future land use for the county.

Availability of Developable Land - While there is an abundant supply of undeveloped land, development is constrained by the watershed protection regulations and physical limitations of steep slopes of 20 percent or more, soil limitations, and some floodplain areas.

Proximity and Access to Urban Centers - Access to urban centers is not direct, and is limited to two-lane roadways. Under the No-Build Alternative, access to this area would remain essentially unchanged.

Presence of Water and Sewer Service - Water and sewer services are not available or planned to be available in this area. Soils in some areas are not conducive to individual septic systems.

Past and Present Growth Trends – This is an area of slow growth. According to local planning officials, any development in this area of the county is occurring on a lot-by-lot basis as opposed to the development of conventional subdivisions.

Projected Growth and Development – Minimal lot-by-lot development is projected for this area and the potential is low for further development or land use changes to occur in this area with or without the proposed project.

4.4.8.6 West ETJ

This sub-area is in the west central portion of the study area. Located within Mebane's ETJ, the area is bordered by SR 1921 (Mebane Rogers Road) on the north and US 70 to the south.

Existing Land Use and Character - Single-family residences on large lots and in subdivisions are found throughout the area. Non-residential uses are located along US 70. These mixed uses include institutional, commercial, and industrial uses.

Zoning - The area includes low and moderate-density residential zones (R-20, R-15) with business (B-2) and industrial (M-1) districts along US 70. The watershed overlay districts cover the entire area; most areas are in the BOW, with only the northwest corner of the sub-area in the WCA.

Land Use Plans – Although the Mebane land use plan designates most of the area as “Conservation Residential,” several properties along US 70 are designated for non-residential uses. The area is designated as a “Rural Conservation” growth strategy area indicating little encouragement for development other than very low density single family residences. “Open Space” is indicated along Forest Lake and streams in the sub-area.

Availability of Developable Land - There is developable land within this sub-area including some large tracts with single-family residences. Physical limitations pertain to some small areas of steep slopes or soil limitations, as well as the restrictions that apply within the watershed overlay district.

Proximity and Access to Urban Centers - The sub-area has direct access to US 70, but no direct access to I-85/40. Access to I-85/40 is either through downtown Mebane to SR 1962 (Third Street Extension) or Fifth Street (existing NC 119) or via SR 1940 (Gibson Road) to the west. Under the No-Build Alternative, ADT along US 70 between SR 1950 (Allen Baynes Road) and downtown Mebane is projected to increase from 15,400 vpd in 2005 to 33,000 vpd in 2030, resulting in congested travel conditions in this area.

Presence of Water and Sewer Service - The sub-area is not served by water and sewer services. The City would provide water and sewer service to any annexed properties.

Past and Present Growth Trends – The sub-area has experienced low to moderate growth in recent years. Recent development includes construction of a church located between SR 1921 (Mebane Rogers Road) and SR 1951 (Woodlawn Road), and several smaller subdivisions such as the extension of Forest Lake Drive.

Projected Growth and Development – Development is expected to continue in this area at a low to moderate rate, primarily in the form of low density in-fill subdivisions. The potential is low to moderate for further development and land use changes to occur in this area without the proposed project.

4.4.8.7 Southwest ETJ

This sub-area is located generally between US 70 and SR 1962 (Third Street Extension) in Mebane's ETJ.

Existing Land Use and Character - The partially developed North Carolina Industrial Center (NCIC), which is approximately 600 acres, comprises most of this sub-area. Developed areas include mostly residential uses, such as a portion of the West End community, and some scattered industrial and commercial uses.

Zoning - The area is zoned primarily for industrial uses (M-1, M-2), but also includes low density residential (R-20) and one vacant tract zoned for mobile homes (MHP).

Land Use Plans - The Mebane land use plan designates a "Village Activity Center" within a larger area of industrial parcels that is designated as "Economic Development," and encompasses the NCIC. This type of activity center is defined as a medium-scale, mixed-use activity center serving multiple neighborhoods. Uses categorized as "Neighborhood Residential" are designated for the West End community and areas on the east side of SR 1940 (Gibson Road), with "Suburban Residential" designated on the west side of SR 1940 (Gibson Road). "Suburban Residential" is described as medium to low density single-family residential uses. The land use plan indicates future land use will be medium density residential south of US 70 with several scattered commercial and industrial uses south of US 70. The land use plan designates the area south of US 70 as a "Secondary Growth Area." In addition, commercial uses are projected along US 70 and some industrial and commercial uses are designated on the west side of SR 1940 (Gibson Road). "Open Space" is designated around Lake Latham. Most of the area is designated an "Economic Development" growth strategy area, indicating the high potential for economic development but also the need for infrastructure improvements. The portion of the West End community in this sub-area is designated as an "Adjacent Developed" growth strategy area, targeting the area for consideration for annexation and provision of city services in the next one to ten years. Overall, this sub-area is a priority for development in the next ten years, with most of the area east of SR 1940 (Gibson Road) being a higher priority. It can also be assumed that Mebane will encourage and place a moderately high priority on development south of US 70 in this area over the next five to ten years.

Availability of Developable Land - There is an abundant supply of undeveloped land within the 600-acre NCIC. Some areas of the NCIC have development constraints such as steep slopes, and there are floodplain areas along MoAdams Creek and Lake Latham.

Proximity and Access to Urban Centers - The sub-area has access via secondary roads to I-85/40 although currently, direct access to large parcels in the NCIC is limited. Under the No-Build Alternative, traffic volumes are expected to increase in the vicinity of existing NC 119, SR 1962 (Third Street Extension), SR 1980 (Holmes Road), and other roadways in this area, which would result in increased congestion and hamper the accessibility to and within this sub-area.

Presence of Water and Sewer Service – The majority of the sub-area is not served by water and sewer services. The City has extended sewer service in areas located west of the City limits within the West End community with funds provided through federal programs. Phases 1 and 2 of the extensions of sewer service to this area have been completed. The City would provide water and sewer service to any annexed properties.

Past and Present Growth Trends – Population growth in this area has been slow as most of the vacant area is zoned for non-residential uses. Some residential development is occurring in the vicinity of SR 1962 (Third Street Extension) and SR 1940 (Gibson Road).

Projected Growth and Development – Most of the sub-area is projected to develop for industrial uses. As an “Economic Development” strategy area, the City of Mebane places a high priority on encouraging development in the next ten years. The availability of large sites for development, adequate water and sewer capacity to serve large-scale development, and proximity to rail service and the I-85/40 corridor, should attract tenants to the NCIC. However, current traffic congestion in the area of existing NC 119, SR 1980 (Holmes Road), and SR 1962 (Third Street Extension) could deter future development. The potential is high for further development and land use changes to occur in this area without the proposed project.

4.4.8.8 West

This sub-area is west and outside of Mebane’s ETJ. It is bordered on the north by SR 1921 (Mebane Rogers Road), on the west by the Graham-Mebane Reservoir, and on the south by US 70 and Mebane’s western ETJ boundary.

Existing Land Use and Character - This sub-area is suburban to rural in nature with both single-family residential subdivisions and scattered lot-by-lot development. There are several MHPs in the area and a few non-residential uses along US 70.

Zoning – There is no zoning in Alamance County’s planning jurisdiction. Watershed overlay district zoning applies to the area north of US 70, with most properties located within the WCA.

Land Use Plans - Alamance County does not have a land use plan. However, Mebane’s land use plan includes this area even though it is outside the City’s planning jurisdiction. The land use plan indicates future land use will be low density residential north of US 70 and designates the area north of US 70 as a “Rural Conservation” growth strategy area.

Availability of Developable Land – There is a good supply of vacant land in this sub-area. Development would be limited by the watershed overlay district zoning north of US 70, as well as the presence of steep slopes, soil limitations, and floodplain areas throughout the sub-area.

Proximity and Access to Urban Centers – Indirect access to nearby urban centers and I-85/40 is provided by SR 1948 (Dodson Road) and SR 1940 (Gibson Road) which are secondary roads that connect directly to US 70. Under the No-Build Alternative, access to this area would remain essentially unchanged.

Presence of Water and Sewer Service – The majority of this sub-area is not served by water and sewer services. The City would provide water and sewer service to any annexed properties.

Past and Present Growth Trends - Population growth in this area has been slow. Other than a few recent subdivisions built just south of SR 1921 (Mebane Rogers Road), single-family residential development has occurred primarily on a lot-by-lot basis. .

Projected Growth and Development – Residential growth in this area is expected to continue at a slow rate with or without the proposed project. Much of this sub-area is within the WCA, which limits development to very low densities, and therefore, the potential is low for further development and land use changes with or without the proposed project.

4.4.8.9 Interstate Corridor

This sub-area is within Mebane’s planning jurisdiction along I-85/40 from Buckhorn Road on the east to Cherry Lane Road on the west. The sub-area includes some properties within the City’s corporate limits.

Existing Land Use and Character - The area includes a mix of industrial, commercial, single- and multi-family residential and institutional uses, with non-residential uses in proximity to several I-85/40 interchanges. Commercial travel-related uses are clustered at several interchanges in the sub-area. The SR 1007 (Mebane Oaks Road) interchange with I-85/40 includes a large shopping center, gas station/convenience stores, restaurants, and other retail establishments. The existing NC 119 interchange with I-85/40 includes various types of commercial and industrial uses and some scattered residential development.

Zoning - The area is primarily zoned Business (B-1, B-2, B-3) and Industrial (M-1, M-2), with some residential zoning in the area, but at higher densities (R-6, MHP) (Table 3.1).

Land Use Plans - “Economic Development” uses are proposed for most of the area. The Mebane land use plan also indicates a “Village Activity Center” with a TND overlay near the Alamance/Orange county line. Between existing NC 119 and SR 1007 (Mebane Oaks Road) south of I-85/40, areas are designated for “Urban Residential” or “Neighborhood Residential.” The “Urban Residential” area is adjacent to the interstate and recommends medium- to high density single-family and multi-family residential uses. Commercial uses are projected on the south side of the SR 1007 (Mebane Oaks Road) interchange with I-85/40. Growth strategy designations for the area include “Primary,” “Economic Development,” and “Secondary” growth areas, indicating that suitable development should be

encouraged over the next ten years. A small area south of the SR 1007 (Mebane Oaks Road) interchange with I-85/40 is designated as a “Long Range” growth strategy area.

Availability of Developable Land - There is a good supply of land with development or redevelopment potential, although there are some scattered areas of steep slopes and soil limitations.

Proximity and Access to Urban Centers - This sub-area has direct access to regional employment centers via I-85/40. However, the current ADT approaches or exceeds the capacity of the roadways near the interchanges of NC 119 and SR 1007 (Mebane Oaks Road) with I-85/40.

Presence of Water and Sewer Service - The developed areas within the Mebane City limits are provided with city water and sewer service, which would be available to any annexed areas.

Past and Present Growth Trends – The interstate corridor has historically been the fastest growing area in Alamance County. Recent development includes the Mebane Oaks Market Place and the Alamance Medical Center, both located on SR 1007 (Mebane Oaks Road) north of the interstate. Several additional commercial developments have occurred along the interstate corridor. In addition, two hotels and other commercial developments were recently constructed on the south side of the interstate including “big box” retailers.

Projected Growth and Development – The potential for further growth and development in this sub-area is high with or without the proposed project. Commercial uses that will benefit from local as well as interstate traffic will continue to locate in the area.

4.4.8.10 Orange County

This sub-area is located south of NC 49 and northeast of the City of Mebane and includes a small unincorporated area of northwestern Orange County.

Existing Land Use and Character – This sub-area is predominantly rural land uses with some areas of agricultural and open space and some scattered large-lot residential development. This area is within the Back Creek Watershed Protected Area.

Zoning – This sub-area is zoned as an Agricultural Residential district, which is intended to preserve land for agricultural, forestry, or horticultural uses. Very low to low density residential development is permitted.

Land Use Plans – The Land Use Element of the Orange County Comprehensive Plan designates this area as low density Agricultural Residential and Resource Protection Areas. The County has also purchased several farm easements in this area to preserve farmland.

Availability of Developable Land – There is a good supply of undeveloped land in this area; however, development is restricted within the watershed protection area and steep slopes and floodplain areas also limit the potential for development.

Proximity and Access to Urban Centers – Access is provided by secondary roads, and therefore, no direct access is available to urban centers or major roadways.

Presence of Water and Sewer Service – The sub-area does not have water or sewer services and is not planned for provisions of these services.

Past and Present Growth Trends – This is an area of slow growth and is planned to remain rural in nature with development occurring on a lot-by-lot basis. This trend is expected to continue with or without the proposed project.

Projected Growth and Development – Minimal lot-by-lot development is projected for this area and the potential is low for further development or land use changes to occur in this area with or without the proposed project.

4.4.9 ICE Impact Evaluation – Detailed Study Alternatives

In order to determine potential ICEs resulting from the proposed NC 119 Relocation project, it is necessary to determine how and where the project is expected to induce growth and changes in land use and development patterns outside of the relocation corridor itself. To evaluate the project's propensity to affect land use change in the study area, each sub-area was analyzed according to the change in accessibility; the forecasted growth anticipated within the sub-area; land supply; availability of water and sewer; public policy; and other factors discussed in the previous sections.

Predicting and measuring land use changes is a complex process. In general, larger transportation projects that provide greater accessibility benefits are more likely to have large land use impacts. This trend is usually more noticeable in areas where growth pressures already exist, as is the case for the greater Mebane area as well as Alamance County.

Land use changes in the project study area are guided by the land use and growth management plans of the City of Mebane and Alamance and Orange counties. These plans and their implementation will determine to a large extent the future land use patterns and intensities of development that will occur in the study area with or without the proposed project. The proposed NC 119 Relocation project is envisioned in these plans and is consistent with local land use plans and policies.

Based on recent development trends, local planning officials anticipate continued development in response to population growth in the study area during the next 10 to 20 years, at which point much of the study area within and near the City's ETJ would be approaching the built-out condition and the rate of growth would decline. It is also expected that the proposed NC 119 Relocation project would accelerate these forecasted changes, particularly in the southern portion of the study area. The following sections summarize the potential for induced growth and land use changes within each sub-area as a result of the proposed NC 119 Relocation project.

4.4.9.1 Mebane Central

Change in Accessibility - Vehicular traffic with an origin or destination in downtown Mebane may continue to use existing NC 119 after the NC 119 Relocation project is constructed. Although the proposed project would not provide new access to this area, the project would substantially reduce the volume of traffic in the downtown area and on Fifth Street. This would result in travel time savings along the existing NC 119 route which would improve the overall mobility within this sub-area. With the construction of the proposed NC 119 Relocation project, ADT is expected to range

from 19,400 vpd to 24,000 vpd, which is an approximate 40 percent reduction as compared to the highest ADT within this area of the No-Build Alternative in 2030. The potential for land use change within this sub-area as a result of changes in accessibility is expected to be moderate.

Forecasted Growth - Limited growth is forecasted in this sub-area, which is primarily part of the downtown area of Mebane. Redevelopment is more likely to occur than new development. With the construction of the NC 119 Relocation project, this predominantly commercial area would continue to serve local retail needs and could benefit from reduced traffic congestion by removing through traffic on existing NC 119 in the downtown area. However, by reducing traffic volumes on existing NC 119 in this area, the diversion of through-traffic could remove potential customers from the few highway-related businesses in this sub-area. Nevertheless, local planning officials do not expect that this diversion would result in long-term adverse impacts to businesses in downtown Mebane.

Land Supply - The sub-area is mostly developed with only a few small vacant lots remaining. Future demand for developable land within this area is expected to be low to moderate based on the constraints of parcel size and location.

Availability of Water and Sewer - Water and sewer services are provided in this area.

Public Policy –The Proposed Land Use Plan for the City of Mebane encourages managed growth within the City limits and ETJ and would support suitable development and redevelopment proposals within this area.

Overall, the Mebane Central sub-area is expected to have low to moderate potential for indirect land use changes as a result of the proposed project.

4.4.9.2 Mebane South

Change in Accessibility – One of the forecasted benefits of the NC 119 Relocation project to this area of Mebane would be reduced traffic volumes on South Fifth Street and South Third Street, which currently experience congested conditions during peak travel periods. With the construction of the proposed NC Relocation project, the 2030 ADT is expected to range from 7,000 vpd to 24,100 vpd, which is an approximate 33 to 66 percent reduction as compared to the ADT of the No-Build Alternative in 2030. The improved travel conditions within this sub-area would greatly increase the accessibility to and within the area and the NC 119 Relocation roadway would provide direct access to the western portion of the sub-area. The potential for land use changes within this sub-area as a result of changes in accessibility is expected to be high.

Forecasted Growth - With improved access and availability of water and sewer services, development potential of vacant land within this area is high. The area is in a “Primary” growth strategy area, indicating strong support by the City of Mebane for suitable development.

Land Supply – This sub-area has experienced substantial development in recent years; however, several vacant tracts remain that would be suitable for development.

Availability of Water and Sewer - Water and sewer services are provided in this area.

Public Policy – The Proposed Land Use Plan supports primarily residential development in this area, which would be compatible with the proposed project.

Overall, the Mebane South sub-area is expected to have high potential for indirect land use changes as a result of the proposed project.

4.4.9.3 Mebane North

Change in Accessibility - This sub-area would benefit from increased accessibility as provided by the NC 119 Relocation project, which would connect to existing NC 119 just north of the Mill Creek entrance. The area would also benefit from improved traffic flow in downtown Mebane resulting in reduced travel times to and from destinations in that area. Therefore, both the users of the NC 119 Relocation project and the existing roadways would benefit from greater accessibility within the area as a result of the proposed improvement. With the construction of the proposed NC Relocation project, the 2030 ADT for NC 119 is expected to be approximately 4,300 vpd, which is an 81 percent reduction from the ADT of the No-Build Alternative in 2030. The potential for land use changes within this sub-area as a result of changes in accessibility is expected to be high.

Forecasted Growth – In this sub-area, some vacant land exists that offers development opportunities. Build-out of the Mill Creek PUD, where infrastructure is already in place, would generate some additional traffic in the area; however, it is not expected to result in congested travel conditions on either existing NC 119 or the NC 119 Relocation project because of the increased capacity that would be provided by the new roadway.

Land Supply - There is a moderate supply of undeveloped land in this area. Development constraints include the BOW overlay district, floodplain areas and steep slopes in proximity to Mill Creek and Back Creek, and areas with soil limitations along existing NC 119 in proximity to the intersection with SR 1917 (White Level Road).

Availability of Water and Sewer - Water and sewer are available to those properties located within the City limits. The City would provide water and sewer service to any annexed properties.

Public Policy – The Proposed Land Use Plan for the City of Mebane encourages primarily residential development in this area which would be compatible with the proposed project.

Overall, the Mebane North sub-area is expected to have moderate potential for indirect land use changes as a result of the proposed project.

4.4.9.4 North ETJ

Change in Accessibility - Within this sub-area, direct access to the NC 119 Relocation project is proposed at its intersection with SR 1921 (Mebane Rogers Road) and at its intersection with existing NC 119 near White Level Road. The 2030 ADT for NC 119 is expected to be approximately 18,800 vpd. The potential for land use changes within this sub-area as a result of changes in accessibility is moderate to high.

Forecasted Growth - As designated in Mebane's land use plan, the area located north of the Cates Farm historic property is designated for Neighborhood Residential development. Although some

vacant land is available, development is constrained by watershed protection zones and related development restrictions, and the City's desire to limit the area to low density rural uses or to remain in a natural state. The City's Proposed Land Use Plan for this area designates a "Neighborhood Activity Center" to be developed near the intersection of the proposed NC 119 Relocation corridor and existing NC 119 near SR 1917 (White Level Road); this center would be a mixed-use development node that would serve the local area.

Land Supply - There is a good supply of undeveloped land in this area. Development constraints include the watershed overlay district zoning, floodplain areas and steep slopes along and in proximity to Mill Creek and Back Creek, and areas with soil limitations along existing NC 119 in proximity to the intersection with SR 1917 (White Level Road).

Availability of Water and Sewer - The area is not served by water and sewer service. The City would provide water and sewer service to any annexed properties.

Public Policy - The Proposed Land Use Plan for this sub-area identifies this area as being limited to low density development and is subject to the watershed protection regulations that apply to the WCA and BOW. A small portion of the sub-area is designated as a Secondary Growth area.

Overall, the North ETJ sub-area is expected to have low to moderate potential for indirect land use changes as a result of the proposed project.

4.4.9.5 North

Change in Accessibility - This sub-area would experience slightly improved accessibility with the proposed NC 119 Relocation project, which would offer reduced travel times to and from this area as compared to the No-Build Alternative.

Forecasted Growth - Very limited lot-by-lot residential development is projected for this area; the development potential is expected to continue to be low for this area.

Land Supply - While there is an abundant supply of undeveloped land, development is constrained by the watershed overlay district zoning, steep slopes of 20 percent or more, soil limitations, and some floodplain areas.

Availability of Water and Sewer - Water and sewer services are not available or planned to be available. Soils in some areas are not conducive to individual septic systems.

Public Policy - The City's Proposed Land Use Plan covers only a small portion of this sub-area, which is identified as being limited to low density development and subject to the watershed protection regulations that apply to the WCA and BOW area.

Overall, the North sub-area is expected to have low potential for indirect land use changes as a result of the proposed project.

4.4.9.6 West ETJ

Change in Accessibility – The proposed NC 119 Relocation project is located along the western edge of this sub-area and access to this area would be provided by its intersection with SR 1921 (Mebane Rogers Road) and US 70. The proposed realignment of SR 1951 (Woodlawn Road) to the NC 119 Relocation project in the Woodlawn area would provide improved access for this community to community facilities and services, the commercial areas of Mebane, and the I-85/40 corridor. Travel times offered by the proposed project would be improved for north-south travel in this area. The 2030 ADT of NC 119 in this area is expected to be approximately 20,000 vpd. The potential for land use changes within this sub-area as a result of changes in accessibility is expected to be moderate.

Forecasted Growth - Development is expected to continue in this area at a low to moderate rate, primarily in the form of low density in-fill residential development.

Land Supply - There is a good supply of developable land, including some large tracts with single-family residences. Constraints include small areas of steep slopes or soil limitations, as well as the watershed overlay district zoning.

Availability of Water and Sewer - The area is not served by water and sewer services. The City would provide water and sewer service to any annexed properties.

Public Policy – The Proposed Land Use Plan for this sub-area supports primarily low density residential development in this area, which would be compatible with the proposed project.

Overall, the West ETJ sub-area is expected to have moderate potential for indirect land use changes as a result of the proposed project.

4.4.9.7 Southwest ETJ

Change in Accessibility – The NCIC is the largest development in the sub-area and would become much more accessible as a result of the proposed NC 119 Relocation project. The new roadway would provide direct north-south access to this area and reduce the existing traffic congestion near the industrial park's main entrance. The proposed NC 119 Relocation project would border the eastern portion of the property, providing both direct access and visibility, which would likely enhance the marketability of the industrial sites. The proposed connection of SR 1972 (Smith Drive) to the NC 119 Relocation project in the West End area would provide direct access to this community and offer reduced travel times to the I-85/40 corridor, commercial areas, and community facilities. Other residential properties in this sub-area would likely continue to use SR 1940 (Gibson Road) as the north-south travel route to I-85/40. The 2030 ADT for NC 119 in this area is expected to be approximately 30,000 vpd.

Forecasted Growth - Most of the area is projected to develop as industrial uses. As an "Economic Development" strategy area, the City of Mebane places a high priority on encouraging development in the next ten years. The availability of large sites for development, availability of water and sewer capacity to serve large-scale development, and proximity to rail service and the interstate corridor should attract tenants to the NCIC.

Land Supply - There is an abundant supply of undeveloped land in the NCIC, although some areas within the NCIC have steep slopes, and there are floodplain areas along MoAdams Creek and Lake Latham.

Availability of Water and Sewer – The majority of the area is not served by water and sewer services; however, developing properties are annexed by the City in order to connect to these services.

Public Policy – The Proposed Land Use Plan supports and encourages primarily industrial, commercial and urban residential development in this area, which would be compatible with the proposed project.

Overall, the Southwest ETJ sub-area is expected to have moderate to high potential for indirect land use changes as a result of the proposed project.

4.4.9.8 West

Change in Accessibility - This sub-area would have direct access to the proposed NC 119 Relocation project via US 70. Currently, SR 1948 (Dodson Road) and SR 1940 (Gibson Road) are the primary north-south routes through the area. Depending on travel origins and destinations, the proposed NC 119 Relocation project would provide some travel time savings for motorists accessing the I-85/40 corridor and destinations north of US 70 as compared to the No-Build Alternative.

Forecasted Growth - Residential growth in this area is expected to continue at a fairly slow rate on a lot-by-lot basis.

Land Supply - There is a good supply of vacant land in this sub-area. Development would be limited by the watershed overlay district zoning north of US 70, as well as by substantial areas of steep slopes, soil limitations, and floodplain areas within the sub-area.

Availability of Water and Sewer - The area is not served by water and sewer services. The City would provide water and sewer service to any annexed properties.

Public Policy – The Proposed Land Use Plan supports low density development in this area which is subject to the watershed protection regulations that apply to the WCA and BOW areas.

Overall, the West sub-area is expected to have low to moderate potential for indirect land use changes as a result of the proposed project.

4.4.9.9 Interstate Corridor

Change in Accessibility - Due to the linear nature of this sub-area along the interstate, the NC 119 Relocation project would not have substantial impact on travel times along the I-85/40 corridor itself. However, the proposed project would reduce traffic congestion on other secondary roads in the area and reduce travel time to the interstate corridor from the north, particularly north of the existing NC 119/I-85/40 interchange.

Forecasted Growth - The potential for growth in this area is high. Commercial uses that would benefit from local as well as interstate traffic would continue to locate in the area.

Land Supply - There is an abundant supply of land with development or redevelopment potential, although there are some scattered areas of steep slopes and soil limitations.

Availability of Water and Sewer - The developed areas in the Mebane City limits are served with city water and sewer service. The City would provide water and sewer service to any annexed properties.

Public Policy – The Proposed Land Use Plan supports and encourages primarily industrial and commercial development in the sub-area with some residential in-fill, which would be compatible with the proposed project.

Overall, the Interstate Corridor sub-area is expected to have high potential for indirect land use changes as a result of the proposed project.

4.4.9.10 Orange County

Change in Accessibility – This sub-area would not experience any noticeable change in accessibility with the proposed project.

Forecasted Growth - Very limited lot-by-lot residential development is projected for this sub-area and the development potential is expected to continue to be low.

Land Supply - While there is an abundant supply of undeveloped land, development is constrained by the watershed overlay district zoning, steep slopes of 20 percent or more, soil limitations, and some floodplain areas.

Availability of Water and Sewer - Water and sewer services are not available or planned to be available. Soils in some areas are not conducive to individual septic systems.

Public Policy - The Land Use Element for this portion of Orange County identifies this area as being limited to low density development and is subject to the watershed protection regulations that apply to the area.

Overall, the Orange County sub-area is expected to have low potential for land use changes as a result of the proposed project.

4.4.10 Summary of Indirect and Cumulative Effects

4.4.10.1 Potential for Land Use Changes

With the construction of a new highway through developable land south of US 70, there is a high potential for the project to induce land use changes in this portion of the study area that would be primarily industrial and commercial uses along with some in-fill of residential uses; this development is consistent with the City's land use and growth management plans for this area. It is expected that vacant land parcels adjacent to the proposed NC 119 Relocation corridor will be fully

developed with medium to high density mixed uses such as industrial, commercial, and residential developments, as indicated in the City's land use plans. Due to the urbanizing character of the southern portion of the study area, local planning officials anticipate that increased development will continue in this area regardless of whether the proposed project is constructed. However, the proposed project would likely accelerate the rate of change in land uses and development.

By contrast, the construction of the NC 119 Relocation project within the northern portion of the study area (north of US 70), is not expected to result in major land use changes and future growth and is generally expected to follow existing development patterns. The majority of the area north of US 70 is located in the water supply WCA or BOW overlay districts and development would be restricted by state and local regulations that limit densities and types of land uses in the area. Therefore, substantial changes in land use patterns are not anticipated for the northern portion of the study area with or without the proposed project. This area is expected to remain as low density residential, agricultural, and open space uses. One exception to this forecast is the planned development of a Neighborhood Activity Center in the vicinity of the intersection of the NC 119 Relocation project with the existing NC 119 roadway as indicated in the City of Mebane's Proposed Land Use map in Appendix A. The City's land use plan identifies this future intersection as a small scale mixed use development that would serve local neighborhoods.

Numerous empirical studies and academic research have been conducted to evaluate the long-term effects of transportation projects on land use and development patterns; however, this relationship is not easily identified or measured in quantitative or qualitative terms. As stated in the *Guidance for Assessing Indirect and Cumulative Impacts of Transportation Projects in North Carolina* (Louis Berger Group, 2001), "empirical evidence indicates that transportation investments result in major land use changes only in the presence of other factors. These factors include: supportive local land use policies; local development incentives; availability of developable land; and a good investment climate."

Table 4.17 is a summary of the potential for land use changes and the potential for indirect or induced growth that would occur within each sub-area as a result of the NC 119 Relocation project. The potential or probability of the proposed project to cause indirect and cumulative effects ranges from low to high within each sub-area based on the qualitative factors that enable or contribute to changes in the use of land and the pattern of development in each sub-area.

Table 4.17
Summary of Potential for Land Use Changes
Related to Indirect and Cumulative Effects of NC 119 Relocation Project

Sub-area	Area (sq. mi.)	Change in Accessibility	Forecasted Growth	Land Supply	Availability of Water/Sewer	Public Policy	Overall
Mebane Central	1.2	Moderate	Low to Moderate	Low to Moderate	Available	High	Low to Moderate
Mebane South	2.1	High	High	Moderate	Available	High	High
Mebane North	1.5	High	Moderate	Moderate	Partially Available	Moderate	Moderate
North ETJ	2.8	Moderate to High	Low to Moderate	Moderate	Not Available	Low to Moderate	Low to Moderate
North	23.4	Low	Low	Low	Not Available	Low	Low
West ETJ	0.7	Moderate	Moderate	Moderate	Not Available	Low to Moderate	Moderate
Southwest ETJ	2.0	Moderate to High	High	Moderate	Partially Available	High	Moderate to High
West	1.6	Low to Moderate	Low	Low	Not Available	Low	Low to Moderate
Interstate Corridor	2.3	Moderate to High	High	Moderate	Partially Available	High	High
Orange County	6.1	Low	Low	Low	Not Available	Low	Low

4.4.10.2 Potential for Water Quality Impacts

As part of the analysis of ICEs associated with the proposed NC 119 Relocation project, a qualitative assessment was also conducted of the potential for water quality impacts that could result from the expected land use changes and future development induced by the project.

The potential for the project-induced growth and land use changes to occur within the northern portion of the study area (north of US 70) is considered to be low to moderate due to the development restrictions within the watershed overlay districts. Therefore, it is estimated that the potential for the project to adversely impact water quality due to induced development would be low to moderate within the northern portion of the study area. In addition, most of the northern portion of the study area is not planned to be served by municipal water and sewer services, which would further limit future growth and development in close proximity of the WCA.

In general, the induced growth and land use changes that are likely to occur are in the southern portion of the study area, which is outside of the water supply watershed overlay districts. The sub-areas most likely to experience land use changes as a result of the proposed project are south of

US 70: Mebane South, Southwest ETJ, and Interstate Corridor. These sub-areas represent approximately 14 percent of the entire ICE study area. Expected land use changes would include primarily industrial and commercial uses along with some in-fill of residential uses. All of the Detailed Study Alternatives are common in this area; therefore, potential indirect effects on water quality are the same among the alternatives.

Some impacts to wetlands are likely as a result of project-induced development south of US 70. However, it is difficult to estimate the specific acreage of wetlands likely to be impacted by development. Wetlands identified within the project study area are shown in Figure 4.4.

Increases in impervious surfaces from project-induced development also may have a negative effect on water quality in the project study area south of US 70. Impervious surfaces can prevent or redirect recharge and affect the amount of surface runoff. This may result in increased sediment and nutrient loading to rivers and streams. Some of these effects can be expected regardless of whether the project is constructed, as continued development is expected with or without the project.

Potential measures to mitigate the water quality impacts associated with project-induced growth are discussed in Section 4.4.11.3. Additional information regarding the potential for water quality impacts as an indirect and cumulative effect of the project is available in the *Final Indirect and Cumulative Effects* (RS&H, 2006c) report appended by reference and available at the NCDOT.

4.4.10.3 Potential for Air Quality Impacts

The project level air quality analysis for the proposed NC 119 Relocation project (Section 4.2.1) incorporates indirect or cumulative impacts. On the project level, changes in air quality concentrations are dependent on traffic volumes. The traffic volumes used in the air quality analysis incorporate existing and future land use in the region and the subsequent trips that would be generated.

These predicted volumes are essentially maximized by the amount of reasonable and foreseeable future development based on the availability and type of land use and/or zoning, regardless of whether or not any development actually comes to fruition. As a result, the project level air quality analysis already incorporates a full hypothetical build-out scenario.

4.4.10.4 Property Values

The analyses conducted over recent years by various planning and transportation agencies as to the long-term impact of highway transportation projects on property values indicate that the extent and magnitude of these types of impacts vary greatly depending upon the nature of the project area. Evidence suggests that highway projects can increase nearby property values by providing greater accessibility within the area. In general, greater impacts would occur where densities are higher, travel-time savings are significant, and a region is experiencing a high level of population and employment growth. However, although accessibility is important, there are numerous factors that influence the location decisions of individuals and businesses, including costs of development, access to and quality of services and amenities, community characteristics, distance to urban centers, and governmental regulations and incentives.

The construction of the NC 119 Relocation project would change the context of the surrounding properties and could cause changes in the surrounding property values. In general, the industrial and commercially zoned land that is in close proximity to the proposed NC 119 Relocation project is likely to increase in value based on improved accessibility to a major roadway facility and shorter travel times to major destinations such as the I-85/40 corridor and commercial areas in Mebane. The tendency toward new development or intensified development is generally greatest in the vicinity of interchanges where there is good access to the roadway.

Based on the improved accessibility that would be provided by the NC 119 Relocation project to the industrial and commercially zoned areas south of US 70, it is likely that industrial and commercial parcels in this area would experience the largest increases in property values, particularly properties in close proximity to I-85/40. However, as stated earlier, there are several other factors apart from accessibility that influence property values, and because the factors change over time, it is difficult to accurately predict these changes in a quantitative manner.

4.4.11 Potential Mitigation Measures

4.4.11.1 Comprehensive Transportation Planning

NCDOT works in coordination with local governments and the MPO to develop Comprehensive Transportation Plans (CTPs), a multi-modal plan that identifies the existing and future transportation system, including highways, public transportation, rail, bicycle, and pedestrian facilities to serve the anticipated travel demand. The CTP, which includes the NC 119 Relocation project, is being developed which would strengthen the connections between the area's transportation plan, adopted local land development plan, and community vision.

The CTP includes community consensus on future transportation needs required to support anticipated growth and development. A CTP is a mutually adopted legal document between the state and a metropolitan planning organization, municipality, or county. Once adopted by the NCDOT, a CTP represents the state's concurrence with the locally identified transportation needs.

In addition to the enforcement of the local policies and regulations that relate to land use and development within the study area, there are various access management techniques and policies that can be implemented through coordination with the NCDOT to effectively control or direct growth and development along highway corridors.

The southern portion of the proposed NC 119 Relocation project is planned as a limited access-controlled roadway between the I-85/40 interchange and its intersection with US 70, except at the I-85/40 interchange where full control of access is proposed. North of US 70, the proposed project is planned as a limited access-controlled roadway or access only at existing secondary roads, with an intersection proposed at SR 1921 (Mebane Rogers Road) and at its connection with existing NC 119 near SR 1918 (Mrs. White Lane).

The limitation of direct driveway access points and roadway intersections as proposed along the NC 119 Relocation project should minimize or eliminate unplanned developments along the corridor and facilitate the types and densities of land uses as envisioned by the local governments.

4.4.11.2 Regional and Local Planning

Local land use policies and zoning regulations are the most effective tools for use in avoiding or minimizing potentially adverse induced land use impacts as a result of implementation of transportation projects. In addition to the water supply watershed ordinances and regulations enforced by the State of North Carolina, Alamance and Orange counties, and the City of Mebane (identified in Section 3.1.1), the local governments have adopted land use policies and guidelines and zoning ordinances to control the densities and types of development that are allowed to occur within the study area. The local policies and guidelines that apply to the study area are defined in the City of Mebane 2010 Land Development Plan (2001) and the Alamance County Destination 2020 Strategic Plan (2003) and are summarized below.

Alamance County Housing and Neighborhood Development Policies

Policy 3.11: So as to preserve the traffic moving function of the County's primary roads, prevent traffic accidents and avoid land locking interior land parcels, Alamance County shall discourage residential and commercial strip development along the county's primary roads. Flag lots (large lots not meeting minimum frontage requirements, where access to a road is by a narrow driveway) shall also not be permitted along primary roads unless justified by unusual or unforeseeable parcel or topographic constraints.

Alamance County Commercial and Office Development Policies

Policy 4.6: Highway oriented commercial uses should be clustered along segments of highways and contain land uses that are mutually compatible and reinforcing in use and design; they should be designed in such a way as to minimize signage, access points, and uncontrolled strip development.

Policy 4.7: Strip development along the area's major streets and highways shall be discouraged. Existing strip development shall be reduced and/or development standards should be made more restrictive when redevelopment opportunities permit. New strip development on isolated single lots along major streets and highways shall be discouraged.

Alamance County Transportation Policies

Policy 6.6: So as to minimize (1) unnecessary turning movements onto and off of major roads, and (2) the use of major roadways for purely local trips, the County shall encourage street connections between adjoining residential neighborhoods, as well as connections between parking lots of adjoining commercial developments.

Policy 6.7: Access to higher intensity development shall generally not be permitted through an area of lower intensity development. For example, access to a multi-family development, major park roadway or other large traffic generator shall not be permitted through a single-family residential neighborhood.

Policy 6.8: Access to the County's major roadways shall be managed so as to preserve the intended purpose of the highway and to protect the investment of taxpayer dollars used to build

the roadway. Methods may include, for example, limited driveway access, minimum lot frontages, the use of service roads and parallel access roads, etc.

Alamance County Water Quality Policies

Policy 13.1: Alamance County's ground water resources shall receive a level of protection commensurate with their enormous value, particularly for residents and farmers in rural areas. Efforts shall be made to monitor the quantity and quality of groundwater resources, with an eye toward preventing pollution or excessive drawdowns (lowering of groundwater caused by pumping) while also protecting users from contaminated water.

Policy 13.2: Runoff and drainage from development, forestry, and agricultural activities shall be of a quality and quantity as near to natural conditions as possible, with special emphasis given to properties within water supply watershed areas.

Policy 13.6: The County supports policies, plans, and actions that serve to protect the quantity and quality of the county's water supply reservoirs by preventing soil erosion and sedimentation, and by controlling the quality of stormwater runoff entering the reservoirs.

Policy 13.7: Stormwater runoff, as it affects water quality in area streams, lakes, and reservoirs, shall receive a high level of priority in development review and standards.

Policy 13.8: Alamance County supports the efforts of the Alamance Soil and Water Conservation District and the NRCS to assist land users in the county in implementing BMPs that will protect and improve water quality.

Policy 13.9: Alamance County requirements concerning the retention and management of natural vegetation in buffer areas along its creeks, rivers, lakes, and reservoirs shall continue to receive strong support.

Policy 13.10: Development activities in the 100-year floodplain shall be carefully controlled. If development must occur, low intensity uses such as open space, recreation, and adequately buffered agricultural activities shall be preferred.

Alamance County Voluntary Farmland Preservation Program

The Alamance County Voluntary Farmland Preservation Program promotes agricultural land preservation and increases protection of agricultural areas from non-farm development. The farm preservation districts in the study area are fairly small areas located within the northern portion of the North sub-area and provide some buffering to the potential urbanization effects of the proposed NC 119 Relocation project.

The City of Mebane Growth Management Guidelines

2.9: The City will encourage and support county efforts to maintain low density residential uses in designated Rural Conservation Areas outside the City's jurisdiction over the next 20 years, to help preserve rural character and sensitive environmental resources, and to avoid

failing wells and septic systems. The City will discourage satellite annexation of residential neighborhoods, regardless of whether they are provided with water and sewer service.

2.10: The City will periodically evaluate its need to expand ETJ, especially in water supply watershed areas, to ensure new land development is compatible with the City's Land Development Plan.

2.11: The City will use natural features and development constraints in determining the best use of land and the appropriateness of land development and site design proposals.

The City of Mebane Water and Sewer Service Guidelines

5.6: The City will discourage the provision or upgrade of water mains and sewer outfalls within Rural Conservation Areas, to preserve rural character, protect the City's drinking water supply, and to avoid the need to rescue neighborhoods with failing private wells and septic systems. Exceptions to this guideline may include the provision of public water and sewer services to other local governments and cooperative agreements on major economic development projects. The City will strongly discourage the satellite annexation of residential neighborhoods, regardless of whether they are provided with public water and sewer services.

4.4.11.3 Water Quality Mitigation

In terms of mitigation of potentially adverse water quality impacts related to the project-induced growth, it appears that there are appropriate and sufficient State and local land use controls and development regulations in place to, if properly enforced, avoid and minimize potential indirect and cumulative impacts to water quality in the study area. The existing zoning ordinances and regulations pertaining to the protection of the water supply watershed within the study area limit development to low density, non-urban types of land uses. Enforcement of these regulatory controls should minimize the potential of the project to adversely impact water quality as a result of indirect or cumulative effects of the project.

Mitigation measures specific to potential water quality impacts associated with the proposed project will be included in the US Army Corps of Engineers Section 404 Permit requirements, Section 401 Water Quality Certification Permit, and NCDOT *Best Management Practices for Protection of Surface Waters*.

4.5 CONSTRUCTION IMPACTS

Construction of Detailed Study Alternatives, including the Preferred Alternative, may cause temporary adverse impacts to the local environment, including impacts to air quality, water quality, noise, and biotic communities. Construction impacts are generally short-term in nature and can be controlled, minimized, or mitigated through the use of BMPs and other standard NCDOT procedures. The No-Build Alternative would not generate any construction impacts. Potential construction-related impacts associated with the Detailed Study Alternatives, including the Preferred Alternative, are briefly summarized below.

Air Quality. Temporary degradation of the air quality in the study area would result from construction of the project within any of the Detailed Study Alternatives, including the Preferred Alternative. Initial clearing and grubbing would produce dust and exhaust emissions. Open burning, if allowed, would also contribute to local air pollution. The contractor would be responsible for controlling dust at the project site and at areas affected by the construction, including unpaved secondary roads, haul roads, access roads, disposal site, borrowed material sources, and production sites. Dust control measures may include the following activities:

- Minimizing exposed earth surface
- Temporary and permanent seeding and mulching
- Watering working and haul areas during dry periods
- Covering, shielding, or stabilizing material stockpiles
- Using covered haul trucks.

During construction of the proposed project, all materials resulting from clearing and grubbing, demolition, or other operations will be removed from the project, burned, or otherwise disposed of by the contractor. Any burning done will be done in accordance with applicable local laws and ordinances and regulations of the North Carolina State Implementation Plan (SIP) for air quality in compliance with 15 NCAC 2D.0520. Care will be taken to insure burning will be done at the greatest distance practical from dwellings and not when atmospheric conditions are such as to create a hazard to the public. Burning will be performed under constant surveillance. Also during construction, measures will be taken to reduce the dust generated by construction when the control of dust is necessary for the protection and comfort of motorists or area residents.

Noise. Heavy construction equipment and blasting operations would generate noise and vibration. Although the Detailed Study Alternatives, including the Preferred Alternative, traverse primarily low density residential areas, neighboring communities would be temporarily impacted. The duration and level of noise differs with each phase of construction. Typically the first two phases, ground clearing and excavation, generate the highest noise levels. Noise generated by construction equipment, including trucks, graders, bulldozers, concrete mixers, and portable generators can reach noise levels of 67 dBA to 98 dBA at a distance of 50 ft.

NCDOT specifications require the contractor to limit noise levels to 80 dBA Leq in noise sensitive areas adjacent to the project. NCDOT may also monitor construction noise and require abatement where limits are exceeded. NCDOT can also limit work that produces objectionable noise during normal sleeping hours.

The major construction elements of this project are expected to be earth removal, hauling, grading, and paving. General construction noise impacts, such as temporary speech interference for passers-by and those individuals living or working near the project, can be expected particularly from paving operations and from the earth moving equipment during grading operations. However, considering the relatively short-term nature of construction noise and the limitation of construction to daytime hours, these impacts are not expected to be substantial. The transmission loss characteristics of nearby natural elements and man-made structures are believed to be sufficient to moderate the effects of intrusive construction noise.

Water Quality. Erosion and sedimentation caused by construction activities could affect drainage patterns and water quality. In accordance with the North Carolina Sedimentation Pollution Control Act (15A NCAC 4B .0001-.0027), an erosion and sedimentation control plan must be prepared for land-disturbing activities that cover one or more acres to protect against runoff from a 10-year storm.

Prior to construction, an erosion and sedimentation control plan would be developed for the selected alternative in accordance with the NCDENR publication, *Erosion and Sediment Control Planning and Design*, and the NCDOT's *Best Management Practices for Protection of Surface Waters* (NCDOT Hydraulics Unit, 1997). Stricter erosion control standards pursuant to NC Statute 15A NCAC 04B .0124 regarding *Design Standards in Sensitive Watersheds* would be required because streams in the project area are designated as High Quality Waters (HQW). In addition, stricter surface water and wetland standards pursuant to NC Statute 15A NCAC 02B .0104 regarding *Considerations/Assigning/Implementing Water Supply Classifications* would be required because the proposed project crosses the Graham-Mebane Reservoir water supply watershed. These BMPs include, but are not limited to the following activities:

- Using berms, dikes, silt barriers, and catch basins
- Vegetating or covering disturbed areas
- Conforming with proper clean-up practices

Approved BMP measures from the most current version of NCDOT *Best Management Practices Manual for Construction & Maintenance Activities* such as sandbags, rock berms, cofferdams and other diversion structures would be used to prevent excavation in flowing water.

NCDOT also has Standard Specifications that require proper handling and use of construction materials. The contractor would be responsible for taking every reasonable precaution throughout construction of the project to prevent pollution of any body of water. Pollutants such as chemicals, fuels, lubricants, bitumens, raw sewage, and other harmful wastes shall not be discharged into any body of water. The contractor also shall be responsible for preventing soil erosion and stream siltation. Contractors shall not ford streams with mechanical equipment unless construction is required in the stream bed, including stream rerouting, channel improvements, and culvert construction.

Excavated materials will not be stockpiled or disposed of adjacent to or in areas where stormwater runoff may cause erosions of the material into surface waters. If material storage in these areas is unavoidable, the contractor must implement measures to prevent runoff. Contractors also must provide sanitary facilities for employees during project construction.

The NCDOT *Standard Specifications for Roads and Structures* also includes guidelines for wooded area cleanup and preventing damage to remaining vegetation, as well as adjacent property vegetation. Preventing erosion, sedimentation, and construction damage to forest land outside the right-of-way and construction limits is included in the *Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects* (FHWA, 2003). Section 157.04 includes relevant erosion control guidelines and installation methods, while Sections 201.03 and 212.04 discuss performing work within designated limits and grading tolerances, respectively.

Biotic Communities. Construction, staging, and stockpiling operations may result in the temporary disruption of the resident wildlife population. The clearing of habitats, human activity, and noise from construction operations may result in the displacement of mobile wildlife. Non-mobile species would be lost as habitat is converted to construction areas.

Impacts to biotic communities would be minimized as much as possible by restricting land clearing and construction operations within the project's right-of-way. The NCDOT would encourage the contractor to locate off-site staging and stockpiling to disrupt the least amount of natural habitat area. These areas would be re-vegetated once construction activities are complete, thus replacing habitat for some species.

The NCDOT will include language in the construction contract to address minimizing the amount of vegetation that is removed and reestablishing the riparian vegetation to the amount practical within the project limits.

Construction Waste. All construction waste material generated during clearing, grubbing, and other construction phases would be removed from the project site and burned or disposed of by the contractor in accordance with state and local regulations. Litter and other general trash would be collected and disposed of at local landfill locations. In addition, the *Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects* (FHWA, 2003), Section 203.05 Disposing of Material urges the contractor to recycle material where economically and practically feasible, according to FHWA regulations. Alamance County is classified as a non-high hazard county and a regular burning permit is required.

Utility Service. The proposed project would require some adjustment, relocation, or modification to existing utilities. Any disruption to utility service during construction would be minimized by phased adjustments to the utility line. All modifications, adjustments, or relocations would be coordinated with the affected utility company.

Traffic Maintenance and Detour Accessibility. Maintenance of traffic and sequencing of construction would be planned and scheduled so as to minimize traffic delays within the project corridor. Maintenance and protection of traffic in conjunction with construction activities associated with this project would be prepared in accordance with the latest edition of the *Manual of Uniform Traffic Control Devices* and roadway standards of the NCDOT. Signs would be used as appropriate to provide notice of road closures and other pertinent information to the traveling public. Advance notice through the local news media would be made to alert the public of traffic restrictions and construction related activities.

During the time period after Section A (the southern section) is completed and prior to Section B (the northern section) construction, a short one-mile segment of US 70 would serve as a connector between this newly constructed southern section and the existing northern section of NC 119.

Temporary road closures with off-site detours would be used while structures are being built and approaches are improved at the following locations:

- I-85/40 (Alternatives 8, 9, and 10)

- SR 1963 (Holt Street) (Alternatives 8, 9, and 10)
- US 70 (Alternatives 8, 9, and 10)

Temporary on-site detours would be used while structures are being built along NC 119 at the I-85/40 interchange (Alternatives 8, 9, and 10).

The following roads will need to be realigned to maintain property access:

- Existing NC 119 would be realigned east of Alternatives 8, 9, and 10 and south of Realigned Fifth Street
- SR 1921 (Mebane Rogers Road) would be realigned to intersect with Alternatives 9 and 10
- Existing NC 119 (First Street) would be realigned near the northern project terminus to intersect with Alternatives 8, 9, and 10
- Woodlawn Road would be realigned to tie into proposed NC 119 south of where existing SR 1951 (Woodlawn Road) would intersect the proposed roadway

T-turn arounds (cul-de-sacs) would be provided at the following locations:

- Existing NC 119 east of Alternatives 8, 9, and 10
- SR 1962 (Third Street Extension) on either side of Alternatives 8, 9, and 10
- SR 1949 (Edgewood Church Road) near US 70 west of Alternatives 8, 9, and 10
- SR 1951 (Woodlawn Road) on either side of Alternatives 8, 9, and 10
- Existing NC 119 (First Street) south of Alternatives 8, 9, and 10 near the northern project terminus

Please note these realignments and connections are preliminary and will be further developed and analyzed as designs progress after the Preferred Alternative is selected.

Truck traffic in the study area will increase during construction. Access to construction staging areas and the construction sites may require temporary access roadways. The traffic plan developed during the final engineering design phase will define designated truck routes and parking areas for construction vehicles. Additionally, where temporary access roads and detours are required, the NCDOT will consider regrading to preconstruction contours and elevations on a case-by-case basis and will do so where reasonable. Where temporary bridge structures are required, the area will be cleared but not grubbed.

4.6 SECTION 6(f)

This section discusses the resources in the vicinity of the proposed project that are subject to Section 6(f) of the Land and Water Conservation Act. Any impacts to this resource are described, along with measures to minimize harm.

Section 6(f) of the Land and Water Conservation Act applies to the conversion of certain recreation lands to non-recreational purposes. The act applies to recreation lands that have received Land and Water Conservation Fund (LWCF) money. Any land conversions on property that has received

LWCF money must be approved by the US Department of the Interior – National Park Service (FHWA, 1987). Section 6(f) also requires that any applicable land converted to non-recreational uses must be replaced with land of equal or greater value, location, and usefulness.

There are no properties within the Detailed Study Alternative boundaries that are subject to Section 6(f) of the Land and Water Conservation Act. Therefore, none of the Detailed Study Alternatives would impact Section 6(f) resources.

4.7 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Construction of any of the proposed Detailed Study Alternatives, including the Preferred Alternative, would require certain irreversible and irretrievable commitment of natural resources, manpower, materials, and fiscal resources. Lands within the right-of-way would be converted from their present use to transportation use. Use of these lands is considered an irreversible commitment during the time period that the land is used for a highway. However, if a greater need arises for use of the land or if the highway is no longer needed, the land can be converted to another use. At present, there is no reason to believe such a conversion would ever be necessary or desirable.

Considerable amounts of fossil fuels, labor, and highway construction materials such as cement, aggregate, and bituminous material would be expended to build the proposed project. Additionally, large amounts of labor and natural resources would be used in the fabrication and preparation of construction materials. These materials are generally not retrievable. However, they are not in short supply and their use would not have an adverse effect upon continued availability of these resources. Any construction would also require a substantial one-time expenditure of both state and federal funds that is not retrievable.

4.8 RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES AND LONG-TERM BENEFITS

The most disruptive local short-term impacts associated with the proposed project would occur during land acquisition and project construction. The short-term use of man's environment and of human, socioeconomic, cultural, and natural resources contributes to the long-term productivity of the study area. Most short-term construction-related impacts would occur within or in close proximity to the proposed right-of-way.

Existing homes, farms, and businesses within the selected alternative's right-of-way would be displaced. However, adequate replacement housing, land, and space are available for homeowners, tenants, and business owners within the study area (see Section 4.1.2.2). Improved access within the study area would contribute to long term residential and business growth.

Construction activities would create short-term air quality impacts, such as dust due to earthwork, road improvements, and exhaust from construction vehicles. Short-term noise impacts would be

unavoidable due to use of heavy equipment. Air and noise abatement measures, discussed in Section 4.5, would be used by NCDOT to minimize these short-term impacts during construction.

Short-term visual impacts would occur in the vicinity of the construction corridor. NCDOT mitigation measures, such as reducing slope cuts outside necessary road widths, reducing vegetation removal and leaving native vegetation screens in place, and minimizing alteration of scenic ridge lines and slopes, would be used to reduce long-term visual resources impacts.

Implementation of the NCDOT *Best Management Practices for Protection of Surface Waters* would minimize potential water quality impacts. In addition, the NCDOT would consult with the appropriate federal and state environmental resource and regulatory agencies to identify measures to minimize these impacts.

A short-term impact of construction would be the removal of biotic communities and wildlife within the proposed right-of-way and construction staging areas. However, recovery rates of local wildlife populations are expected to be relatively fast and no effect on long-term productivity is expected.

The local, short-term impacts and use of resources by the proposed action would be consistent with the maintenance and enhancement of long-term productivity. Construction of the proposed NC 119 Relocation project would provide a vital north-south link to the long-range transportation system for the region. The project is consistent with the long-range transportation goals and objectives of the NCDOT TIP and the City of Mebane 2010 Land Use Plan. It is anticipated that the roadway would enhance long-term access opportunities in Alamance County and would support local and regional commitments to transportation improvement and economic viability. Benefits of the proposed project would include decreased congestion on existing NC 119, improved roadway safety by adding an overpass over the existing NCRR, improved connectivity for communities in Mebane, and providing a north-south link for traffic in Alamance County.

4.9 SUMMARY OF ENVIRONMENTAL CONSEQUENCES

Estimated environmental impacts and costs associated with the preliminary engineering designs within each Detailed Study Alternative are summarized in Table 4.18.

**Table 4.18
Summary of Environmental Impacts**

Issue	Detailed Study Alternative		
	8	9 (Preferred)	10
<i>PROJECT FACTORS</i>			
Mainline Length (miles)*	5.6	5.6	5.6
Construction Cost (\$)***	68,700,000	68,500,000	70,100,000
Utility Relocation Cost (\$)***	2,402,000	2,402,000	2,402,000
Right-of-Way Cost (\$)***	30,475,000	30,550,000	29,947,500
TOTAL COST (\$)	101,577,000	101,452,000	102,449,500
<i>SOCIOECONOMIC FACTORS</i>			
Residential Relocations	44	46	46
West End Community	4	4	4
White Level Community	6	6	6
Woodlawn Community (eastern half)	8	10	10
Business Relocations	5	5	5
Parks Impacted	0	0	0
Schools Impacted	0	0	0
Churches Displaced (located in West End Community)	1	1	1
Cemeteries Impacted	0	0	0
Noise Impacts (# receptors approaching or exceeding criteria)	12	11	12
Noise Impacts (# receptors with substantial noise level increase)	4	3	4
<i>INFRASTRUCTURE</i>			
Major Electric Power Transmission Line Crossings	2	2	2
Water and Sewer Facility Impacts (Water Tower)	1	1	1
Fiber Optic Cable Crossings	1	1	1
<i>CULTURAL RESOURCE FACTORS</i>			
Historic Sites with Adverse Effect	0	1	1
Impacted Section 4(f) Resources	0	1	1
<i>NATURAL RESOURCE FACTORS</i>			
Federally Listed T&E Species Impacted	0	0	0
Perennial Stream Crossings***	18	16	16
Impacts to Streams (linear feet)	3,454	3,178	3,328
Wetlands (acres)	0.249	0.249	0.249
Length in water supply watershed critical area (miles)****	1.0	0.7	0
Length in water supply watershed protected area (miles)****	1.7	1.7	2.5

Issue	Detailed Study Alternative		
	8	9 (Preferred)	10
Estimated Impacts to Terrestrial Communities			
Oak-Hickory Forest (acres)	69.5	61.7	62.7
Secondary Pine Forest (acres)	3.4	3.4	3.4
Maintained / Disturbed (acres)	113.5	120.1	120.9
TOTAL COMMUNITY IMPACTS (acres)	186.4	185.2	187.0
PHYSICAL FACTORS			
Floodplains (acres)	2.51	3.15	4.12
Floodplains (linear feet of crossing)	1,052	1,029	1,215
Floodway (linear feet of crossing)	429	519	691
Prime and Unique Farmland (acres)	153.18	153.48	149.78
Hazardous Materials Sites Within Corridor	2	2	2
Ambient Air Quality CO Standards Exceedances (#)	0	0	0

Notes: Estimate of impacts based on construction limits (slope stakes), unless otherwise noted.

* Mainline lengths are approximate.

** Construction cost in 2009 dollars. Utility and Right-of-Way costs in 2007 dollars.

*** Total stream crossings do not include the bridge structure recommended at Mill Creek or UT 15 (UT to Mill Creek) which lies within the Alternative 10 corridor and would be spanned by the recommended bridge at Mill Creek.

**** Water supply watershed critical area and water supply watershed protected area lengths are approximate.

Some of the projected effects of the project could not be quantified with a single number for inclusion in the impacts table. These effects include: economic effects, regional planning consistency, community cohesion, visual impacts, water quality, and mineral resources. These impacts are briefly summarized below.

Land Use and Transportation Planning (Section 4.1.1). The proposed project would be consistent with the state and local transportation plans for the area.

Community Cohesion (Section 4.1.2.3). The impacts to community cohesion are summarized below for the communities in the study area.

Fieldstone. The proposed project would not require displacements or property acquisitions directly within the Fieldstone community and, therefore, would not result in neighborhood divisions or loss of community cohesion within the Fieldstone development. The proposed realignment of SR 1962 (Third Street Extension) to connect with the proposed roadway immediately south of the Fieldstone Apartments and north of the US Post Office would require displacement of approximately six single-family residences. The project would provide improved access between the Fieldstone community and areas north and west of the community.

South of the Fieldstone community, the proposed realignment of Fifth Street to intersect with the proposed realignment of SR 1962 (Third Street Extension) would require displacement of approximately 10 single-family residences.

West End. The proposed access locations to the Detailed Study Alternatives, including the Preferred Alternative, in the vicinity of the West End community include the extension of SR 1972 (Smith Drive), as well as the connector road from the proposed roadway to US 70. The proposed project would provide an overpass of SR 1963 (Holt Street), the NCR, and US 70. This new connection at SR 1972 (Smith Drive) would also increase the traffic volumes on SR 1972 (Smith Drive) and SR 1975 (Fitch Drive); however, the projected low traffic volumes are not anticipated to result in traffic congestion at any time of the day.

The proposed project would require three residential displacements within the West End community; however, it would not result in neighborhood divisions or loss of community cohesion. All of the Detailed Study Alternatives, including the Preferred Alternative, would also require the displacement of St. Luke's Christian Church. Other roadway improvements associated with the NC 119 Relocation project include the extension of SR 1997 (Corrigidor Road) to connect with SR 1973 (Tate Avenue) and a short extension of SR 1997 (Corrigidor Road) to connect with SR 1970 (Roosevelt Street). This new connection would relocate one residence; however, it would provide much improved access for the West End community to community facilities and services, the commercial areas of Mebane, and the I-85/40 corridor. These improvements would also create improved circulation patterns within the community which currently has several dead-end streets and poor street connectivity.

Downtown Mebane. The proposed project would not require displacements or property acquisitions within downtown Mebane. The decreased traffic volumes through downtown Mebane could remove potential customers from businesses along existing NC 119 in the downtown area. If some of the businesses in downtown Mebane moved to the proposed roadway, it could result in changes to the character and type of businesses located in downtown Mebane. A positive benefit to travel conditions in downtown Mebane would be the reduction in commercial truck traffic and congestion along existing NC 119, enhancing pedestrian safety in downtown Mebane, thereby making the environment more conducive to shopping and other activities. The project would also provide an overpass of the NCR. This would create a safer alternative to the existing at-grade crossing, which has a history of accidents.

Woodlawn. The proposed roadway is located in the eastern half of the Woodlawn community, which is mostly open space and farmland with scattered rural residential development and areas of dense vegetation north of Mill Creek. Each of the Detailed Study Alternatives, including the Preferred Alternative, would require property acquisitions within the Woodlawn community. Alternative 8 would displace eight single-family residences and the Preferred Alternative and Alternative 10 would displace ten single-family residences. The proposed roadway would traverse diagonally across the eastern half of the Woodlawn community. The presence of the proposed roadway within the Woodlawn community could be perceived as a division of this community due to the location of the proposed corridor. An additional community-related impact would be associated with the acquisition of a small portion of the Cates Farm historic property by the Preferred Alternative and Alternative 10.

In general, access to community facilities and services would be maintained or enhanced in this area as a result of the proposed project by providing a direct route for north-south travel in the study area with limited access control along the proposed roadway. In addition, SR 1951 (Woodlawn Road) would be realigned to tie into proposed NC 119 approximately 520 feet south of where existing SR 1951 (Woodlawn Road) would intersect the proposed roadway. This new connection would not require any relocations and would improve access for the Woodlawn community to community facilities and services, the commercial areas of Mebane, and the I-85/40 corridor.

Mill Creek. The realignment of existing NC 119 would intersect the Detailed Study Alternatives, including the Preferred Alternative, at a 'T' intersection. This connection would provide residents of the Mill Creek community with more direct access to I-85/40 and reduced travel times to destinations south and west of the community as compared to the current conditions. The Mill Creek community would not be directly affected by displacements or property acquisitions for the proposed project and would not experience neighborhood divisions or loss of community cohesion.

White Level. The proposed alignment for the Detailed Study Alternatives, including the Preferred Alternative, travels into the southernmost portion of the White Level community, and reconnects with existing NC 119 just south of its intersection with SR 1918 (Mrs. White Lane); therefore, access to the White Level community would remain essentially the same with the proposed project transitioning from the proposed four-lane roadway to the existing two-lane roadway in this area. The proposed tie-in near the intersections of SR 1917 (White Level Road), SR 1918 (Mrs. White Lane) and the proposed roadway would displace six single-family residences.

Community Access (Section 4.1.2.3). The travel analyses conducted for both the existing and future travel conditions within the study area indicates that the proposed project would enhance local travel within and among the communities in the study area by reducing traffic congestion along the existing NC 119 roadway and by providing an alternative north-south travel route in the Mebane area. Since through-traffic would be diverted from existing NC 119, accessibility to employment, facilities, and services within the developed community centers is expected to improve for local traffic. While no major cross-street connecting to any of the residential areas would be closed as part of the proposed action, there may individual property access impacts due to relocation of driveways and local roads.

The West End community would benefit from improved accessibility with the Detailed Study Alternatives, including the Preferred Alternative. The proposed access points to the proposed roadway in this community would be located at the intersection of the proposed roadway and the proposed extension of SR 1972 (Smith Drive) and at the intersection of the proposed connector road to the Detailed Study Alternatives, including the Preferred Alternative, from US 70. The proposed overpass of the NCR and US 70 would provide a safer crossing of these facilities and also provide uninterrupted travel across the railroad, thereby possibly improving the response time for emergency services vehicles to some areas of Mebane and the surrounding communities.

Residences located along SR 1951 (Woodlawn Road) in the Woodlawn community currently have access to SR 1921 (Mebane Rogers Road). In response to requests from concerned citizens, the Preferred Alternative was modified to include a realignment of existing SR 1951 (Woodlawn Road)

to tie into proposed NC 119 approximately 520 feet south of where existing SR 1951 (Woodlawn Road) would intersect the proposed roadway. The purpose of this realignment is to maintain continuity of the street system in the Woodlawn community by providing a connection of SR 1951 (Woodlawn Road) to the proposed NC 119 roadway. This realignment provides right-in/right-out access from SR 1951 (Woodlawn Road) onto the proposed NC 119. This proposed realignment would facilitate access for these residences to and from the Woodlawn community.

Mineral Resources (Section 4.2.4). Currently, there are no mines within one mile of the project study area. The mineral resources of the study area are most commonly used as aggregate, which is readily available at other sites throughout the state. It is unlikely that the proposed roadway will limit the development of study area resources for that purpose should they become an economically viable product for the area.

Soils (Section 4.2.4). The five primary soils within the Detailed Study Alternatives, including the Preferred Alternative, have similar properties (see Appendix D). The suitability of these soils as roadfill ranges from fair to poor. This is an indication that the roadbed may need to be undercut, removing several inches of the soil, and replacing it with a more suitable soil. These soils generally have a high risk of corrosion for both uncoated steel and concrete. To prevent corrosion, an epoxy-coated steel may be needed. The shrink/swell potential of these soils ranges from low to moderate for the primary soils in the study area.

Of the remaining soils in the study area, all have low to moderate shrink/swell potential, with the exception of the B Horizon of the Orange soil series, which has a high shrink/swell potential. Each of the Detailed Study Alternatives, including the Preferred Alternative, would impact approximately 8.3 acres of Orange type soils.

The soil types found along the Preferred Alternative within the water supply watershed critical area include Cd, GaB2, GaC, GaC2, GaD2, GaE, GcD, HdB2, ObB2, ObC2, and We. These soils generally have a high risk of corrosion for both uncoated steel and concrete. To prevent corrosion, an epoxy-coated steel may be needed. The shrink/swell potential of these soils ranges from low to moderate, with the exception of the B horizon of the Orange soil series, which has a high shrink/swell potential. Soil types Cd, GcD, HdB2, ObB2, ObC2, and We are considered to be poor for use as either borrow or topsoil material. As stated above, the engineering properties of these soils may require the use of undercut techniques during road construction. However, based on a review of the soil properties, it is not anticipated that the soil types within the water supply watershed critical area would provide unique challenges to the construction of the Preferred Alternative.

Water Quality (Section 4.2.6). Stormwater runoff rates would increase slightly due to the increase in impervious surface area. This is an unavoidable, long-term impact resulting from construction within any of the Detailed Study Alternatives, including the Preferred Alternative. The proposed action also has the potential to temporarily degrade the quality of water in the surrounding streams as a result of soil erosion and sedimentation during construction. Implementation of NCDOT's *Best Management Practices for Protection of Surface Waters* would minimize these impacts.

Protected Species (Section 4.3.5). There are no federally-protected species in the study area.

Indirect and Cumulative Impacts (Section 4.4). Table 4.17 summarizes ICEs associated with the NC 119 Relocation project. There is a high potential for the project to induce land use changes in the southern portion of the study area, which would be primarily industrial and commercial uses, as well as some in-fill of residential uses. This development is consistent with the City's land use and growth management plans for this area. It is expected that vacant land parcels adjacent to the proposed NC 119 Relocation corridor will be fully developed with medium to high density mixed uses such as industrial, commercial, and residential developments, as indicated in the City's land use plans. While the trend towards urbanization is ongoing in the southern portion of the ICE study area, the proposed project would likely accelerate the rate of change in land uses and development.

By contrast, ICEs in the northern portion of the ICE study area are not expected to result in major land use changes and future growth and is generally expected to follow existing development patterns. The majority of the area north of US 70 is located in the water supply watershed critical area (WCA) or Balance of Watershed (BOW) overlay districts and development would be restricted by the state and local regulations that limit densities and types of land uses in the area. Therefore, substantial changes in land use patterns are not anticipated for the northern portion of the study area with or without the proposed project. One exception to this forecast is the planned development of a Neighborhood Activity near the intersection of existing NC 119 and SR 1917 (White Level Road).

4.10 REQUIRED PERMITS AND ACTIONS

Construction of the NC 119 Relocation project would result in several activities requiring environmental regulatory permits from state and federal agencies. A list of these permits, organized by issuing agency, is provided below. The NCDOT would obtain all necessary permits prior to construction.

4.10.1 Permits

United States Army Corps of Engineers

Section 404 Permit. A permit from the USACE is required for any activity in water or wetlands that would discharge dredged or fill materials into Waters of the United States and adjacent wetlands. To obtain permit approval, impacts to wetlands must be mitigated through avoidance, minimization, and compensation measures in accordance with the Memorandum of Agreement between the USEPA and the Department of the Army Concerning the Determination of Mitigation Under the Clean Water Act Section 404(b)(1) Guidelines (February 1990). Additional policy and guidance has been established through *An Interagency Agreement Integrating Section 404/NEPA* (May 1997), which is usually referred to as the Section 404/NEPA Merger Agreement.

Authority. Federal Pollution Control Act Amendments of 1972 and Section 404 of the Clean Water Act of 1977. Regulations promulgated in 33 CFR Part 323.

United States Fish and Wildlife Service

Section 404 Permit Review. The US Fish and Wildlife Service's (USFWS) responsibilities include review of Section 404 permits. The USFWS provides recommendations to the USACE on how impacts to fish and wildlife resources and habitats can be minimized.

Authority. Endangered Species Act of 1973, Section 7 and Fish and Wildlife Coordination Act. Regulations promulgated in 16 U.S.C. 661-667d.

North Carolina Department of Environment and Natural Resources – Division of Water Quality

Section 401 Water Quality Certification. Any activity which may result in discharge to Waters of the United States requires a certification that the discharge will be in compliance with applicable state water quality standards. An application for a USACE Section 404 permit is considered an application for a water quality certification.

Authority. North Carolina General Statute 143, Article 21, Part 1. Regulations promulgated in 15A NCAC 2H and 2B.

National Pollutant Discharge Elimination System (NPDES) Permit. A permit is required for projects involving sewer systems, treatment works, disposal systems, and certain stormwater runoff that could result in a discharge to surface waters. The State has the authority to administer the national NPDES program for projects in North Carolina.

Authority. North Carolina General Statute 143, Article 21, Part 1. Regulations promulgated in 15A NCAC 2H.0100.

North Carolina Department of Environment and Natural Resources – Division of Land Quality

Soil and Erosion Control Plan. Persons conducting land-disturbing activity shall take all reasonable measures to protect all public and private property from damage caused by such activities. Pursuant to GS 112A-57(4) and 113A-54(d)(4), an erosion and sedimentation control plan must be both filed and approved by the agency having jurisdiction.

Authority. North Carolina Administrative Code, Title 15A. Department of Environment and Natural Resources Chapter 4. 15A NCAC 04B .0101

North Carolina Department of Environment and Natural Resources – Division of Air Quality

Burn Permit. Any burning done during the construction of the proposed project will be done in accordance with applicable local laws and ordinances and regulations of the North Carolina SIP for air quality in accordance with 15 NCAC 2D.0520.

Authority. Regulations promulgated in 15 NCAC 2D.0520.

4.10.2 Subsequent Actions

The approval of this FEIS does not complete the project implementation process. The following is a summary of actions, events, and studies to be completed prior to project construction. Coordination with resource agencies will be maintained throughout the entire process. The following studies and actions will be completed to advance the project through the Section 404/NEPA Merger process.

- Once right-of-way plans are complete, final investigations for hazardous materials/waste sites would be conducted according to those plans.
- The preliminary designs will be refined and will include efforts to further minimize environmental impacts, specifically to streams and wetlands
- The *Documentation of Section 106 Finding of Adverse Effect* has been forwarded by FHWA to the Advisory Council on Historic Preservation (ACHP). In addition, a Memorandum of Agreement (MOA) between the SHPO, ACHP, and FHWA/NC DOT is being prepared in accordance with CFR Section 800.6(a)(1), which includes a description and evaluation of any proposed mitigation measures.

The FEIS was prepared based on efforts to further minimize environmental impacts. The ROD will be prepared based on the results of the items listed above, as well. The FEIS will be circulated for public and agency review. In addition, agency concurrence with the FEIS will be pursued according to the Section 404/NEPA Merger process. After approval of the FEIS and Record of Decision (ROD), a Design Public Hearing will be held to receive public comments on the preliminary design for the Preferred Alternative. A newsletter announcement of the Design Public Hearing and all other subsequent newsletters associated with the project will be published.

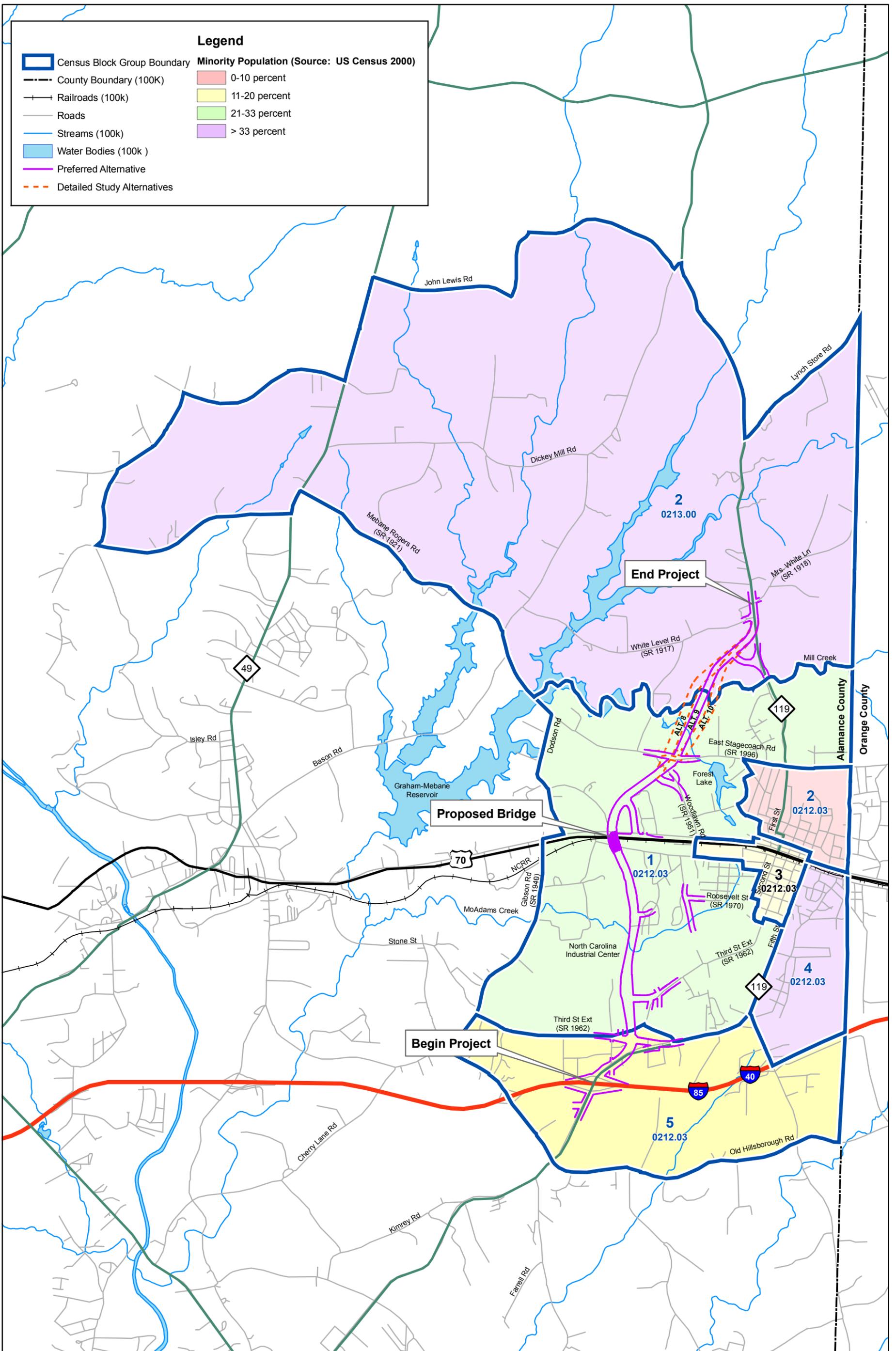
The final roadway design plans will be prepared, taking into consideration all public and agency comments received on the preliminary designs and FEIS. The following studies will be conducted as a part of the final design process.

- Drainage and hydrological studies will be conducted to identify and design major drainage structures, evaluate groundwater resources to ensure that measures are taken to prevent groundwater contamination, and design hazardous spill protection measures at stream crossings within ½ mile of the water supply watershed critical area of the Graham-Mebane Reservoir during final design of the Preferred Alternative.
- A spanning (three-sided) bottomless culvert will be investigated at major stream crossing Site 2 (Unnamed Tributary to Mill Creek [UT14]) if the site conditions permit it; additionally, natural channel design techniques will be investigated and pursued in the area of the culvert for stabilization purposes.
- Traffic control plans will be developed to facilitate access during the construction phase.
- Surveys for wells within and adjacent to the proposed right-of-way limits will be conducted.
- Geotechnical investigations will be conducted to recommend techniques and materials to overcome any soil limitations along the selected alternative.
- Required permits pertaining to foundation test borings will be obtained prior to beginning the construction phase of the project.

- Project right-of-way limits will be finalized.
- Service road studies will be conducted to determine if access can be provided to residences and businesses whose access will be precluded due to the construction of the selected alternative.

Other actions which must be completed prior to the start of project construction include, but are not limited to, the following:

- Preparation of an erosion control plan incorporating the NCDOT *Best Management Practices for Protection of Surface Waters*.
- Coordination with municipalities and utilities for relocation and reconfiguration of utility systems.
- Identification of horizontal and vertical geodetic control monuments within the proposed right-of-way and notification to the National Geodetic Survey at least 90 days prior to construction regarding the relocation of any monuments.
- Implementation of the Relocation Assistance Program.
- Approval of all required permits, including a State Stormwater Permit, and certifications as outlined in Section 4.10.1.



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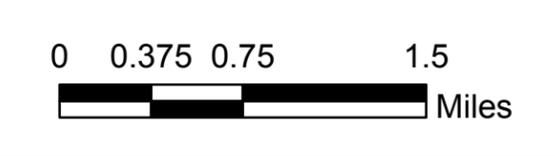
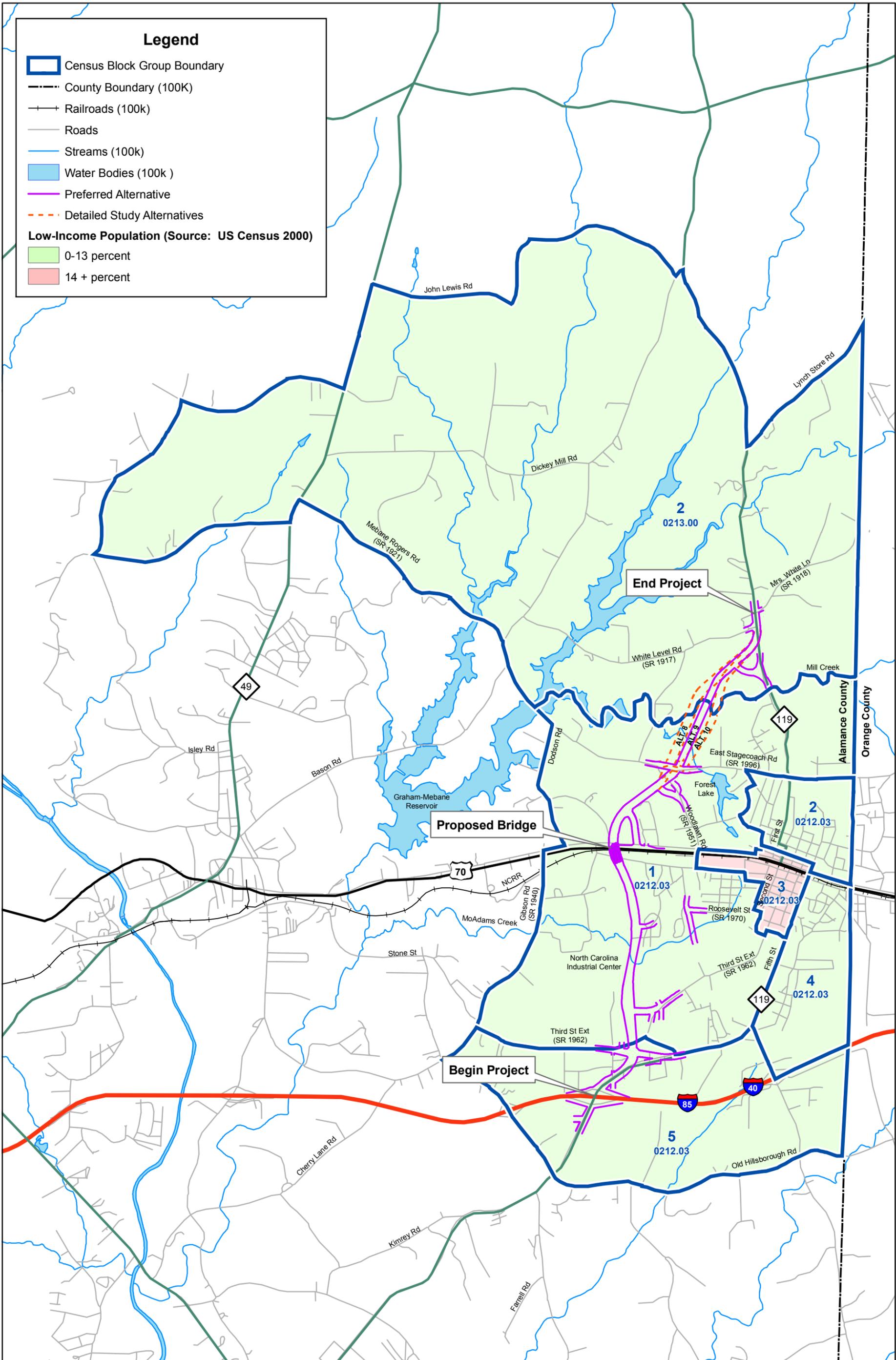


Figure 4.1
 Minority Population
 of Census Block Groups
 in Demographic Study Area



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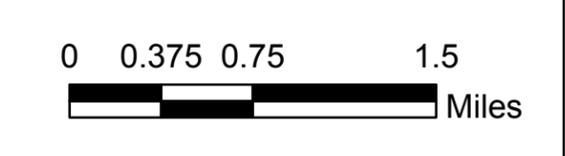
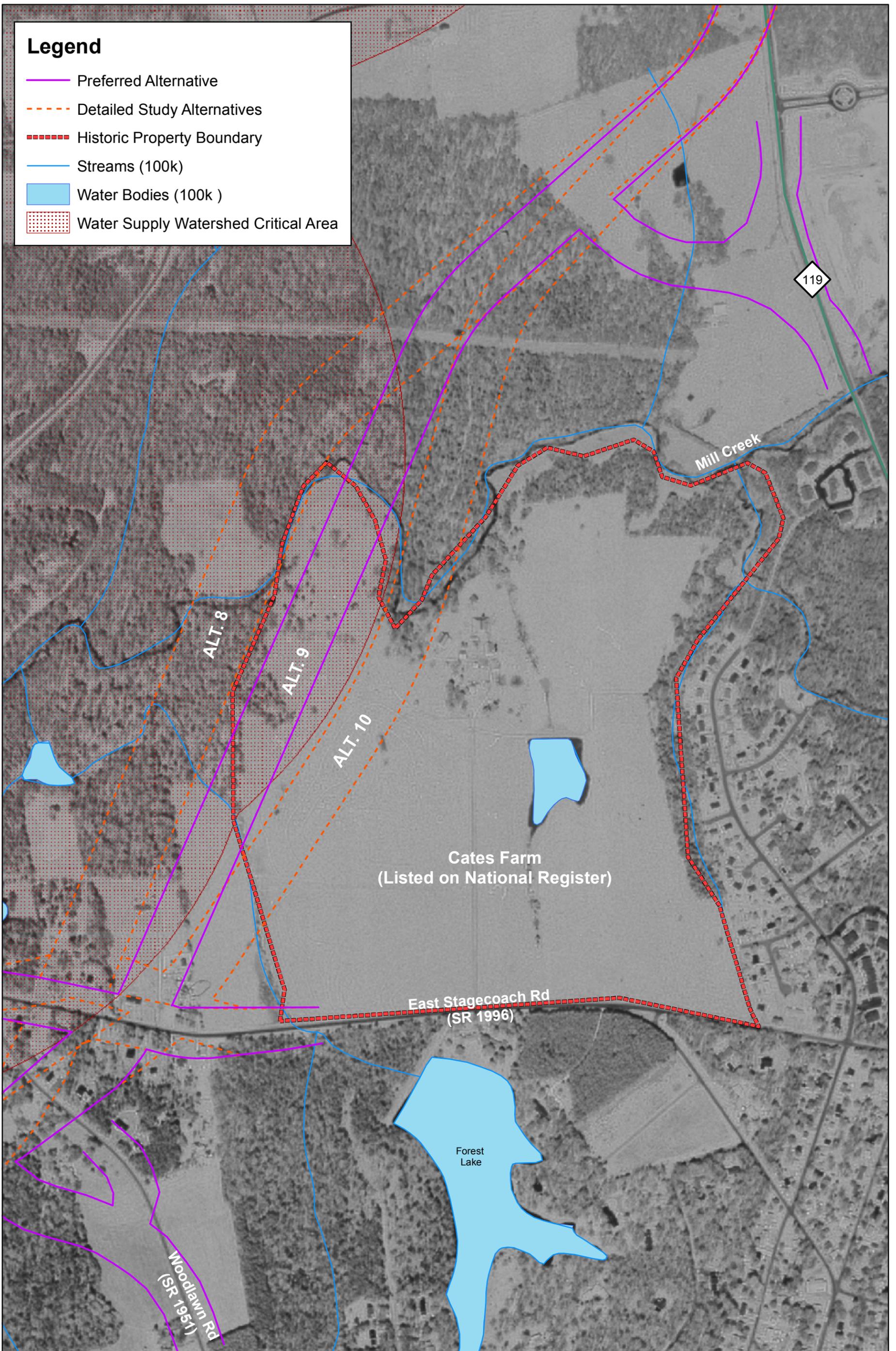


Figure 4.2
 Income Level of
 Census Block Groups
 in Demographic Study Area

Legend

- Preferred Alternative
- - - Detailed Study Alternatives
- - - Historic Property Boundary
- Streams (100k)
- Water Bodies (100k)
- Water Supply Watershed Critical Area



Cates Farm
(Listed on National Register)

East Stagecoach Rd
(SR 1996)

Woodlawn Rd
(SR 1951)

Mill Creek

Forest Lake

119

ALT. 8

ALT. 9

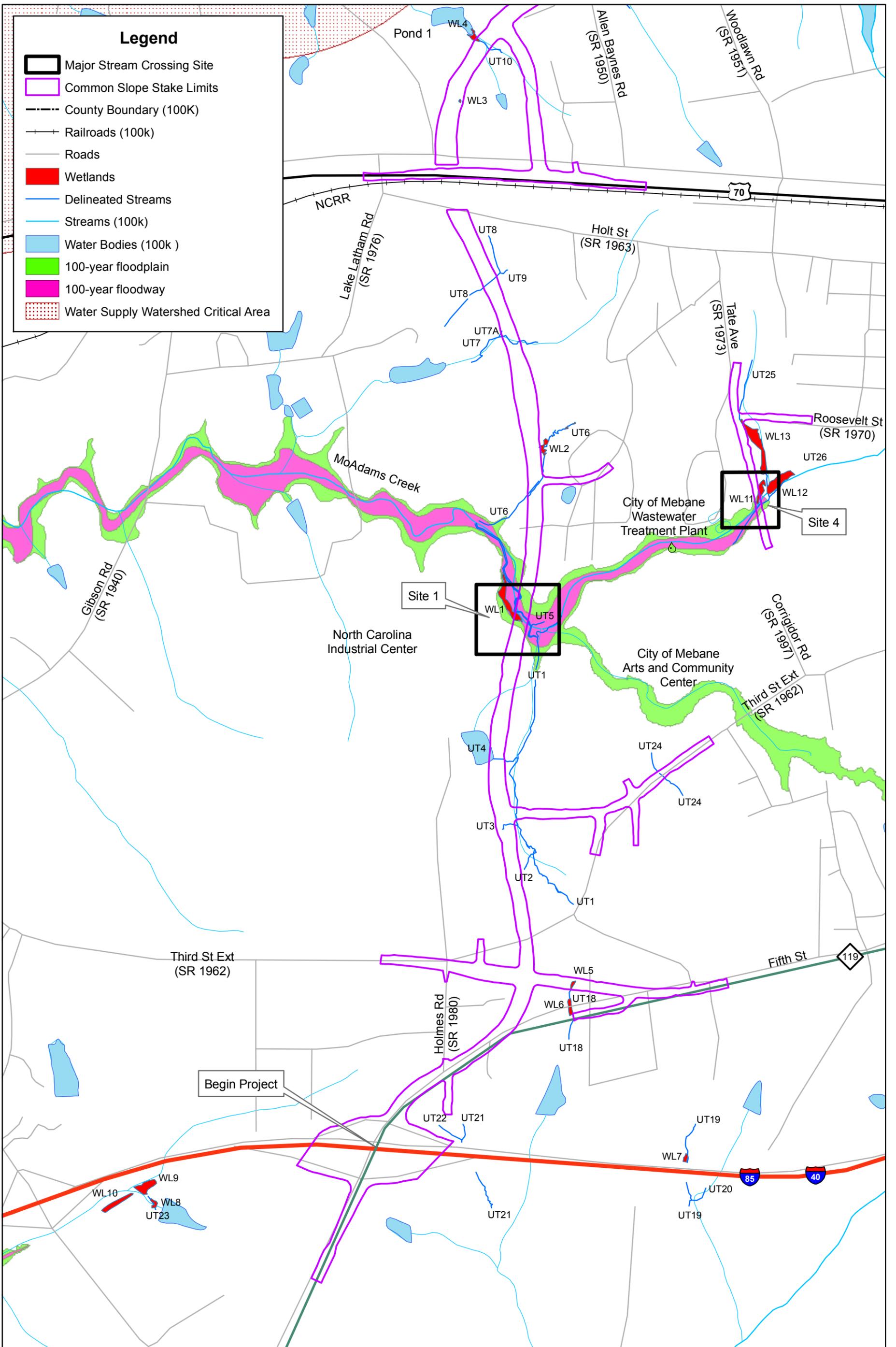
ALT. 10



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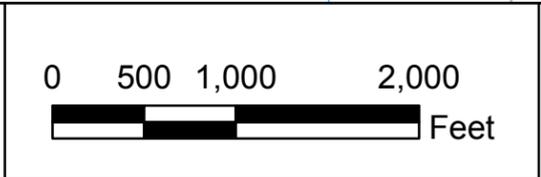


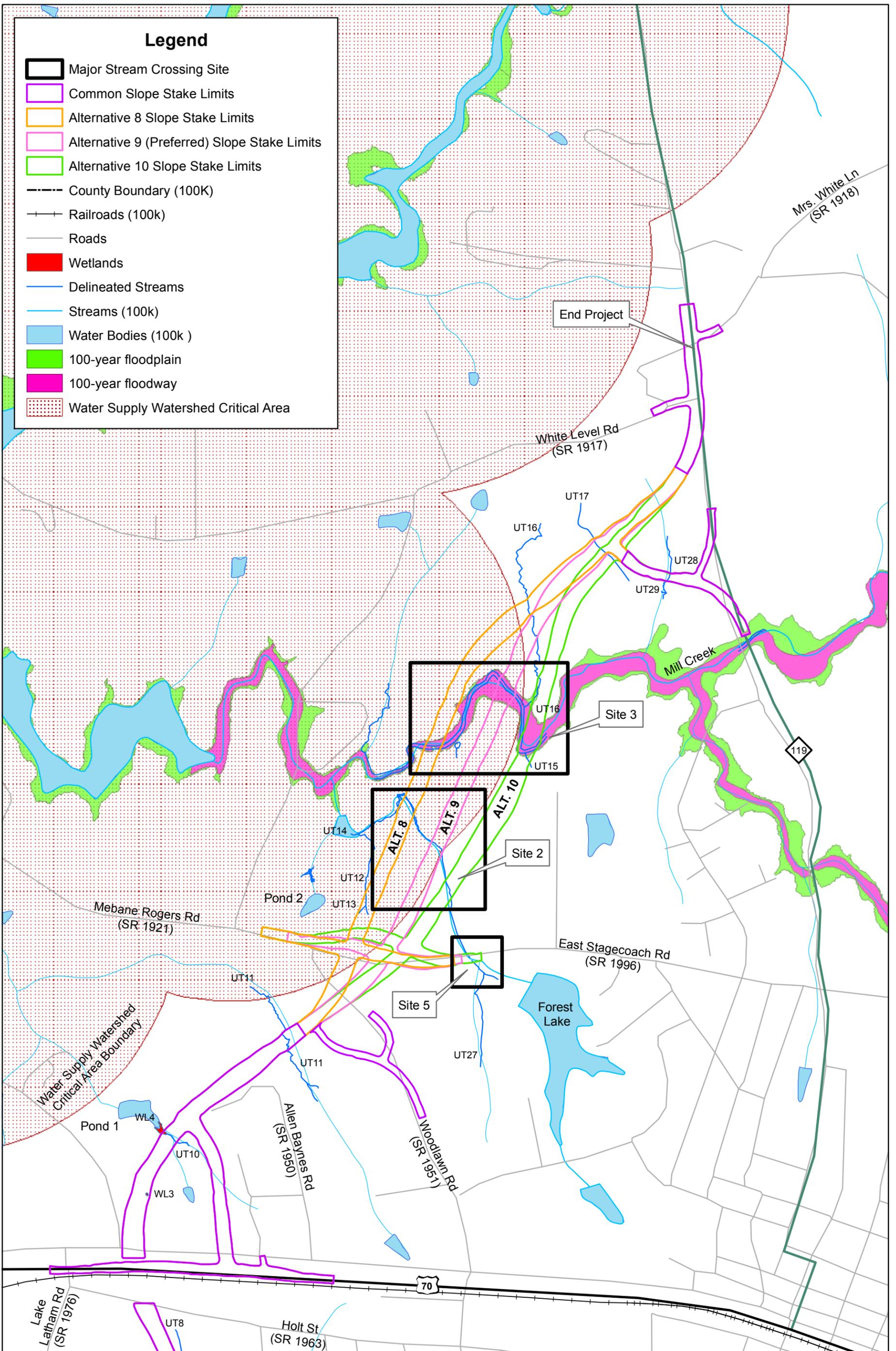
Figure 4.3
Detailed Study Alternatives
in the Cates Farm Area



Legend

- Major Stream Crossing Site
- Common Slope Stake Limits
- County Boundary (100K)
- Railroads (100k)
- Roads
- Wetlands
- Delineated Streams
- Streams (100k)
- Water Bodies (100k)
- 100-year floodplain
- 100-year floodway
- Water Supply Watershed Critical Area

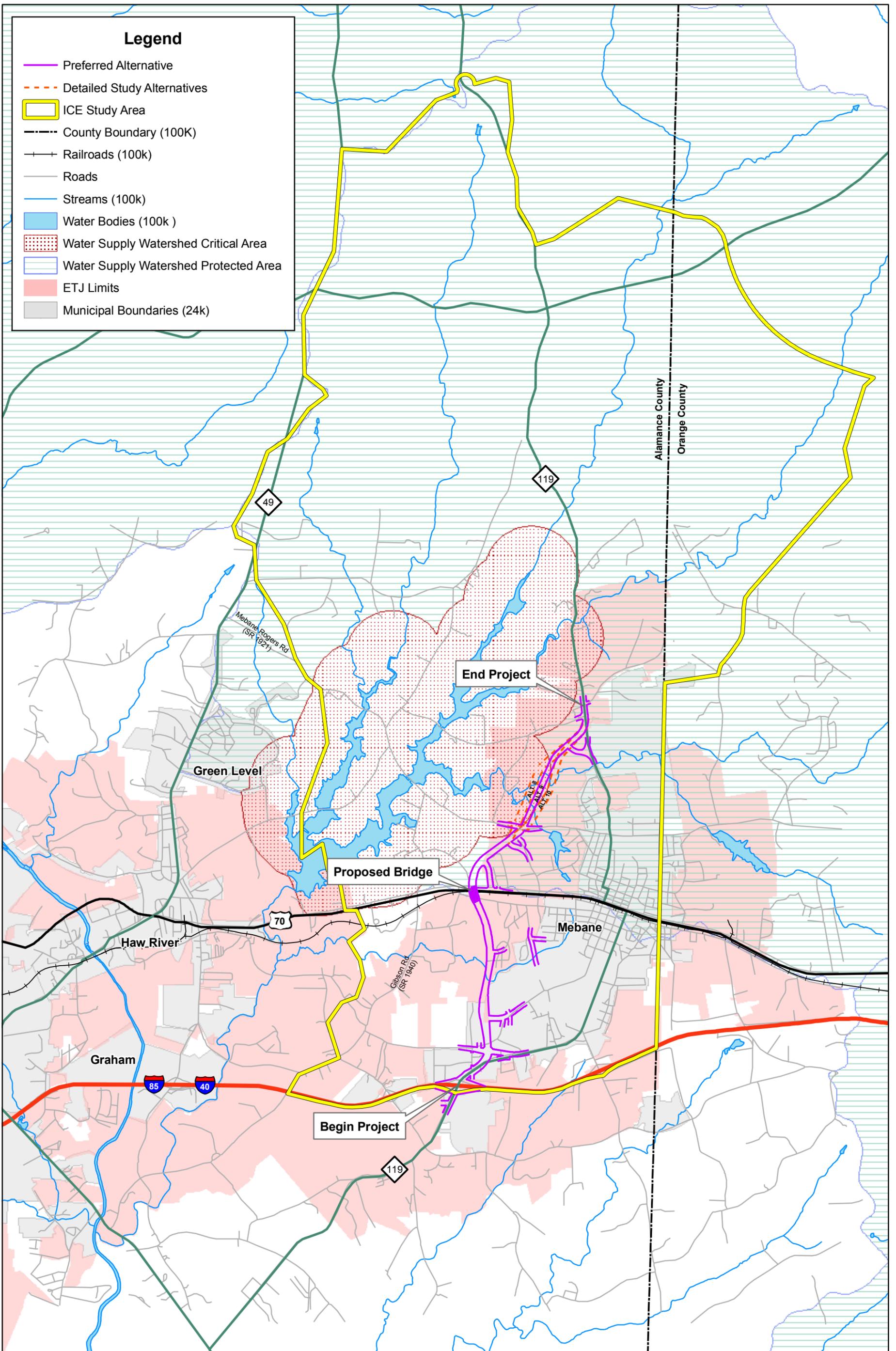




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Figure 4.4
Water Resource
Impacts
 Sheet 2 of 2



Legend

- Preferred Alternative
- - - Detailed Study Alternatives
- ICE Study Area
- County Boundary (100K)
- + + Railroads (100k)
- Roads
- Streams (100k)
- Water Bodies (100k)
- Water Supply Watershed Critical Area
- Water Supply Watershed Protected Area
- ETJ Limits
- Municipal Boundaries (24k)


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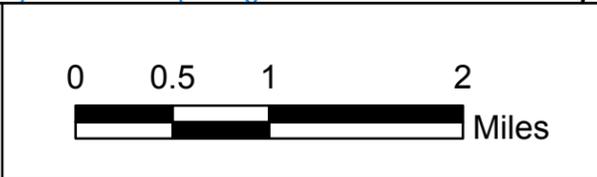


Figure 4.5
ICE Study Area

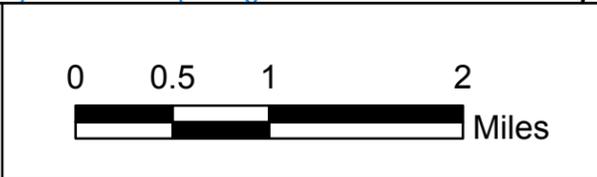
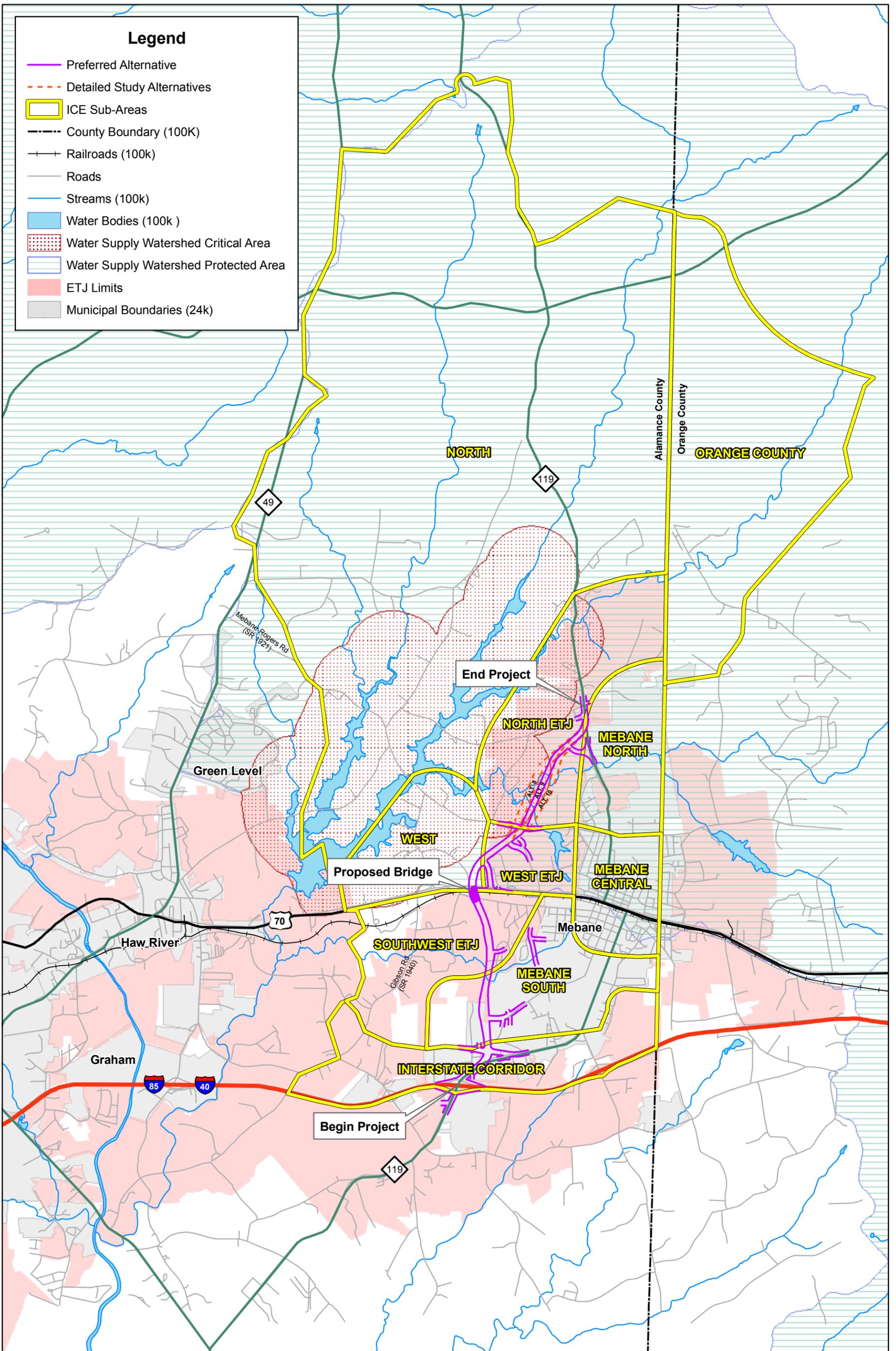


Figure 4.6
ICE Sub-Areas

CHAPTER 5

This section discusses the resources in the vicinity of the proposed project that are subject to Section 4(f) of the Department of Transportation Act of 1966. Any impacts to this resource are described, along with measures to minimize harm.

5.1 SECTION 4(f)

Section 4(f) of the Department of Transportation Act of 1966, as amended (23 CFR 774), protects publicly owned parks, recreational areas, and wildlife/waterfowl refuges, as well as historic sites listed or eligible for listing in the National Register of Historic Places (NRHP). These lands can only be used for a federally-funded transportation project if there is no other feasible and prudent alternative, and the project incorporates all possible planning to minimize harm.

If the use of a Section 4(f) resource would occur due to a proposed action, a Section 4(f) Evaluation must be prepared. The Section 4(f) Evaluation determines whether there is no feasible and prudent alternative to the use of land from a Section 4(f) resource and whether the proposed action includes all possible planning to minimize harm to the resource resulting from its use.

5.1.1 Description of the Proposed Action

Since planning studies were initiated for the proposed relocation of NC 119 in 1994, a total of 10 preliminary build alternatives have been developed. FHWA and NCDOT have worked to avoid impacts to Section 4(f) resources in the development of all alternatives. Three build alternatives were ultimately carried forward for detailed analysis and are described in Chapter 2. The Preferred Alternative, illustrated in Figure 2.5, begins at the existing NC 119/I-85/40 interchange and runs to just north of US 70, west of the Craftique Furniture Company. From this point north, it passes through both the water supply watershed critical area (WCA) of the Graham-Mebane Reservoir and the historic property boundary of the Cates Farm, and ties into existing NC 119 near SR 1918 (Mrs. White Lane).

Discussions regarding preliminary alternatives were part of the Merger 01 process, which works to streamline the project development and permitting processes. The process was formally agreed to through a Memorandum of Agreement by the USACE, NCDENR, FHWA, and NCDOT and supported by other stakeholder agencies and local units of government. To this effect, the Merger 01 process provides a forum for appropriate agency representatives to discuss and reach consensus on ways to facilitate meeting the regulatory requirements of Section 404 of the Clean Water Act during the NEPA/SEPA decision-making phase of transportation projects as part of the Merger Team. More details about the Merger 01 process are included in Section 2.5.3.

The Merger Team went through an iterative process that considered:

- Minimization of environmental justice concerns associated with impacts to the West End community;
- Avoidance/minimization of crossings of the WCA of the Graham-Mebane Reservoir; and

- Avoidance of Section 4(f) resources.

The West End community is a historically Black/African American neighborhood that has served as a residential, social, cultural, and religious center for several generations. The community of approximately 900 residents developed over 100 years ago. West End is located adjacent to a Craftique Furniture manufacturing plant and its associated eight-acre industrial waste disposal site. Immediately to the south of West End is the Mebane wastewater treatment plant, which serves only a portion of the community, and the Mebane Arts and Community Center. Direct access to the Mebane Arts and Community Center from West End is blocked by a gate across SR 1973 (Tate Avenue), one of the residential collectors within the community. West End residents have expressed concerns about the potential impact of the proposed relocation of NC 119 on their community since the early 1990s. Specific requests by members of the community included moving the roadway alignment to the west of West End to avoid dividing the community, installation of sewer and water amenities, improved accessibility to the larger Mebane area (e.g., removal of dead end streets and paving of unpaved streets), and annexation of the West End community by the City of Mebane. The NCDOT has worked to address these concerns throughout the public involvement process for this project. Sections 1.5.2 and 8.2 detail the history of this effort.

The Graham-Mebane Reservoir supplies water to the communities of Mebane, Graham, Green Level, and Haw River. It is the only drinking water supply for the City of Mebane and its extra-territorial jurisdiction. The Orange-Alamance Water System, which serves the Efland area, also has an interconnection agreement with the Graham-Mebane system to allow additional purchase of drinking water. The reservoir and its watershed are classified by NCDWQ as Water Supply II (WS II) Nutrient Sensitive Waters (NSW). WS-II waters are protected as water supplies that are generally in predominantly undeveloped watersheds. Only general permits for discharges are allowed. The NSW supplemental classification is intended for waters needing additional nutrient management due to excessive growth of microscopic or macroscopic vegetation.

North Carolina water supply watershed protection rules serve to protect surface waters from nonpoint pollution sources, specifically stormwater runoff. The rules have been in effect since 1992 and require all local governments having land use jurisdiction within surface water supply watersheds to adopt and implement water supply watershed protection ordinances, maps, and a management plan. The regulations require additional protection within the WCA, which is defined as land within one-half mile upstream and draining to a river intake or within one-half mile and draining to the normal pool elevation of water supply reservoirs (as in the case of the Graham-Mebane Reservoir). The regulations also state that, “[t]o the extent practicable, construction of new roads in the critical area shall be avoided” (15 NCAC 02B. 0104).

5.1.2 Description of Section 4(f) Resources

As described in Section 3.1.5, four properties (Cates Farm, Dr. W.N. Tate Farm, Cook’s Mill, and House “K”) within the Area of Potential Effects (APE) were determined to be eligible for listing or are listed in the NRHP. The study area contains a few publicly-owned recreational lands, but none of these lands are within the Detailed Study Alternatives boundaries.

The Cates Farm is listed on the NRHP under Criterion A (Agriculture) for the importance of its dairy operation within the agricultural context of Alamance County, as developed for the property's period of significance (1905-1947), and under Criterion B for its association with Charles F. Cates, founder of the Cates Pickle Manufacturing Company and a leader in business, civic, and agricultural affairs. Charles F. Cates was one of the most influential farmers in Alamance County from 1905, the year Cates purchased the farm, until his death in 1947. The Cates Pickle Manufacturing Company, one of the most important businesses of its type, operated at the farm until 1929, when it relocated to Faison, NC. The Cates Farm gradually transitioned to dairy farming in the late 1920s. As an activity or industry, small-scale, family owned and operated dairies played an important role in the agricultural development of Alamance County in the first half of the twentieth century. Thus, the Cates Farm directly contributed to the area's economy and productivity. The Greek Revival house was originally constructed in 1801, with enlargements and remodelings occurring in the 1850s, 1947, and 1957. The house has lost much of its integrity of design and materials. The original front porch was removed, a bedroom wing, kitchen, and attached garage were added, many of the original windows were replaced, and the house is cased in aluminum siding. A number of alterations to the interior have been made, as well. However, the property retains its integrity of location, design, and setting through the survival of its dairy outbuildings, open pasture, and rural setting. Outbuildings associated with the dairy operation date back to 1910; outbuildings associated with pickle manufacturing date back to ca. 1900. Approximately 100 acres of the 278-acre tract are listed on the NRHP.

The Dr. W.N. Tate Farm is eligible for the NRHP under Criterion A (Event) for its significance in agriculture, including the thematic role it played in the late nineteenth and early twentieth centuries and for its contributions to the area's economy and productivity. The farm retains its integrity of location, design, and setting through the survival of its outbuildings, open pasture, and its rural setting and feeling. The farm is also eligible for the NRHP under Criterion C (Design / Construction) for its significance in architecture. The Tate Farmhouse, originally built between 1880 and 1885, embodies the characteristics of the Eastlake style with its detailed bargeboards, spindlework porch frieze, and scrolled bracket window. Approximately 40 acres of the farm were determined to be eligible for the NRHP.

Cook's Mill is eligible for listing on the NRHP under Criterion A (Event) for its significance in local industry. Cook's Mill consists of a ca. 1890s frame mill structure with several additions, all resting on fieldstone and concrete block foundations; a mill race measuring approximately 950 feet; and a broken fieldstone dam that once spanned Mill Creek. These elements encompass an area of approximately 3.5 acres. Cook's Mill, as well as previous mills that were located at this site, played an important role in the economy of the area by providing a market for locally grown wheat and corn. It is also eligible under Criterion C (Design / Construction) because it embodies the distinctive characteristics of mill construction.

House "K," located at 1945 NC 119 North on the west side of NC 119, is a one-and-one-half-story log house set in a clearing of approximately three acres. It is eligible for listing on the NRHP under Criterion C (Design / Construction) for its significance in architecture. The house retains its integrity of design, workmanship, and materials and embodies the distinctive characteristics of log construction. With its heavy log construction and large stone chimney that was once so common in

Alamance County, the house retains enough of the physical features or traits of log construction to be considered a good representative of the method.

5.1.3 Section 4(f) Property Impacts

Of the four properties determined to be eligible for listing or listed on the NRHP, only the Cates Farm is anticipated to be affected by the proposed project.

The proposed project will have no effect on the Dr. W.N. Tate Farm, Cook's Mill, or House "K" and will not require the acquisition of any right-of-way from these properties. Moreover, House "K" will not be affected because it lies approximately 0.75 miles north of the project terminus. Because of the rolling topography and wooded areas along the project alignment, the Dr. W.N. Tate Farmhouse and Cook's Mill will be effectively screened from the project.

The Preferred Alternative of the proposed project would require the acquisition of right-of-way from the Cates Farm (Figure 4.3). Approximately 12.6 acres of land would be purchased from the approximately 100 acres listed on the NRHP. An additional 4.6 acres of the farm would be isolated from the remaining historic property. The Preferred Alternative was developed to minimize the land taken and separated from the Cates Farm while also minimizing the crossing of the critical area of the Graham-Mebane Reservoir water supply watershed.

For the Preferred Alternative, the proposed roadway is anticipated to be visible and audible from the farmhouse. However, it would lie on the far western side of the historic property and would not require the removal of any structures associated with the Cates Farm. The HPO determined that the Preferred Alternative would have an "adverse effect" on the property in their concurrence form dated June 6, 2002, which is included in Appendix B. The concurrence form, dated August 21, 2007, confirms the HPO's previous findings and is included in Appendix B.

5.1.4 Avoidance Alternative

In developing an avoidance alternative to avoid impacts to the Cates Farm, it was determined that to connect US 70 with existing NC 119 north of the project, the alignment would have to cross the WCA of the Graham-Mebane Reservoir. The Avoidance Alternative (Alternative 8) is shown in Figure 4.3 and described below.

The Avoidance Alternative begins at the existing NC 119/I-85/40 interchange and continues north on existing alignment for a distance of approximately 0.36 miles. From this point northward, the alternative proceeds on new alignment, passing to the west of the West End community and crossing US 70 just west of the Craftique Furniture Company. From there it continues on new location west and north of the historic property boundary of the Cates Farm and continues through the WCA of the Graham-Mebane Reservoir. The alignment ties into existing NC 119 near SR 1918 (Mrs. White Lane).

This alternative does not require the acquisition of right-of-way from the Cates Farm, Cook's Mill, the Dr. W.N. Tate Farm, or House "K." Because of the rolling topography and wooded areas along the project alignment, Cates Farm would be effectively screened from the project under this alternative. The HPO concurred that the Avoidance Alternative would have "no effect" on the

property in their concurrence form dated June 6, 2002, which is included in Appendix B. The concurrence form, dated August 21, 2007, confirms the HPO's previous findings and is included in Appendix B.

This alternative would impact the WCA of the Graham-Mebane Reservoir as shown in Figure 5.1. Approximately 1.0 mile of this alternative lies within the boundaries of the WCA of the Graham-Mebane Reservoir. In comparison, 0.7 miles of the Preferred Alternative lies within the WCA of the Graham-Mebane Reservoir. The cost differential between the Preferred Alternative and Avoidance Alternative is negligible. The total costs of the Preferred Alternative and the Avoidance Alternative are shown in Table 5.2.

The majority of right-of-way to be acquired for the proposed project is currently undeveloped land within the low density residential areas west of the City of Mebane. However, construction of the proposed project would require acquisition of residential, commercial, and other privately-owned properties throughout the corridor. There is little difference in the number of displacements resulting from either the Avoidance Alternative or the Preferred Alternative. Both the Preferred Alternative and the Avoidance Alternative would relocate five businesses and one church. The Avoidance Alternative would relocate 44 residences, while the Preferred Alternative would relocate 46 residences. Based on the preliminary engineering designs, the majority of business and commercial right-of-way acquisitions would be located in the southern portion of the proposed corridor. Potential displacements and relocations are located primarily within the areas north of the NC 119 and I-85/40 interchange and in the vicinities of the SR 1962 (Third Street Extension) and Fifth Street (NC 119) realignments, US 70, SR 1921 (Mebane Rogers Road), SR 1951 (Woodlawn Road), and SR 1917 (White Level Road).

5.1.5 Planning Measures to Minimize Harm

Alternatives Eliminated to Minimize Harm to the Human Environment

Several alignments that potentially avoided the Cates Farm were studied early in the project planning process. Preliminary Corridor Alternatives 1, 2, and 6 were excluded as potential avoidance alternatives for the Cates Farm because they would impact other Section 4(f) resources. Preliminary Corridor Alternatives 3, 4, and 5 were determined to require land from within the listed NRHP boundary of the Cates Farm and, therefore, were also excluded as potential avoidance alternatives. Alternative 7 would not require land from Cates Farm, but would divide and have a severe disproportionate impact on the West End community; therefore, it was determined not to be "feasible and prudent" under 23 CFR 774.17. (Alternatives 4 and 5 also had similar impacts to the West End community.)

The alternatives through West End raised environmental justice concerns among local citizens due to the potential community disruption. In 1999, the West End Revitalization Association (WERA) filed a complaint with the US Department of Justice under Title VI of the 1964 Civil Rights Act and Executive Order 12898: Environmental Justice against the City of Mebane, area transportation groups, and the NCDOT. The WERA claimed that these agencies had discriminated against the West End community regarding the NC 119 bypass, the lack of basic amenities (water, sewer, paved streets), the "redlining" of Black/African American communities from the right to vote, housing and

economic discrimination, and physical barriers of discrimination. In response to these concerns, the NCDOT undertook several initiatives to respond to requests made by WERA and to further dialogue with citizens in the West End Community regarding the proposed relocation of NC 119 (Section 1.5.2).

As mentioned above, Alternatives 1 through 7 were eliminated from further consideration based on various impacts related to each alternative. During the elimination of Alternatives 1 through 7, Alternative 8 was recommended for study by the Merger Team. Based on input from the communities in the project study area, the NCDOT identified two new alternatives, Alternative 9 (the Preferred Alternative) and Alternative 10, which were both variations of Alternative 8. These three alternatives were evaluated in the draft environmental impact statement. More information on the history of the project alternatives is contained in Section 2.5.3. Table 5.1 describes the seven preliminary build alternatives and explains why they were eliminated from further study. These alternatives are also shown in Figure 2.2.

**Table 5.1
Preliminary Corridors Eliminated**

Alternative	Description	Reason Eliminated
1	Begins at the existing NC 119/I-85/40 interchange and crosses US 70 just west of Craftique Furniture Company; roughly follows SR 1920 (Cooks Mill Road); and ties back into existing NC 119 approximately 0.4 miles north of SR 2005 (Landi Lane).	Eliminated because of impacts to the WCA of the Graham-Mebane Reservoir and Section 4(f) resources.
2	Begins at the existing NC 119/I-85/40 interchange and crosses US 70 just west of Craftique Furniture Company; crosses SR 1917 (White Level Road) near SR 1920 (Cooks Mill Road); and ties back into existing NC 119 approximately 0.4 miles north of SR 2005 (Landi Lane).	Eliminated because alternative is located almost entirely within the WCA of the Graham-Mebane Reservoir and because it would impact Section 4(f) resources.
3	Begins at the existing NC 119/I-85/40 interchange and crosses US 70 just west of Craftique Furniture Company; passes through the northwestern corner of the Cates Farm property; and ties into existing NC 119 at SR 1917 (White Level Road).	Eliminated because it would require property from the Cates Farm and because of similarity to other alternatives that minimized impacts to the WCA of the Graham-Mebane Reservoir.
4	Begins at the existing NC 119/I-85/40 interchange and crosses US 70 at SR 1950 (Allen Baynes Road); passes through the northwestern corner of the Cates Farm property; and ties into existing NC 119 at SR 1917 (White Level Road).	Eliminated because of impacts to the West End community, because it would require property from the Cates Farm, and because it passes through the WCA of the Graham-Mebane Reservoir.
5	Begins at the existing NC 119/I-85/40 interchange and crosses US 70 at SR 1950 (Allen Baynes Road); passes through the western and northern sides of the Cates Farm property; and ties into existing NC 119 at SR 1917 (White Level Road).	Eliminated because of impacts to the West End community, because it would require property from the Cates Farm, and because it passes through the WCA of the Graham-Mebane Reservoir.
6	Begins at the existing NC 119/I-85/40 interchange and crosses US 70 at SR 1950 (Allen Baynes Road); crosses	Eliminated because of impacts to the West End community and because it

Alternative	Description	Reason Eliminated
	SR 1917 (White Level Road) near SR 1920 (Cooks Mill Road); and ties into existing NC 119 approximately 0.4 miles north of SR 2005 (Landi Lane).	would impact Section 4(f) resources.
7	Begins at the existing NC 119/I-85/40 interchange and crosses US 70 approximately 1,150 feet east of SR 1951 (Woodlawn Road); and ties into existing NC 119 approximately 0.8 miles south of SR 1917 (White Level Road).	Eliminated because of impacts to the West End community that resulted in a high number of relocations (107 residences and 11 businesses).

In addition to the seven preliminary build alternatives, the NCDOT also investigated possible alternatives on the east side of Mebane. The NCDOT reviewed the purpose of the project, as well as land use trends, connectivity, local government support, environmental impacts, and design considerations as they pertained to both the east and west side alternatives. As discussed in Chapter 1, reducing traffic congestion in downtown Mebane is a purpose of the proposed project. An east side alternative was found to reduce traffic volume through the central business district of Mebane by 22 percent, compared to the No-Build Alternative. The reduction in traffic volume through the central business district of Mebane with a west side alternative compared to the No-Build Alternative is 67 percent. Compared to the west side alternatives, the east side alternative would reduce traffic in downtown Mebane to such a low degree that it was eliminated from further consideration. The east side alternative is not an operationally effective or a cost-effective measure of reducing the traffic congestion in downtown Mebane by comparison to the west side alternatives. Therefore, an east side alternative was determined not to be “feasible and prudent” because it did not satisfy the purpose and need for the project.

Minimization Measures for Cates Farm Property

The NCDOT met on January 19, 2006, to discuss the impacts of the Preferred Alternative on the Cates Farm. The following were identified as measures to minimize impacts to the Cates Farm:

- Minimize cross-section – reduce the proposed roadway median through the Cates Farm as long as a design exception is not required.
- Coordinate any proposed bridge or other structure with HPO – to address aesthetic concerns.
- Develop a landscape plan – plant species that screen the Cates Farm from the roadway and consider aesthetic concerns.
- Minimize impacts to continuing agricultural practices – e.g., minimize land area taken out of agricultural use, replace fencing to maintain grazing areas.
- Replace fencing destroyed by the project.

Other potential minimization measures for the project will be determined during the final design stage based on coordination with the FHWA, HPO, and representatives of the Cates Farm.

5.1.6 Coordination

Since 1995, the NCDOT has coordinated with FHWA, HPO, and/or the executor of the Cates Farm estate regarding possible impacts to the Cates Farm. The following is a summary of meetings, discussions, and other correspondence related to the project.

- April 1995 – NCDOT prepared an Historic Architectural Resources Survey Report Phase II
- June 1995 – NCDOT prepared an Addendum to An Historic Architectural Resources Survey Report Phase II to evaluate the Cates Farm for National Register eligibility under Criterion A
- August 1996 – NCDOT prepared additional Addendum to An Historic Architectural Resources Survey Report Phase II, which considered three new study areas for the project
- November 1998 – NCDOT met with HPO and the Cates Farm Executor to discuss preservation and development of Cates Farm
- March 1999 – NCDOT met with HPO, the Cates Farm Executor, and FHWA to discuss proposed development of a portion of the farm
- February 2000 – NCDOT spoke with the Cates Farm Executor to discuss the development of the northern part of Cates Farm
- March 2000 – NCDOT met with the Cates Farm Executor and FHWA to review study report on Cates Farm prepared by executor and discuss steps to have part of Cates Farm nominated for inclusion on the National Register
- April 2000 – NCDOT met with the Cates Farm Executor, the John Kavanagh Company, and Remax Realty to review plans for the northern part of the Cates Farm
- March 2006 – Two separate meetings were held to discuss plans for the development of the Cates Farm Property: 1) NCDOT met with the City of Mebane and Remax Realty, and 2) NCDOT met with the City of Mebane, Remax Realty, and 1st American
- August 2006 – NCDOT met with 1st American to review updated plans for the development of the Cates Farm property
- 2007 – NCDOT re-evaluated and confirmed HPO’s previous historic architectural findings
- August 2007 – NCDOT met with the Cates Farm Executor and Remax Realty to discuss the project status and development of a portion of the Cates Farm
- June 2008 – HPO concurred with the selection of Alternative 9 as the Least Environmentally Damaging Practicable Alternative (LEDPA) for the proposed relocation of NC 119 based on the discussion by the Merger Team
- May 2009 – NCDOT met with FHWA, HPO, Cates Farm Executor, and the Marsha A. Ritchie Trust representative to initiate development of mitigation measures for the Cates Farm.

During the March 1999 meeting, the Cates Farm Executor noted that the Cates Farm heirs would rather the proposed road did not cross the Cates property; however, they did not oppose it. He requested that the new roadway be designed to follow the existing terrain and include curves to possibly slow down traffic.

Development of a portion of Cates Farm was discussed during early meetings with the Cates Farm Executor, as well as meetings with Remax Realty and 1st American. Initially, the owner’s development concept involved developing the back (northern) part of the property while maintaining

the buildings and front of the property. The Cates Farm Executor stated that the property would be developed regardless of the NC 119 Relocation project. During the meetings with Remax Realty and 1st American, the NCDOT learned that in addition to developing the northern part of the Cates Farm, there are also plans to develop the western and southern part of the property, while still maintaining the buildings and a small northeast portion of the property.

At a Steering Committee Meeting held in March 2006, the NCDOT received a comment regarding the Cates Farm from a committee member. Specifically, the committee member indicated that they did not want to see the site impacted or bisected as a result of this project.

5.1.7 Basis for Finding of No Feasible and Prudent Avoidance Alternative

The Avoidance Alternative was evaluated to determine whether it is a “feasible and prudent avoidance alternative” to the use of land from the Cates Farm and “does not cause other severe problems of a magnitude that substantially outweighs the importance of protecting” the Cates Farm (23 CFR 774.17). The question of prudence of the alternative relates to the potential impact of constructing the project within the WCA of the Graham-Mebane Reservoir. North Carolina regulations limiting development within WCAs are intended to protect the public health by reducing the extent of water treatment needed for drinking water. Highway runoff may contain higher concentrations of metals such as lead, zinc, iron, chromium, cadmium, nickel, and copper, which result from the ordinary wear of brakes, tires, and other vehicle parts. In addition, de-icing can leave residues of salt on the highway surface. Best management practices (BMPs), such as detention ponds, vegetated filter strips, and swales, can be used to minimize the adverse effects of highway runoff; however, the effectiveness of BMPs varies by several factors, including type of BMP, climate, soil type, and other environmental variables.

The potential impacts of the project on the WCA were evaluated by the Merger Team in June 2008. The NCDWQ representatives expressed an unwillingness to provide the Clean Water Act Section 401 Certification necessary to permit the Avoidance Alternative. They reiterated the direction under state water supply regulations, which are based on the federal Safe Drinking Water Act, to avoid construction of new roads within the WCA “to the extent practicable.” The minutes of the Merger Meeting are included in Appendix G – Part 4.

The NCDWQ representatives expressed a preference for an alternative which would avoid the WCA entirely. However, they indicated they would be willing to permit the Preferred Alternative due to its reduced footprint within the WCA (14.9 acres compared to 21.4 acres for the Avoidance Alternative) and the fact that it crosses two fewer streams (unnamed tributaries (UT) 12 and 13, shown in Figure 5.1). The Preferred Alternative is also approximately 0.1 mile further upstream from the normal pool elevation of the reservoir than the Avoidance Alternative.

Interest in the protection of the public health, compounded by the “unique problem” created by the unwillingness of NCDWQ to permit the Avoidance Alternative, rises to the level of a “severe problem of a magnitude that substantially outweighs the importance of protecting the Section 4(f) property” (23 CFR 774.17). The “relative value” of protecting the Cates Farm is diminished by the ongoing efforts of the Cates Farm Executor to sell and develop portions of the historic property in the vicinity of the proposed roadway, which would occur regardless of the project, as well as the

magnitude of the impact of the roadway on the historic resource (e.g., no structures would be impacted). Although the proposed roadway would be visible from the farmhouse, the farmhouse itself does not contribute to the listing of the property on the NRHP. Table 5.2 provides a summary of the impacts associated with the alternatives that led to the determination that the Avoidance Alternative is not “feasible and prudent.”

**Table 5.2
Summary of Section 4(f) Impacts**

Issues	Avoidance Alternative (Alternative 8)	Preferred Alternative (Alternative 9)
ROW required*	0 acres (0%)	12.6 acres (12.6%)
Area of Cates Farm Isolated	0 acres (0%)	4.6 acres (4.6%)
Visible Intrusion from Cates Farm House	No**	Yes
Non-Contributing Elements Affected	None	None
HPO’s Determination of Effect	No Effect	Adverse Effect
Length of Alternative through Graham-Mebane Reservoir WCA	1 mile	0.7 mile
Area within WCA	21.8 acres	14.9 acres
Maximum Distance from Boundary of WCA	Approximately 900 feet within WCA	Approximately 400 feet within WCA
Stream Impacts	3,454 feet	3,178 feet
Wetland Impacts	0.249 acres	0.249 acres
DWQ will Permit for Section 401 Certification***	No	Yes
Costs****		
Right-of Way	\$30,475,000	\$30,550,000
Construction	\$68,700,000	\$68,500,000
Utility Relocation	\$2,402,000	\$2,402,000
Total	\$101,577,000	\$101,452,000
Estimated Relocations		
Residential Relocations	44*****	46*****
Business Relocations	5	5
Churches Displaced	1	1
Feasible and Prudent Alternative	No - NCDWQ will not issue Section 401 certification because of WCA impacts	Yes

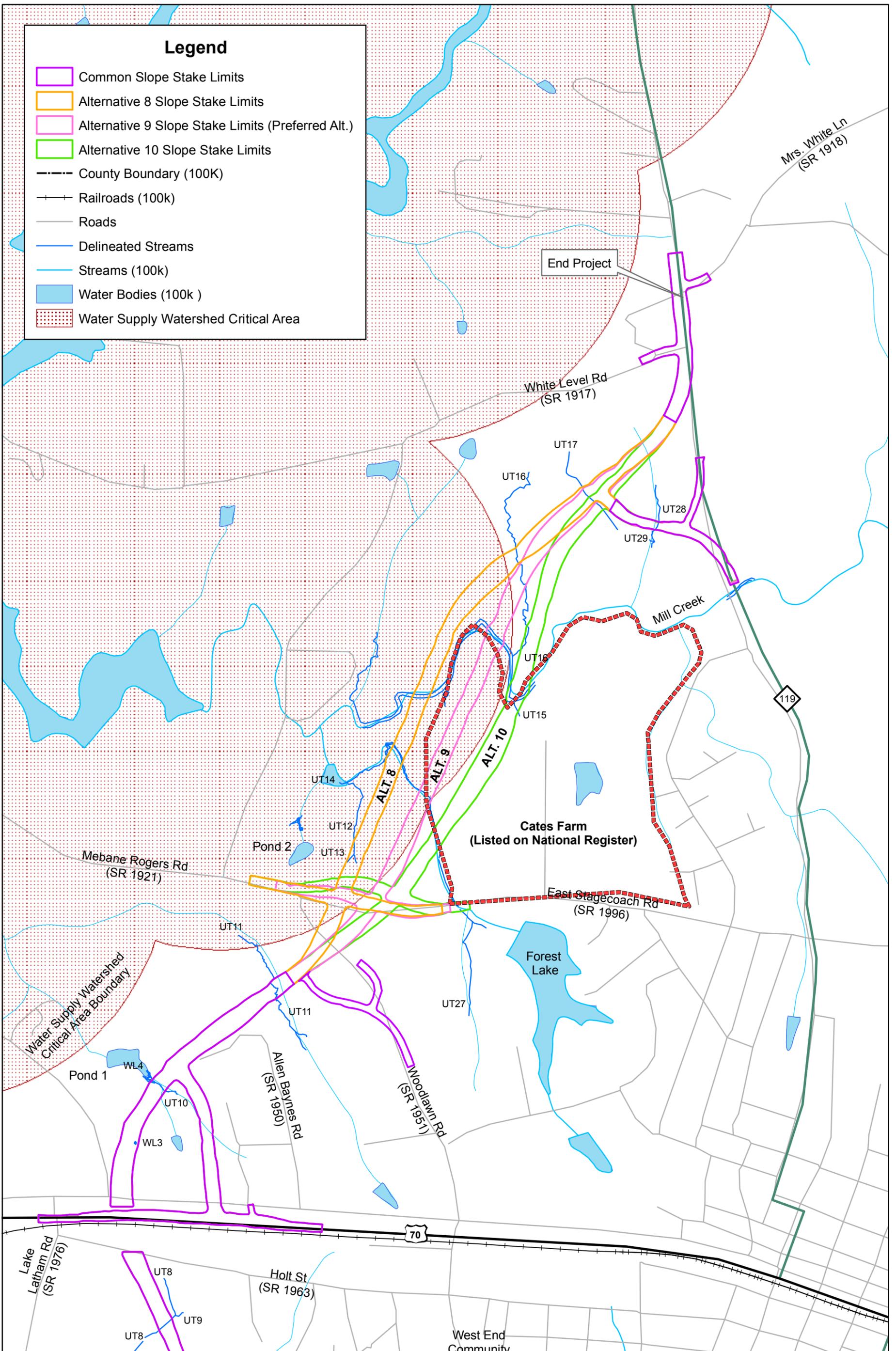
- Notes: * Cates Farm is approximately 100 acres in size.
 ** Avoidance Alternative would be shielded from the historic property by forests.
 *** See minutes from Merger Meeting for Concurrence Point 3 (Appendix G – Part 4).
 **** Construction cost in 2009 dollars. Utility and Right-of-Way costs in 2007 dollars.
 ***** Includes relocations associated with the improvements to SR 1997 (Corridor Road).

The Preferred Alternative is considered a “feasible and prudent” alternative that minimizes harm to the Cates Farm. Visual impacts are lessened by this alternative compared to others studied in the DEIS because it is located further west of the farmhouse. Alternative 10, a build alternative studied in the DEIS located to the east of the Preferred Alternative, would require acquisition of more right-

of-way from the Cates Farm and would isolate a larger area of pasture from the rest of the farm, as compared to the Preferred Alternative. The Preferred Alternative would not require the removal of any structures associated with the Cates Farm, while Alternative 10 would require the removal of one structure.

The measures to minimize harm to the Cates Farm discussed above would be implemented during final design based on coordination with the FHWA, HPO, and representatives of the Cates Farm. Based upon the above considerations, there is no feasible and prudent alternative to the use of land from the Cates Farm and the proposed action includes all possible planning to minimize harm to the Cates Farm resulting from such use.

In accordance with 23 CFR 771.135(i), the FHWA will provide this FEIS and Section 4(f) Evaluation to the Department of the Interior, Office of Environmental Project Review, for coordination and comment. A minimum of 45 days has been established by the Administration for receipt of comments. Any comments received from the Department of Interior will be addressed in the Record of Decision for the project.



Legend

- Common Slope Stake Limits
- Alternative 8 Slope Stake Limits
- Alternative 9 Slope Stake Limits (Preferred Alt.)
- Alternative 10 Slope Stake Limits
- County Boundary (100K)
- Railroads (100k)
- Roads
- Delineated Streams
- Streams (100k)
- Water Bodies (100k)
- Water Supply Watershed Critical Area



North Carolina Department of Transportation
 Project Development & Environmental Analysis Branch
 Proposed Relocation of NC 119 from I-85/40 to South of SR 1918
 Mebane, Alamance County
 TIP Project No. U-3109

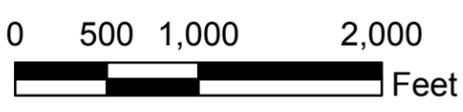


Figure 5.1
Water Resource
Impacts in the
Vicinity of Cates Farm

CHAPTER 6

FEDERAL HIGHWAY ADMINISTRATION

<u>Name</u>	<u>Qualifications</u>	<u>Primary Responsibilities</u>
Clarence Coleman, PE	Operations Engineer, FHWA North Carolina Division; 17 Years Experience	FHWA oversight; Responsible for Federal-aid projects within North Carolina.
Felix Davila, PE	Area Engineer, FHWA, North Carolina Division; 17 Years Experience	FHWA oversight; Responsible for Federal-aid projects within North Carolina.

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

<u>Name</u>	<u>Qualifications</u>	<u>Primary Responsibilities</u>
Eric Midkiff, PE	Project Development Unit Head – Central Region; 18 Years Experience	Supervises 3 planning groups within the Central Region of the PD&EA Branch of NCDOT.
Derrick Weaver, PE	Project Development Group Supervisor; 16 Years Experience	Supervises 4 consultant coordinator project managers in the Central Region of the PD&EA Branch of NCDOT.
Leza Wright Mundt, AICP	Project Planning Engineer; 23 Years Experience	Project Manager responsible for overseeing all aspects of the FEIS development.

MICHAEL BAKER ENGINEERING, INC.

<u>Name</u>	<u>Qualifications</u>	<u>Primary Responsibilities</u>
Suzanne Unger Young, PE	Planning Group Team Leader; 13 Years Experience	Manages the Environmental Planning Group at Michael Baker Engineering. Responsible for preparing the Draft and Final Section 4(f) Evaluations, assisting with responses to agency comments, and providing quality control for the FEIS.

Aileen S. Mayhew, PE	Project Manager; 15 Years Experience	Responsible for overall management and development of the EIS, quality control for CIA, ICE, and Travel Analysis Report, and preparation of Noise Analysis Report update.
Craig Young, PE	Transportation Planning Engineer; 13 Years Experience	Assisted with responses to agency comments.
Ken Gilland	Environmental Scientist; 17 Years Experience	Responsible for demographic and economic data update, noise impact re-evaluation, and assisted with responses to agency comments.
Greg Price, PWS	Senior Biologist; 21 Years Experience	Responsible for preparation of the Natural Resources Technical Report (NRTR) and Addendum to the NRTR and conducting jurisdictional wetland and stream surveys/delineations.
Richard Darling	Senior Environmental Specialist; 23 Years Experience	Responsible for providing quality control and technical oversight on the Natural Resources Technical Report (NRTR) and Addendum to the NRTR and conducting stream surveys/delineations.
Cary Rowells	GIS Analyst; 19 Years Experience	Responsible for impact calculations and preparation of graphics and exhibits.
Matt Koon	CADD Analyst; 13 Years Experience	Responsible for impact calculations and preparation of graphics.

GIBSON ENGINEERS, PC

<u>Name</u>	<u>Qualifications</u>	<u>Primary Responsibilities</u>
Glenda Gibson, PE	Principal – Gibson Engineers; Transportation Engineer and Project Manager; 21 Years Experience	Roadway Design Project Manager.
Mike Pekarek, PE	Roadway Design Engineer; 12 Years Experience	Responsible for all aspects related to the horizontal and vertical roadway design.
Becky Hendricks, PE	Roadway Design Engineer; 12 Years Experience	Provided technical assistance in the preparation of roadway design plans.
Beth Royall, PE	Roadway Designer; 7 Years Experience	Provided technical assistance in the preparation of roadway design plans.
Brian Phillips	Roadway Designer; 5 Years Experience	Provided technical assistance in the preparation of roadway design plans.

RS&H ARCHITECTS, ENGINEERS, PLANNERS, INC.

<u>Name</u>	<u>Qualifications</u>	<u>Primary Responsibilities</u>
Jan Anderson, PE	Senior Project Manager; 25 Years Experience	Provided technical expertise and oversight for the preparation of the Travel Analysis Report.
Deborah Porter	Senior Transportation Planner; 20 Years Experience	Responsible for preparing the Community Impact Assessment and Indirect and Cumulative Effects Analysis.
Radha Swayampakala, PE	Traffic Engineer; 7 Years Experience	Responsible for traffic operations analysis for the Travel Analysis Report.

CHAPTER 7

CHAPTER 7 LIST OF AGENCIES, ORGANIZATIONS, AND PERSONS
TO WHOM COPIES OF THE STATEMENT ARE SENT

Federal Agencies

US Environmental Protection Agency
US Department of Transportation
US Department of the Interior
US Department of Commerce
US Department of Agriculture
US Department of Energy
US Department of Health and Human Service, Office of Environmental Affairs
Federal Railroad Administration
Federal Emergency Management Agency
Office of Management and Budget
Interstate Commerce Commission
Advisory Council on Historic Preservation

Regional Offices

Regional Representative of the Secretary of Transportation
US Environmental Protection Agency
US Department of Housing and Urban Development
US Army Corps of Engineers
US Fish and Wildlife Service
Federal Emergency Management Agency
General Services Administration
Federal Transit Administration

State Agencies

North Carolina Department of Human Resources
North Carolina Department of Environment and Natural Resources
North Carolina Wildlife Resources Commission
North Carolina Department of Cultural Resources
North Carolina Department of Public Instruction
North Carolina Department of Commerce – Travel and Tourism Division
North Carolina Department of Economic and Community Development
State Clearinghouse

Local Governments, Agencies, and Organizations

Chairman, Alamance County Commissioners
Chairman, Orange County Commissioners
Burlington-Graham Metropolitan Planning Organization
Alamance County Planning Department
Orange County Department of Planning and Inspections
City of Mebane City Council
City of Mebane Planning Board
City of Mebane, City Manager
City of Mebane Planning and Zoning Department
City of Mebane Public Works and Utilities Department
Chairman, NC 119 Relocation Steering Committee
West End Revitalization Association (WERA)

Public Review Locations

Alamance-Burlington School System
Orange County School System
Mebane Public Library
Orange County Public Library
Highway Division 7 District Office - Graham

CHAPTER 8

CHAPTER 8 AGENCY COORDINATION AND PUBLIC INVOLVEMENT

Public Involvement is integral to the project development and decision-making process. A Public Involvement Plan for the NC 119 Relocation project was developed to involve the general public, local elected officials, and the agencies responsible for overseeing the resources in the project area. Thus, efforts have been made to notify these groups about the study and to communicate with them throughout the study process. The initial notification of the study included a scoping letter to agencies and officials and a newsletter mailed to those who expressed interest in the study. In addition, on-going communications with the public included newsletters, Steering Committee meetings, citizens informational workshops, small group meetings, and public officials informational meetings. The following section details the various elements of the Public Involvement Plan for the NC 119 Relocation project.

8.1 AGENCY COORDINATION

8.1.1 Scoping Letter

8.1.1.1 History

The NC 119 Relocation project is a federal aid project, subject to the requirements of NEPA. The FHWA is the lead agency, which means it has the primary responsibility for preparing the environmental impact statement. A scoping meeting was held on February 15, 1994. Following the meeting, a scoping letter was mailed out on May 16, 1994, to federal, state, and local agencies, as well as the North Carolina State Environmental Review Clearinghouse, to solicit input early in the planning process on the scope of the proposed NEPA document. In accordance with NEPA, a Notice of Intent was also published in the Federal Register on February 13, 2007. The scoping letter and scoping meeting minutes, Notice of Intent, and agency comments are included in Appendix G.

8.1.1.2 Comments

Coordination was maintained with federal, state, and local agencies in order to evaluate potential project impacts. The entities that were mailed a scoping letter are listed below. Comments were received from those marked with an asterisk:

- * USACE, Wilmington District
- USACE, Raleigh Field Office
- * US Dept of Interior, USFWS, Raleigh
- USEPA Region IV, Atlanta Office
- US Federal Emergency Management Agency (FEMA), Atlanta
- North Carolina Dept of Administration, State Environmental Review Clearinghouse
- * North Carolina Dept of Cultural Resources (NCDCCR); Division of Archives and History
- North Carolina Department of Environment and Natural Resources
 - * Division of Water Quality (formally known as Division of Environmental Management)
 - * Wildlife Resources Commission

- * Division of Forest Resources
- * Division of Soil & Water Conservation
- * Division of Environmental Health
- * Division of Land Resources
- North Carolina Department of Public Instruction
- Alamance County Director of Transportation
- * Norfolk Southern Corporation
- North Carolina Railroad Company
- * Piedmont Triad Council of Governments
- Region G Planning Agency
- Alamance County
 - Manager
 - Board of Commissioners
- City of Mebane
 - Mayor
 - City Manager

As the study progressed, other agencies and organizations were contacted to inform them of the study and request information. Those contacted are listed as follows:

- * Alamance County Historic Properties Commission

8.1.2 Merger Team Meetings

Project coordination took place in accordance with the guidelines of An Interagency Agreement Integrating Section 404/NEPA for North Carolina transportation projects. This agreement, signed in 1997 by NCDOT, FHWA, and the US Army Corps of Engineers (USACE), merges the FHWA's NEPA requirements and the Clean Water Act Section 404 regulations. Agencies involved in the Section 404/NEPA Merger process include the FHWA, NCDOT, USACE, US Fish and Wildlife Service (USFWS), US Environmental Protection Agency (USEPA), North Carolina Division of Water Quality (NCDWQ), North Carolina Wildlife Resource Commission (NCWRC), and the North Carolina State Historic Preservation Office (HPO). These agencies met regularly as the Merger Team to reach agreement at key points in the project study process.

The general purpose of the Merger Team meetings was to obtain agency comments on the environmental studies. More specifically, agency input was sought for determining the scope of the project, developing the purpose and need of the project, developing preliminary alternatives, selecting the alternatives to be studied in detail, and any additional concerns.

The **Initial Merger Team Meeting** was held on August 10, 2000. The purpose of this meeting was to discuss Concurrence Point 1 of the Section 404/NEPA Merger process, which addresses the Purpose and Need of the NC 119 Relocation project. The Merger Team was unable to reach agreement at this time. A **Second Merger Team Meeting** was held on December 13, 2000, in which agreement was reached on Concurrence Point 1 and discussions about Concurrence Point 2 were initiated. During this meeting, USEPA recommended another alternative for study which would reduce the length of roadway in the water supply watershed critical area of the Graham-

Mebane Reservoir. The meeting minutes and concurrence form are included in Appendix G - Part 4. Representatives from the following agencies attended this meeting:

- USACE
- USEPA
- USFWS
- FHWA
- NCDENR
 - NCDWQ
 - NCWRC
- NCDOT
 - Project Development and Environmental Analysis Branch
 - Transportation Planning Branch (formerly Statewide Planning Branch)
- Burlington-Graham Metropolitan Planning Organization.

The **Third Merger Team Meeting** was held on April 18, 2001. The purpose of this meeting was to discuss Concurrence Point 2 of the Section 404/NEPA Merger process, which addresses the alignment alternatives that would be carried forward for further study. Alternative 8 was introduced at this time. However, agreement was not reached at this time and additional discussions were postponed until a lawsuit (*McKeel and Getchell v. NCDWQ and NCDOT*, 00 EHR 1225) regarding improvements to US 117 in Wayne County (TIP Project R-1030) was decided. One of the issues under review in this lawsuit was a project alternative located in a water supply watershed critical area, which is also an issue for the NC 119 Relocation project. As a result of this information, NCDWQ requested that two new alternatives outside of the water supply watershed critical area of the Graham-Mebane Reservoir be added for consideration. Subsequently, in its review of the *McKeel* case, the North Carolina Environmental Management Commission upheld NCDWQ's determination that "there were no practical alternatives to construction of the project in order to avoid impacting a portion of the critical area of the water supply" and its issuance of the water quality permit. The **Fourth Merger Team Meeting**, held on June 13, 2002, was able to reach agreement on Concurrence Point 2, based on the addition of two additional alternatives (Alternatives 9 and 10) and the exclusion of the existing alternatives other than Alternative 8. The meeting minutes and concurrence form are included in Appendix G - Part 4. Representatives from the following agencies attended this meeting:

- USACE
- USFWS
- FHWA
- NCDENR
 - NCDWQ
 - NCWRC
- NCDOT
 - Project Development and Environmental Analysis Branch
 - Roadway Design Unit
 - Division 7
- Burlington-Graham Metropolitan Planning Organization.

The **Fifth Merger Team Meeting** was held on June 16, 2005. The purpose of this meeting was to discuss Concurrence Point 2a of the Merger process, which addresses bridge locations and lengths. Bridging versus culvert decisions at the five major stream crossing sites were discussed at this meeting. Agreement was reached for three of the five major stream crossing sites at this meeting. In addition, the Merger Team agreed with the crossing structure at Site 1, pending a re-delineation of the wetland associated with this site and possible breach of the dam. It was agreed that concurrence on Site 2 would be re-visited either as part of Concurrence Point 3, selection of the Least Environmentally Damaging Practicable Alternative (LEDPA) or prior to that meeting. The **Sixth Merger Team Meeting** was held on March 16, 2006. The purpose of this meeting was to discuss the recommended crossing structure for Site 2 and obtain complete concurrence. Since the last meeting, concurrence had been reached on Site 1. The NCDOT agreed that a three-sided (“bottomless”) culvert will be explored for the crossing in the final design stage and will be used if substrate conditions allow for the structure. The NCDOT also agreed to pursue natural channel design stream restoration methods for the stream in this area. The meeting minutes and concurrence forms are included in Appendix G - Part 4. Representatives from the following agencies and stakeholders attended:

- USACE
- USEPA
- USFWS
- FHWA
- NCDCR
- NCDENR
 - NCDWQ
 - NCWRC
- NCDOT
 - Hydraulics Unit
 - Project Development and Environmental Analysis Branch
 - Roadside Environmental Unit
 - Roadway Design Unit
 - Structure Design Unit
 - TIP Development Unit
 - Traffic Engineering Branch – Congestion Management Section
- Burlington-Graham Metropolitan Planning Organization
- Gibson Engineers
- Baker Engineering

The **Seventh Merger Team Meeting** was held on June 19, 2008. The purpose of this meeting was to select a Least Environmentally Damaging Practicable Alternative (LEDPA) (Concurrence Point 3) and to discuss avoidance and minimization (Concurrence Point 4a) for the proposed project. Alternative 9 was selected as the LEDPA at this meeting. The Merger Team discussed avoidance and minimization and agreed that additional minimization / mitigation efforts for the Cates Farm would be investigated during Concurrence Point 4b. The team also agreed that in areas of wetland impacts, the side slopes would be reduced to 2:1 and that stormwater Best Management Practices

and hazardous spill basins would be evaluated at Concurrence Point 4b. The meeting minutes and concurrence forms are included in Appendix G - Part 4.

As discussed previously, the Section 404/NEPA Merger process requires that the Merger Team reach concurrence at four primary phases of project development: 1) defining the purpose of and need for the action and defining the study area; 2) defining the alternatives to be studied in detail in the environmental document; 2a) identifying the bridge locations and approximate lengths; 3) selecting the least environmentally damaging practicable alternative (LEDPA); 4a) implementing measures to avoid and minimize impacts to the natural and human environments; 4b) review of the development of the drainage design; and 4c) review of the completed permit drawings. To date, the Merger Team has reached concurrence on Concurrence Point No. 1 (Purpose and Need), Concurrence Point No. 2 (Alternatives to be Studied in Detail), Concurrence Point No. 2a (Bridge Locations and Lengths), Concurrence Point No. 3 (Least Environmentally Damaging Practicable Alternative), and Concurrence Point 4a (avoidance and minimization) of the proposed project. After the FEIS is issued, a review of the drainage design and permit drawings (Concurrence Point Nos. 4b and 4c) will occur and will be summarized in the Record of Decision (ROD).

8.2 PUBLIC INVOLVEMENT

Throughout the development of this document, public involvement has been encouraged. Local government officials, civic organizations, neighborhood groups, and interested citizens were informed of the progress of the project through three workshops, six newsletters, four Steering Committee meetings, and several small group meetings. Other outreach methods included one-on-one meetings, surveys, a project website, and a project hotline. The printed materials, as well as meeting minutes, associated with this effort are provided in Appendix H.

8.2.1 Mailing List

A computerized mailing list of state and federal environmental regulatory and resource agencies, elected officials, civic and business groups, local government agencies, and interested persons was compiled at the beginning of the environmental study and continually updated throughout the study process. At the time of the FEIS preparation, the list contained approximately 3,975 names.

8.2.2 Newsletters

In September 2002, the NCDOT issued the first newsletter for the NC 119 Relocation project. The newsletter provided information about the proposed alternatives to be evaluated by the NCDOT. In July 2003, the NCDOT issued a second project newsletter that showed the location of the NC 119 Relocation alternatives under study, as well as a summary of the history of the project and the schedule of future milestones. In December 2004, the NCDOT issued the third project newsletter. This newsletter provided an updated schedule and project alternatives, and discussed the Mebane Community Facilitation Project and the work of the NC 119 Relocation Steering Committee. The NCDOT issued the fourth project newsletter in June 2006, which included a project update and revised project schedule. The fifth project newsletter was issued in December 2007, which advertised the upcoming pre-hearing open house and corridor public hearing. In October 2008, the NCDOT issued the sixth project newsletter. This newsletter provided an updated project schedule

and discussed concerns received at the pre-hearing open house and corridor public hearing. This newsletter also discussed the small group meeting held with the White Level community and the outcome of the agency meeting where the Preferred Alternative was selected. This newsletter also included a map of the Preferred Alternative. Copies of the newsletters are included in Appendix H - Part 1.

8.2.3 Project Website

The NCDOT developed a website to provide access to information on the NC 119 Relocation project on the “NCDOT projects” webpage: <http://www.ncdot.org/projects/nc119relocation/>. The projects webpage lists the interactive websites created for major transportation projects throughout the state. The project website provides newsletters, maps of project alternatives, schedule, meeting minutes, and information on project team contacts and how to get involved in the project development process.

8.2.4 Small Group Informational Meetings

The NCDOT has held several small group meetings for the NC 119 Relocation project. Summaries of these meetings are included in Appendix H - Part 2. On March 21, 1996, the NCDOT project team met with residents of the West End community to solicit their comments and identify ways to minimize community impacts.

In November 1998 and March 1999, NCDOT representatives met with the North Carolina State Historic Preservation Office (HPO), the Cates Farm Executor, and FHWA to discuss preservation and development of a portion of the Cates Farm.

On March 3, 1999, NCDOT representatives met with the West End Revitalization Association (WERA). WERA is a citizens group with a vision to maintain sustainable historic Black/African American communities through environmental protection, preservation, stabilization, and planned development. NCDOT asked WERA to define the boundaries of the West End community. The WERA presented the NCDOT with a letter requesting mitigation and enhancements for the NC 119 Relocation project.

The NCDOT held an impromptu meeting with residents of the West End Community on April 8, 1999. At this meeting, citizens expressed dissatisfaction with the local officials meeting held on March 25, 1999 (see Section 8.2.7). The NCDOT agreed to hold another meeting with the West End leadership after holding a meeting in the Woodlawn Community.

On May 4, 1999, a meeting was held with the NCDOT, FHWA, and the Woodlawn community at the Crossover Presbyterian Church. Overall, the citizens in attendance were opposed to the project and asserted that the project would not relieve traffic in downtown Mebane. Concern was also expressed about impacts to the Graham-Mebane Reservoir water supply watershed critical area.

On June 8, 1999, NCDOT representatives met with 20 residents living near the SR 1949 (Edgewood Church Road)/US 70 intersection to discuss impacts to this area and give a status report on the project.

On June 17, 1999, NCDOT representatives met with residents of Third and Fifth Streets at the Mebane Arts & Community Center. Approximately 70 citizens attended the meeting and were overwhelmingly supportive of the project. The general consensus was that the relocation of NC 119 is needed and that it should be completed as soon as possible.

NCDOT representatives met with WERA on December 3, 1999 and provided an update on the status of the project. The use of SR 1972 (Smith Drive) as a connector and connectors to SR 1950 (Allen Baynes Road) were discussed.

In March 2000, NCDOT representatives met with the Cates Farm Executor and FHWA to review the study report on Cates Farm prepared by the executor and to discuss steps to have part of the Cates Farm nominated for inclusion on the National Register of Historic Places. In April 2000, NCDOT representatives met with the Cates Farm Executor, the John Kavanagh Company, and Remax Realty to review plans for the northern portion of the Cates Farm.

On July 28, 2000, a meeting was held with the NCDOT and the WERA to discuss possible mitigation measures in the West End community.

On August 28, 2000, the NCDOT met with representatives of St. Luke's Christian Church. The purpose of the meeting was to give an overview of the project and the impacts the church could expect from the proposed relocation of NC 119. The church informed the NCDOT that they would prefer to be relocated if the road was constructed too close to the church. A follow-up meeting was held on January 23, 2001, with the pastor of St. Luke's Christian Church.

During August 2001, the NCDOT held several meetings with the "Committee to Promote Highway 119 Connector" at the Mebane City Council Chambers. Approximately 20 people were in attendance. This committee, composed of citizens from throughout the Mebane area, including Mebane City Council members, was established to facilitate the timely construction of the proposed NC 119 Connector. The committee discussed three key historical/environmental issues associated with the project: the West End community, the water supply watershed critical area of the Graham-Mebane Reservoir, and the Cates Farm. In addition, the NCDOT provided an update on the project to attendees.

Between September 18 and 24, 2002, one-on-one interviews were conducted with project area residents to determine what effects the relocation of NC 119 would have on local communities and to evaluate how the project would affect their quality of life. Meetings were also held with the West End community, the City of Mebane, and a representative of the Woodlawn community to gather information on the history of the NC 119 project.

NCDOT representatives attended a homeowner's association meeting for the Fieldstone Farms Subdivision on August 3, 2003. Most of the homeowners were concerned about the neighborhood street being used as a cut-through if direct access is provided to the proposed road, and requested that the project not provide direct access. The homeowners also expressed concern about the potential for increased flooding, air pollution, and increased noise if the proposed road is constructed.

During 2004, the NCDOT retained the Wills Duncan Group, Inc. (WDG), to conduct a community facilitation program for the NC 119 Relocation project (WDG, 2005). This program was intended to increase citizen involvement and identify the most important issues regarding the proposed project from the perspective of the various communities within the study area. The WDG facilitated several rounds of community meetings in the study area during the period of March through June of 2004. These meetings and workshops were held in each of the communities most affected by the relocation project including the Fieldstone/3rd and 5th Street corridor, West End, Woodlawn, Mill Creek, and White Level (WDG, 2005).

WDG conducted surveys within each of the communities as to their support or opposition to the NC 119 project and the results are summarized below:

- Fieldstone/3rd and 5th Street corridors: 21 surveyed - 12 support; 9 undecided
- West End: 38 surveyed – 9 support; 14 oppose; 15 undecided
- Woodlawn: 41 surveyed – 8 support; 21 oppose; 12 undecided
- Mill Creek: 7 surveyed – 6 support; 1 undecided
- White Level: 21 surveyed – 4 support; 5 oppose; 12 undecided

In addition, WDG conducted one-on-one interviews with local officials, community leaders, and other stakeholders/citizens to gather information about the communities' concerns, perceived problems, and desires related to the NC 119 project. Of the 130 persons interviewed about the proposed project, 42 supported the project, 40 opposed the project, and 48 were undecided.

In March 2006, NCDOT representatives held two separate meetings to discuss plans for the development of the Cates Farm property: 1) NCDOT met with the City of Mebane and Remax Realty, and 2) NCDOT met with the City of Mebane, Remax Realty, and 1st American. In August 2006, NCDOT met with 1st American to review updated plans for the development of the Cates Farm property. In November 2006, NCDOT met with Fleming Engineering and Sasser Construction to discuss the proposed project.

In April 2007, NCDOT representatives met with Commercial Carolina/Cushman and Wakefield to discuss development of the property near the U.S. Post Office. In June 2007, the NCDOT sent a letter to St. Luke's Christian Church requesting a meeting to provide an update on the project and discuss any questions regarding this project. No response was received from the church at that time. The NCDOT met with the Cates Farm Executor and Remax Realty in August 2007 to discuss the project status and development of a portion of the Cates Farm. In November 2007, NCDOT met with the North Carolina Industrial Center (NCIC) to discuss the proposed improvements and status of the proposed project.

The NCDOT held a meeting with the White Level community in February 2008 to discuss the community's concerns regarding the proposed project. Overall, the citizens in attendance were not opposed to the project, but the White Level community is primarily concerned with where and how the relocated NC 119 ties back into existing NC 119 near SR 1918 (Mrs. White Lane).

In December 2008, NCDOT representatives met with the pastor of St. Luke's Christian Church to provide an update on the status of the project and to discuss future plans of the church. Reverend

Garrison reiterated that St. Luke's Christian Church would prefer to relocate rather than have the proposed roadway constructed in its immediate vicinity. The proposed project would hinder plans for expansion of the church, as well as increase congestion in the vicinity of the church. The NCDOT will continue to coordinate with St. Luke's Christian Church throughout the project.

Upon request, NCDOT representatives held one-on-one meetings with homeowners and businesses, including Craftique, in January and March 2009 to provide an update on the status of the project and to discuss access concerns.

In May 2009, NCDOT representatives met with FHWA, HPO, Cates Farm Executor, and the Marsha A. Ritchie Trust representative to initiate development of mitigation measures for the Cates Farm.

8.2.5 Steering Committee Meetings

In June 2004, the NCDOT participated in the development of the NC 119 Relocation Steering Committee. This diverse group of citizens represents affected neighborhoods and the business community of the Greater Mebane area. Comprised of 18 community representatives and 2 members of the local business association, the Steering Committee has the responsibility of representing the Greater Mebane community in future activities related to the relocation of NC 119. Summaries of the NC 119 Relocation Steering Committee meetings are included in Appendix H - Part 3.

On June 24, 2004, the Steering Committee and citizens from the communities within the study area met with NCDOT to discuss the NC 119 project, as well as create a vision of what they would like the Mebane area to look like in the future. The meeting was attended by more than 80 local residents (including the Steering Committee) and representatives of the NCDOT. The Steering Committee prioritized the issues and concerns identified by the groups and neighborhoods they represent. These issues included:

- Community infrastructure – need for water and sewer services; displacement of residents.
- Water quality – need for water quality protection; run-off concerns; encroachment into a critical water supply watershed.
- Historic properties – noise and air impacts, increased urban sprawl and crime.
- Traffic – need for traffic studies and models; need for proposed project; impact to school safety; speed limits.

On October 7, 2004, and March 30, 2006, the Steering Committee, as well as other members of the community met with the NCDOT to discuss the NC 119 Relocation project and related issues identified by the groups and neighborhoods they represent. These issues included:

- Access control and local street connections to proposed NC 119 Relocation.
- Potential for increased traffic volumes (including truck traffic) on area roads.
- Advantages and disadvantages of alternatives being considered.
- Relationship of the NC 119 Relocation project to other long-range transportation improvement plans.
- Concerns about increased growth within the study area as a result of the proposed project.

- Potential impacts to water quality and water supply watershed critical area.
- Potential impacts to historic properties.
- Potential impacts to neighborhoods and quality of life.
- Right-of-way acquisitions and possible displacements.
- Timeline for project activities and decision-making process.

The NCDOT met with the Steering Committee, as well as other members of the community on November 13, 2008, to provide an update on the project and discuss the results of a meeting held in June between the NCDOT and several review agencies regarding selection of the Preferred Alternative for the project. The following is a summary of the comments and questions expressed at the meeting:

- Question when the public comments from the Public Hearing would be addressed.
- Concern about closing existing NC 119 near northern project terminus.
- Comment regarding project cost to date.
- Development occurring on the east side of town.
- Comment that traffic has not changed much since 1998.
- Mebane needs an underpass of the railroad.
- Discussion regarding railroad crossing closures as a part of this project.
- Concern where Holt Street and West End traffic will go when railroad crossing closed.
- Concern regarding Woodlawn Road closing.
- Concern for downtown businesses having decreased traffic.
- Comment to take truck traffic off Fifth Street.
- Construction of Section A prior to Section B.

8.2.6 Citizens Informational Workshops

The NCDOT has conducted three Citizens Informational Workshops for the NC 119 Relocation project. Handouts from the workshops are included in Appendix H - Part 4. The purpose of the first Citizens Informational Workshop, held on January 30, 1995, at South Mebane Elementary, was to involve the public in the project planning process.

The NCDOT held the second Citizens Informational Workshop on June 20, 1996. The purpose of the workshop was to provide an update on the status of the proposed NC 119 Relocation project, including the expanded study area.

The NCDOT held the third Citizens Informational Workshop on July 22, 2003, at the Mebane Arts and Community Center. The purpose of the workshop was to present the study alternatives to the public and to review the project status and timeline. Comments were received and included in the project documentation and evaluation of the alternatives being studied.

8.2.7 Elected Officials Meetings

On May 26, 1994, NCDOT representatives met with local planners and elected officials, including the Mebane Town Manager, Assistant County Manager, and Alamance County Planner. The discussion included the project purpose and need, proposed construction alternatives, planned

development in the study area, local parks, the Graham-Mebane Reservoir watershed, east-west connectivity of the City, and the desirability of a median-divided roadway.

On February 19, 1999, representatives from NCDOT and FHWA met with local officials, including the City Mayor, City Manager, City Attorney, City Engineer, and members of the City Council. The discussions centered on the status of the project, factors complicating the project schedule, avoidance alternatives for historic properties, and community concerns.

On March 25, 1999, representatives from NCDOT and FHWA met with City of Mebane officials and leaders from the West End community at the Mebane Arts & Community Center. Approximately 45 citizens attended the meeting. Although intended for discussions with the West End community, a large number of citizens from the Fifth Street area also attended the meeting. The NCDOT briefly discussed the four alternatives being studied at that time, including one that would cross US 70 near SR 1950 (Allen Baynes Road), two that would cross US 70 near Craftique Furniture Company and NC 119 near SR 1917 (White Level Road), and one that would cross US 70 just west of Craftique Furniture Company. Many of the citizens from the Fifth Street area voiced their support for the project and commented that the NCDOT should not delay the project any longer.

On April 8, 1999, representatives from NCDOT and FHWA met with NC Representative Nelson Cole, City of Mebane officials, and Craftique Furniture Company to discuss alternatives currently being studied and to review Craftique Furniture Company plans for expansion of their facility.

On April 13, 1999, NCDOT Secretary Norris Tolson visited Mebane to hear and record citizens' comments regarding the project. Specifically, remarks on how the proposed project would affect the West End community were discussed. Approximately 25 to 30 local residents and NCDOT representatives were in attendance.

The NCDOT, FHWA, and the City of Mebane officials held an informal meeting on April 21, 1999. The City agreed to meet with the West End community to determine the needs of the community. The City discussed annexation of the West End community and providing access to the Mebane Arts & Community Center.

On April 28, 1999, a meeting was held at a local restaurant with WERA leaders, City of Mebane officials, St. Luke's Christian Church, and a business to discuss concerns of the West End community. The City stated that they were ready to support improvements to streets, sewer services, and USEPA cleanups in the West End community.

On January 5, 2000, representatives from NCDOT and FHWA met with City officials to provide a progress/status report for the project. The NCDOT requested assistance from the Burlington-Graham Metropolitan Planning Organization (MPO) in meeting with the Woodlawn community, since community leaders had several questions which the MPO would be better able to answer. Access control and possible mitigation measures for the proposed project were also discussed.

On April 27, 2000, representatives from NCDOT, SHPO, FHWA, and the Burlington-Graham MPO met to discuss how the project was progressing and the constructability of the project.

On July 24, 2000, the NCDOT and FHWA met with representatives of the City of Mebane and the West End community. The meeting was held to discuss concerns raised by the West End community and to produce a mitigation plan. The Mebane City Manager discussed the City's intention to apply for a water and sewer grant to service the entire West End community with a low-pressure system and to upgrade the existing 2-inch water lines to 6-inch lines.

The NCDOT, NCDWQ, and the City of Mebane met on March 19, 2001, to discuss the type of access control for the proposed project north of US 70.

NCDOT representatives met with the City of Mebane and the Burlington-Graham MPO on October 4, 2001, to discuss the project status and the proposed schedule.

Representatives from NCDOT and FHWA met with local officials on September 16, 2002, to discuss project and scheduling issues, as well as adding water and sewer service to the West End community. Annexation associated with the West End community was also discussed, as was the relocation of St. Luke's Christian Church.

In February 2006, NCDOT representatives attended a meeting with State officials, as well as Alamance and Caswell County officials, to provide an update on the proposed project.

In addition to the meetings discussed above, several one-on-one meetings with local officials were conducted throughout the course of this project.

8.2.8 Public Hearing

A Corridor Public Hearing was held on January 15, 2008 in the Mebane Arts and Community Center, after publication of the Draft Environmental Impact Statement (DEIS). The handout from the hearing is included in Appendix H - Part 5. The format of this meeting was an informal open house followed by a formal presentation. During the informal meeting, a map request station was set up to allow citizens to request portions of the public hearing maps in the vicinity of their property. The purpose of this meeting was to present the alternative alignments and receive comments from the public in a formal setting. More than 270 people attended both sessions. Eighteen people spoke at the formal meeting and 74 written comments were received, including five comments on the map request forms provided at the meeting. Topics frequently raised by citizens at the Corridor Public Hearing included:

- Concerns about commercial and residential property impacts and relocations.
- Concerns about decreased property values.
- Concerns about access to property.
- Suggestions of additional alternatives.
- Concerns about the project's impact on the water supply watershed critical area.
- Concerns about the project's impact on the Cates Farm.
- Concerns about the traffic flow through town.

In addition, a petition was submitted (117 signatures) from residents of the White Level community opposing the project. The petition included reasons the community was opposed to the project and project recommendations. A few of the project complaints and/or concerns included:

- Added response time for public safety, EMS, and fire department.
- Access to the entrance of Ray's Community Store and the Alston and White properties.
- Access to old NC 119 confusing and would take longer.
- Increase in large trucks which would compromise air quality.
- Traffic signal needed at SR 1918 (Mrs. White Lane).

Following are some of the White Level community's recommendations for the project:

- Existing NC 119 to remain open with a service road connected to SR 1918 (Mrs. White Lane) behind Miles and Henderson properties to provide a safe route for the community to the City.
- Use more of the historic property to tie the proposed roadway into existing NC 119 south of the Mill Creek community and don't construct an island along the proposed project from SR 1917 (White Level Road) to SR 1918 (Mrs. White Lane).
- Traffic signal needed at SR 1918 (Mrs. White Lane).
- Keep existing NC 119 as business route to Kimes Chapel Church.

Verbal and written comments received at and subsequent to the Corridor Public Hearing, including those from the White Level Community petition, are discussed in Section 8.3.2. The minutes from the Post Hearing Meeting, which includes verbal and written comments summarized by commenter, are included in Appendix H – Part 5. A Design Public Hearing will be held after the Record of Decision (ROD) is approved to provide citizens the opportunity to comment on the Preferred Alternative final design.

8.3 COMMENTS ON THE DRAFT ENVIRONMENTAL IMPACT STATEMENT

8.3.1 Agency Comments and Responses

The Draft Environmental Impact Statement was coordinated with federal, state, and local agencies and organizations, as well as with the public through an extensive public involvement program (see Section 8.2). Following distribution of the DEIS, comment letters were received from 10 federal and state environmental resource and regulatory agencies.

Below is a list of specific agencies and organizations to which a DEIS was sent with an asterisk (*) indicating those commenting:

- **FEDERAL AGENCIES**
 - US Environmental Protection Agency
 - US Department of Transportation
 - US Department of the Interior
 - * US Department of Commerce

US Department of Agriculture
US Department of Energy
US Department of Health and Human Service, Office of Environmental Affairs
Federal Rail Administration
Federal Emergency Management Agency
Office of Management and Budget
Interstate Commerce Commission

- REGIONAL OFFICES

Regional Representative of the Secretary of Transportation
* US Environmental Protection Agency
US Department of Housing and Urban Development
* US Army Corps of Engineers
* US Fish and Wildlife Service
Federal Emergency Management Agency
General Services Administration
Federal Transit Authority

- STATE AGENCIES

North Carolina Department of Human Resources
North Carolina Department of Environment and Natural Resources
* Division of Water Quality
* Division of Environmental Health
* Division of Forest Resources
* North Carolina Wildlife Resources Commission
* North Carolina Department of Cultural Resources
North Carolina Department of Public Instruction
North Carolina Department of Commerce – Travel and Tourism Division
North Carolina Department of Economic and Community Development
* State Environmental Review Clearinghouse

- LOCAL GOVERNMENTS, AGENCIES, AND ORGANIZATIONS

Chairman, Alamance County Commissioners
Chairman, Orange County Commissioners
Burlington-Graham Metropolitan Planning Organization
Alamance County Planning Department
Orange County Department of Planning and Inspections
City of Mebane City Council
* City of Mebane Planning Board
* City of Mebane, City Manager
City of Mebane Planning and Zoning Department
City of Mebane Public Works and Utilities Department
Chairman, NC 119 Relocation Steering Committee

West End Revitalization Association (WERA)

Written responses that were received from federal and state agencies commenting on the DEIS are summarized below, with responses as appropriate. Copies of all comment letters received from agencies are numbered and included in Appendix I – Part 1.

8.3.1.1 Federal

United States Army Corps of Engineers (USACE)

Letter Date: October 18, 2007

Comment 1: Paragraph 3.2.7.4: The expression “1% chance of occurrence” should be used when referring to the 100-year flood. The definition of the 100-year flood is an event that has a 1% chance of happening in any year.

Response: Paragraph 3.2.7.4 Floodways and Floodplains in this document was revised to include the expression “1% chance of occurrence.”

Comment 2: Paragraph 4.2.6.4: First sub-paragraph: There is no discussion of the amount of floodplain area of non-studied streams; these floodplains are important as they will cause increased flooding when encroached upon.

Response: Flood studies identify regulatory floodplain boundaries, floodways, and flood hazard areas to determine the level of risk of flooding. To determine impacts to a floodplain, in terms of the number of acres of encroachment, a flood study would have to be conducted and the floodplain boundaries defined. Streams that have flood studies performed are identified through a formal scoping process between local communities and the North Carolina Floodplain Mapping Program, which is currently updating the state’s Flood Insurance Rate Maps (FIRMs), in partnership with FEMA. Local officials are instrumental in determining which streams require updated or new flood studies due to their knowledge of a locality’s flooding history, changes in development, and planned future development. Mapping of floodplains is only a concern in developed areas or where future development is planned, where the risk of loss due to flooding exists or will exist. For example, no new flood studies in state parks, national forests, and national parks are planned. Although it is certainly true that non-studied streams do flood during storm events, the risk these floods pose to the built environment is typically low. Therefore, the DEIS and FEIS do not address floodplain encroachment on non-studied streams.

Comment 3: Paragraph 4.2.6.4: Second sub-paragraph: The first consideration for crossing floodplains, and especially floodways, is not to cause an increase in the flooding level. This is in accordance with FEMA requirements and general floodplain management guidelines. In this paragraph, the discussion should concern meeting the requirements of a FEMA no-rise certification and not just floodway revisions. Why weren’t the bridge lengths required to span the floodway considered, as anything less will cause added flooding upstream?

Response: The bridge lengths in the planning document are preliminary and may be adjusted in final design, as needed, to ensure compliance with FEMA. However, the floodway can often be modified to satisfy FEMA compliance without spanning the floodway and adding additional bridge length, which in turn increases the cost of the project.

Comment 4: Paragraph 4.2.6.4: Third sub-paragraph: In the previous paragraph it was stated that floodway revisions at the road crossings would be required; that sounds like a substantial impact. So the statement of “no substantial impacts are anticipated within the 100-year floodplains” is not an accurate statement. The statement “no increases to the extent and level of flood hazard risk would result from encroachments” will only be true if there is zero change in the 1% flood event elevation. Without a supporting study this is a meaningless statement. The above response applies to the last sentence in this paragraph also. Any fill material within the floodplain and floodway is an incompatible use of the floodplain; this applies to streams both studied and not studied.

Response: Comment noted. The NCDOT will coordinate with FEMA and local authorities in the final design to ensure compliance with applicable floodplain management ordinances. The following paragraph will also be added to Section 4.2.6.4 of this document.

“The Hydraulics Unit will coordinate with the Federal Emergency Management Agency (FEMA) to determine if a Conditional Letter of Map Revision (CLOMR) and a subsequent final Letter of Map Revision (LOMR) are required for the project. If required, the Division will submit sealed as-built construction plans to the Hydraulics Unit upon project completion certifying the project was built as shown on construction plans.”

Comment 5: Generally, the floodway and floodplain section does not adequately address the FEMA requirement of not increasing the flooding. Just because the stream has not been studied does not mean that it does not have a significant floodplain and possible flooding problems that should be considered. If there are trade offs that will be required, they should be stated in this discussion.

Response: Comment noted. As stated above, the NCDOT will coordinate with FEMA and local authorities in the final design to ensure compliance with applicable floodplain management ordinances.

Comment 6: Prior to beginning work, we strongly suggest you re-confirm the extent of Department of the Army jurisdiction and obtain the required permits for any adverse impacts to waters and wetlands.

Response: Prior to project construction, the wetlands associated with this project will be re-confirmed and necessary permits will be obtained.

United States Department of the Interior, Fish and Wildlife Service

Letter Date: October 11, 2007

Comment 1: The Service has been actively involved in the NEPA/Section 404 Merger 01 Process. Comments and recommendations from the Service have been incorporated into the development of this project. The Service does not have a preferred alternative at this time.

Response: Comment noted.

Comment 2: Page S-27 and 4-97 refer to the authority under which the Service reviews and comments on Section 404 permits. In addition to the Endangered Species Act, the Service provides comments and recommendations to the U.S. Army Corps of Engineers in accordance with provisions of the Fish and Wildlife Coordination Act (16 U.S.C. 661-667d).

Response: Section S.7.1 Permits and Section 4.10.1 Permits in this document were revised to include the additional authority.

Comment 3: Executive Order 13186, Responsibilities of Federal Agencies to protect Migratory Birds, requires federal agencies to take actions to implement the Migratory Bird Treaty Act (16 U.S.C. 703-711). In part, these actions require federal agencies to “ensure that environmental analyses of Federal actions required by the NEPA or other established environmental review processes evaluate the effects of actions and agency plans on migratory birds, with emphasis on species of concern.” This DEIS fails to address migratory birds.

Response: Section 3.3.1.3 Terrestrial Wildlife and Section 4.3.1.2. Terrestrial Wildlife in this document were revised to include a discussion regarding migratory birds.

United States Environmental Protection Agency, Region 4

Letter Date: December 3, 2007

Stream and Wetland Impacts

Comment 1: EPA notes that the use of a bridge at the Mill Creek crossing should lower the stream impacts, although the DEIS does not clearly state the linear footage that would be minimized by the bridge. The NCDOT and FHWA include in its “greensheet” environmental commitments a plan to investigate the use of a bottomless culvert at the crossing of Site 2 (UT14 to Mill Creek), which may also minimize impacts. These specific issues should be resolved prior to the next Merger 01 concurrence point meeting and documented in the FEIS. Based strictly on stream impacts, EPA would generally prefer Alternative 9 as it is currently estimated to have the least impact to jurisdictional streams.

Response: The estimated stream impacts for Mill Creek have been edited in Table 4.12 in this document to reflect a bridge at Site 3 - Mill Creek. Additionally, UT 15 (UT to Mill Creek) lies within the Alternative 10 corridor and would be spanned by the recommended

bridge at Mill Creek. Therefore, the estimated stream impacts for UT 15 have been edited to reflect a bridge at Site 3 – Mill Creek. A bridge structure was recommended at Mill Creek by the Merger Team at Concurrence Point 2a; therefore, a culvert design was never developed at this location. However, the original hydraulic recommendation at Site 3 – Mill Creek included three 12-foot by 12-foot reinforced concrete box culverts. The use of a bottomless culvert requires conditions where footings are put on bedrock. Geotechnical Engineering typically performs foundation test borings during the final design phase of a project. This information has been included in this document and this environmental commitment will remain on the “greensheet” until the necessary geotechnical work is performed. The Merger Team selected Alternative 9 as the Least Environmentally Damaging Practicable Alternative (LEDPA) at the Concurrence Point 3 meeting.

Comment 2: EPA notes that the Natural Resources Technical Report (NRTR) and the 2006 NRTR Addendum for this project have been incorporated by reference. It would be helpful if copies of these reports were made available to EPA for further review as the project proceeds through the Merger 01 process.

Response: The USEPA received a copy of both documents in June 2008.

Comment 3: The DEIS indicates that there are opportunities for on-site stream mitigation although there are no specific details contained in the document. Based upon an earlier field review of the project alignments, EPA understands that there might be opportunities in the vicinity of Mill Creek and its tributaries. Several of the tributaries were noted to be previously impacted by agricultural activities, including the loss of vegetative buffers and livestock crossing stream beds.

Response: In August 2008, the NCDOT began evaluating the project corridor for suitable on-site mitigation locations. Feasible sites will be coordinated with the regulatory agencies through the Section 404/NEPA Merger process. If on-site mitigation locations are infeasible or insufficient to mitigate all project impacts, the necessary mitigation will be provided by the NC Ecosystem Enhancement Program (NCEEP) through their Memorandum of Agreement with the NCDOT and USACE.

Comment 4: It is also important for EPA to emphasize the new guidelines concerning jurisdictional determinations to waters of the U.S. and that the NCDOT and FHWA should confirm the jurisdictional determinations that were made for the impacted streams and wetlands. Ms. Kathy Matthews of EPA has previously forwarded the new jurisdictional form and instruction manual to the NCDOT. Depending upon the time of permitting, the NCDOT may be required to adhere to the new guidance and requirements by the U.S. Army Corps of Engineers.

Response: Comment noted. At this time, the NCDOT is not planning on preparing *Rapanos* forms for the project. However, during the project permitting process, the NCDOT will follow any new guidance regarding jurisdictional determination requirements by the USACE.

Additional Avoidance and Minimization Measures and Mitigation for Streams and Wetlands

Comment 5: The NCDOT and FHWA should consider additional avoidance and minimization measures for stream and wetland impacts beyond the proposal for one bridge crossing and one potential bottomless culvert at another location. Fill slopes should be reduced to the extent practicable. Retaining walls should also be considered in areas where there are significant fill slopes around streams. The proposed median has been reduced to 30 feet, but this reduced footprint has been off set by the proposed construction of a 6-lane facility. ... FHWA and NCDOT should consider more progressive avoidance and minimization strategies. EPA believes that the development of a draft mitigation plan should also be developed prior to the FEIS.

Response: The NCDOT has coordinated with USEPA, NCDWQ, and USACE to avoid and minimize impacts to wetlands and streams through Concurrence Points 2a (bridging decisions and alignment review) and 4a (avoidance and minimization). A reduction in side slopes to 2:1 in the areas of wetland impacts is among the avoidance and minimization measures for stream and wetland impacts included in Section 4.3.3.2. Based on preliminary designs, there are no substantial fill slopes associated with this project. A determination would be made during final design if retaining walls should be included in the design. As discussed in the DEIS, the proposed six-lane facility begins at the I-85/40 interchange and ends in the vicinity of the Fieldstone subdivision and the US Post Office, a length of approximately 1.0 mile. For the remainder of the project, approximately 4.6 miles, a four-lane roadway would be constructed on new location. The six-lane section of this project includes approximately 336 linear feet of stream impacts out of the total estimated stream impacts for Alternative 8 (3,454 linear feet), Alternative 9 (3,178 linear feet), and Alternative 10 (3,328 linear feet). This amount is less than 10 percent of the total estimated stream impacts for each build alternative. As mentioned above, the NCDOT began evaluating the project corridor for suitable on-site mitigation locations in August 2008. If the evaluations for on-site mitigation are not completed in time to include a mitigation plan in the environmental document, a mitigation plan would be prepared prior to issuance of a 401 Water Quality Certification. The NCDOT will continue to coordinate with NCDWQ, USACE, and USEPA during preparation/review of the mitigation plan.

Water Supply Critical and Protected Areas

Comment 6: The DEIS provides an estimate of the impact within the WCA as 1.0 miles for Alternative 8 and 0.7 miles for Alternative 9. However, the DEIS does not include an estimate of the amount of impervious surfaces that will be added for these lengths within the WCA. All three alternatives have impacts to the water supply protected areas, including an estimated 1.7 miles for Alternatives 8 and 9 and 2.5 miles for Alternative 10. EPA also has environmental concerns for the interchange proposed at SR 1921 (Mebane Rogers Road) for Alternative 8 and 9, which appears to be mostly located within the WCA.

Response: The estimate of the amount of impervious surfaces is included in Section 4.2.6.5 of this document. The proposed NC 119 facility would intersect SR 1921 (Mebane Rogers Road) at-grade, which means that there would not be any bridges or ramps associated with this proposed intersection. Construction of Alternatives 9 and 10 would

require a section of SR 1921 (Mebane Rogers Road) to be realigned to accommodate its proposed intersection with NC 119. Approximately half of this total realignment length would be located within the watershed critical area, approximately 0.24 and 0.27 miles, respectively. Construction of Alternative 8 would require no realignment of SR 1921 (Mebane Rogers Road).

Environmental Justice Issues

Comment 7: Table S.2 of the DEIS details the Summary of Environmental Impacts, including the number of residential relocations (44 to 46), business relocations (5) and 1 church relocation under socioeconomic factors. However, the table does not provide a breakdown of the relocation impacts to low-income and minority populations as is described on Pages 4-18 and 4-19 of the DEIS. The total low-income and minority residential relocations should be included in a revised summary table compared to the total relocations for each detailed study alternative. From EPA's general estimate of the demographic characteristics of the project study area and census block groups, the potential percentages of low-income and minority relocations do not appear to be disproportionate to the overall totals for each alternative. However, FHWA and NCDOT should clearly demonstrate this assumption in the FEIS and future impact summary tables.

Response: Summary Tables S.2 and 4.18 were revised in this document to include the total low-income and minority relocations compared to the total relocations for each detailed study alternative.

Human Environment (Relocations)

Comment 8: There are a substantial number of residential relocations for this new location facility. There are 44 to 46 residential relocations depending upon the alternative. Because there is little difference between the alternatives for this impact it does not appear to be a decisive factor in the future selection of a preferred alignment. EPA conducted a general analysis to other new location facilities in Eastern N.C. and found that based upon a per mile comparison, the proposed NC 119 Relocation project has a much greater impact than the BASELINE average (i.e., BASELINE = 3.1 residential relocations per mile versus approximately 7.9 residential relocations per mile; using 44 residential relocations and a 5.6 mile project). However, EPA recognizes that the proposed facility is a 6-lane, 30-foot median facility and the BASELINE is typically a 4-lane facility with various median widths. EPA investigated other comparable 6-lane projects in urban areas in Eastern, N.C. and found that the proposed R-2635, Western Wake Parkway in Wake County is a proposed 6-lane facility with a 78-foot median. This 12.6 mile new location facility has 48 residential relocations (i.e., 3.8 residential relocations per mile). The NC 119 Relocation project has approximately double the number of residential relocations per mile of the typical roadway improvement. However, EPA is concerned that the proximity of the new facility will have a substantial noise receptor impact for those community residential units that are not relocated.

Response: When a baseline comparison is made, the population density by county, characteristics of the area and physiographic location within the state are considerations, in addition to the type of facility proposed. Additionally, when making comparisons between the proposed project and the Western Wake Parkway Project (R-2635) in Wake County,

please consider that Project R-2635 had a preserved corridor which means that the anticipated corridor for this proposed project was protected from development. Therefore, subsequently lower residential relocations per mile for Project R-2635 would be expected. As explained above and in the DEIS, the proposed six-lane facility begins at the I-85/40 interchange and ends in the vicinity of the Fieldstone subdivision and the US Post Office, a length of approximately 1.0 mile. For the remainder of the project, approximately 4.6 miles, a four-lane roadway would be constructed on new location. As stated in the DEIS “Project Commitments,” noise impacts will be re-evaluated for the preferred alternative (Alternative 9) to determine if noise barriers should be re-considered. This re-evaluation is included in Section 4.2.2.4 of this document.

Noise Receptor Impacts

Comment 9: The DEIS includes Tables 4.8 and 4.9 on traffic noise abatement criteria and traffic noise level increase summary, respectively. Twelve receptors for Alternatives 8 and 10 approach or exceed noise abatement criteria including both Categories B and C. As stated in the DEIS, a 5-dBA change is more readily noticeable. From Table 4.9, there are 21 receptors that will exceed a 5-dBA increase for Alternatives 8 and 9 and 22 receptors that will exceed the 5-dBA increases for Alternative 10. FHWA and NCDOT predict that 3 to 4 receptors will have a ‘substantial’ noise level increase and only 1 receptor will approach or exceed the FHWA’s Noise Abatement Criteria (NAC). This information appears to conflict with the information presented in Table 4.8. The total number of receptors that will be impacted to some degree by increased traffic noise is 32 for Alternative 9 and 33 for Alternatives 8 and 10 (from Table 4.9).

Response: In an effort to present the noise data in a less confusing manner, one of the headings in Table 4.9 was edited to reflect the actual data in that column more clearly. In addition, eight of the twelve receptors affected by Alternatives 8 and 10 and eight of the eleven receptors affected by Alternative 9 that approach or exceed noise abatement criteria for both Categories B and C (Table 4.8) experience a noise level increase of less than 5-dBA. As stated in the DEIS and in the above comment, a 5-dBA change is more readily noticeable.

Comment 10: On page 4-41 of the DEIS, EPA notes that an abatement threshold of \$25,000 per benefited receptor is cited. This differs from the NCDOT’s *2004 Noise Abatement Policy*, level of \$35,000 per benefited receptor plus an incremental increase of \$500 per dBA average increase in the predicted exterior noise levels of the impacted receptors (Page 5). The NCDOT and FHWA should address this inconsistency in the Final EIS. EPA recommends that noise barriers be re-considered after the preferred alignment is selected and that FHWA and NCDOT consider noise abatement opportunities near established residential communities.

Response: The text in Section 4.2.2.4 of this document has been revised to reflect the appropriate cost per benefited receptor and additional language. Noise impacts were re-evaluated for the Preferred Alternative to determine if noise barriers should be re-considered. This re-evaluation is included in Section 4.2.2.4 of this document.

Historic Resources

Comment 11: The DEIS describes that there is a potential adverse effect to Cates Farm, a property listed on the National Register of Historic Places (NRHP) from the selection of Alternatives 9 or 10. There is a ‘no effect’ determination for this property for Alternative 8. However, Section 4.1.5.1 of the DEIS does not describe the ‘intensity’ or potential magnitude of the impact to the historic resource. EPA reviewed the coordination information between the State Historic Preservation Office (SHPO) and NCDOT in Appendix B and was unable to discern the ‘extent’ or magnitude of impact to Cates Farm from either Alternatives 9 or 10.

The DEIS includes Figure 4.3, that depicts the detailed study alternatives (i.e., #8, 9, and 10) within the Cates Farm property. Both Alternatives 9 and 10 would have a substantial impact within the historic property boundaries. Alternative 10 would divide a greater portion of the farm and be substantially closer to the buildings and other farm structures. Due to the shape of the property boundaries and the angle of the proposed facility alternatives, Alternatives 9 and 10 would appear to directly ‘take’ a similar amount of land for the required right-of-way.

Response: Comments noted. A discussion regarding the area of each alternative within the Cates Farm historic boundary has been added to Section 4.1.5.1 of this document.

Biotic Community Impacts

Comment 12: The DEIS provides several figures that depict the 3 alternatives and their relative slope stake (construction limits). Figure S.5 shows the 3 alternatives in the Cates Farm area. The construction width of the 3 alternatives vary in this figure as well as others included in the DEIS. In the pastureland through Cates Farm, the construction limits of the proposed project appear to widen to more than 250 feet for Alternative 10. For Alternative 9, the construction width through Cates Farm appears to be less than 250 feet. EPA has calculated the ‘average’ construction width of the 5.6-mile project compared to the estimated impacts to all community types. The 3 alternatives ‘average’ 180 acres. Based upon the DEIS numbers, the average construction ‘footprint’ is calculated to be 265.2 linear feet. The proposed facility includes a ‘maximum’ typical section of a 6-lane, 30-foot median facility with 4 to 8-foot paved shoulders (DEIS Table 2.1, Design Criteria). EPA calculates that the construction footprint using six 12-foot lanes, 8-foot paved shoulders on each side, 25-foot slope stakes on each side, 30-foot median, etc., should not be more than 194 feet. It is EPA’s concern that impacts have either been substantially ‘over-estimated’ or that the construction limits for what is actually planned extend well beyond the limits of what is potentially needed to build the new roadway. NCDOT and FHWA should provide a rationale as to why the impacts to biotic communities do not match the ‘typical design section impacts’ depicted in the DEIS. EPA notes that terrestrial forest impacts for the 3 alternatives range between 59.8 and 67.6 acres, with Alternative 10 having an estimated 60.9 acres.

Response: As previously mentioned, the proposed six-lane facility begins at the I-85/40 interchange and ends in the vicinity of the Fieldstone subdivision and the US Post Office, a length of approximately 1.0 mile. For the remainder of the project, approximately 4.6 miles, a four-lane roadway would be constructed on new location. The estimated impacts to terrestrial communities were determined by overlaying the preliminary design with the field

survey data in GIS. The impacts for each terrestrial community were then determined based on the proposed slope stake (construction) limits for each alternative (varying between 137 ft and 261 ft depending on the alternative). The construction limits vary by alternative depending on the terrain and whether the proposed roadway is in a cut or a fill section. Your observation that the slope stake limits vary widely among the three detailed study alternatives is correct. The impact tables include the actual calculated footprint of the proposed alternatives. The design criteria included in Table 2.1 of the DEIS does not take into account slopes of the proposed roadway.

Indirect and Cumulative Effects

Comment 13: The Indirect and Cumulative Effects (ICE) section of the DEIS (i.e., Section 4.4) does not discuss potential environmental impacts, but instead appears to focus strictly on the potential for inducing or accelerating land use changes. Section 4.4.10.2 of the DEIS does provide some discussion on the potential for water quality impacts, but it only considered impacts to the WCA from induced development, and not to water resources in general, or to the wetlands or streams in the project area. The DEIS uses the WCA designation as a reason to state that there will be few changes to land use and therefore few ICE, because of the limits on development in that area. However, there is no detailed information in the DEIS that addresses state and local government imposed development restrictions within the WCA. There is no information in the DEIS that discusses the potential requirements for limitations on impervious surfaces within the WCA.

Response: Potential indirect water quality impacts associated with the proposed project correlate directly to predicated changes in land use. Anticipated impacts to streams and wetlands are proportionate to the size of a given sub-area (now provided in Table 4.17) and the natural resources present. Section 4.4.10.2 has been updated to include additional language more fully describing anticipated impacts to natural resources, including water quality. Information on water supply watershed regulations in the study area is included in Section 3.1.1.1. The discussion includes regulations addressing limitations on impervious surfaces.

Comment 14: The DEIS does not include a detailed discussion concerning changes in stormwater runoff or nutrient loading in the project vicinity. As previously noted and as shown in Table 3.17 of the DEIS, all of the streams and tributaries in the project study area are classified as NSW. Furthermore, no other types of resources, such as air quality, are mentioned with regards to ICE. The DEIS should include a detailed discussion of the potential for impacts to wetlands, streams, and other natural areas, particularly those resources which are located near the proposed interchanges. The ICE section refers to a 2006 “Final Indirect and Cumulative Effects” document, but EPA has not been provided a copy of this report. If the detailed discussion of impacts to the natural environment are included in the 2006 Final ICE report, they should have been summarized in the DEIS. EPA requests that the 2006 Final ICE Report be provided for our review. The ICE issues identified in this letter and subsequent review comments need to be fully disclosed in the FEIS.

Response: Section 4.4.10.2 has been updated to include additional language more fully describing anticipated impacts to natural resources, including water quality and air quality. It

includes a discussion of anticipated changes in stormwater runoff and nutrient loading, as well as impacts to streams and wetlands. The 2006 Final ICE Report was provided to EPA in October 2008.

Air Quality and Mobile Source Air Toxics (MSATs)

Comment 15: EPA has identified a possible incorrect standard in Table 3.12. On Page 3-26, the National Ambient Air Quality Standard (NAAQS) for the 24-hour PM_{2.5} is now 35 micrograms per cubic meter (ug/m³). This should be updated in the FEIS.

Response: The NAAQS for the 24-hour PM_{2.5} has been updated in Table 3.12.

Comment 16: EPA acknowledges that the DEIS addresses MSATs in the form of FHWA's Interim Guidance (Pages 4-31 to 4-37). EPA has previously provided NCDOT and FHWA with detailed comments on other projects concerning this type of qualitative assessment that is being inserted into various NEPA documents. Without actual background data, it is not possible to predict what the adverse health effects of MSATs will have on any specific community within the project study area. EPA does not agree with this 'interim guidance approach' and there are several statements provided in the discussion concerning the summary of existing credible scientific evidence, health studies, modeling for MSATs, etc., that do not provide any technical or project specific information that would aid decision-makers in the selection of a preferred alternative.

EPA also does not agree with the statement concerning the 'substantial regional reduction' in MSATs (Pages 4-36 and 4-37). Widely accepted scientific studies indicate that MSATs are a localized problem to nearby roadway receptors and are not a 'regional air pollution problem' as with priority air pollutants. There is a potential 'compounding or synergistic adverse effect' to sensitive receptors where a localized, near roadway population also has compromised air quality (e.g., non-attainment areas for other air pollutants) and elevated MSAT exposure. FHWA and NCDOT have not identified any specific sensitive receptors (e.g., nursing homes, child day care centers, hospitals, etc.) along the proposed alignments for Alternatives 8, 9, and 10.

Response: Comments noted. As discussed in Chapter 2 of the DEIS, the three Detailed Study Alternatives (Alternatives 8, 9, and 10) have the same basic corridor location and the same proposed access control with only slight variations in their alignments in the vicinity of the Cates Farm (between SR 1921 [Mebane Rogers Road] and SR 1917 [White Level Road]). Alternative 8 passes through the water supply watershed critical area of the Graham-Mebane Reservoir and outside of the historic property boundary of the Cates Farm. Alternative 9 passes through the northwestern corner of the Cates Farm property (within the NRHP listed boundary) and through the critical watershed area. Alternative 10 passes through the northwestern corner of the Cates Farm property (within the NRHP listed boundary) and outside of the water supply watershed critical area. As stated in EPA's comment, NCDOT followed FHWA's interim guidance when discussing MSAT's for the proposed project in the DEIS. Additionally, NCDOT is not aware of any sensitive receptors (i.e. nursing homes, child care centers, hospitals, etc) located along the proposed alignments for Alternatives 8, 9, or 10. Therefore, the MSAT effects would be equivalent for all of the

Detailed Study Alternatives. This information is included in Section 4.2.1.4 of this document.

United States Department of Commerce, National Oceanic and Atmospheric Administration

Letter Date: November 27, 2007

Comment 1: If there are any planned activities which will disturb or destroy geodetic control monuments, the National Geodetic Survey (NGS) requires notification not less than 90 days in advance of such activities in order to plan for their relocation. NGS recommends that funding for this project include the cost of any required relocation(s).

Response: National Geodetic Survey will be notified at least 90 days prior to construction regarding the relocation of any monuments. The funding for the project will provide for the relocation of such markers.

Comment 2: The location and designation of any horizontal and vertical geodetic control monuments in the proposed project should be identified.

Response: The project final design and survey will identify any horizontal and vertical geodetic control monuments within the proposed right-of-way.

8.3.1.2 State

North Carolina Department of Cultural Resources, State Historic Preservation Office (HPO)

Letter Date: February 28, 2008

Comment: We have reviewed USACE's February 15, 2008, Public Notice for the project. While none of the alternatives will affect archaeological sites eligible for listing in the National Register of Historic Places, Alternatives 9 and 10 will adversely affect the Cates Farm, a National Register-listed property. If either of these alternatives is selected, consultation under Section 106 of the National Historic Preservation Act and the regulations of the Advisory Council on Historic Preservation at 36 CFR 800 will be required.

Response: The NCDOT will continue to coordinate with the HPO and the Advisory Council for Historic Preservation (ACHP) regarding the selection of Alternative 9 as the Preferred Alternative.

North Carolina Dept of Environment and Natural Resources (NCDENR), Environmental Review Coordinator

Letter Date: November 7, 2007

Comment: Several areas need further clarification as noted in the attached comments. We ask that the Dept of Transportation continue to work with our resource agencies in order to adequately address project concerns prior to finalizing plans. Addressing these comments

during the review process and/or during the NEPA Merger process will avoid delays at the permit phase.

Response: The NCDOT will continue to work with the resource agencies to address project concerns during the Section 404/NEPA Merger process.

North Carolina Division of Forest Resources (NCDFR)

Letter Date: November 2, 2007

Comment 1: The NC Division of Forest Resources has reviewed the referenced document and does not object to any of the proposed alternatives. Where woodlands will be impacted, NCDFR would like to see the following points addressed in the final document. List, by timber type, the total forest land acreage that is removed or taken out of forest production as a result of the project. If no impacts will occur, please state so in the document.

Response: The NCDOT surveys for community types rather than merchantable timber. Oak-Hickory Forest, Secondary Pine Forest, and Maintained/Disturbed communities are the three terrestrial communities found in the project study area. These communities are discussed in Section 3.3.1 in the DEIS and in this document. The Oak-Hickory Forest supports a variety of hardwood species including white oak (*Quercus alba*), red oak (*Q. rubra*), Spanish oak (*Q. falcata*), black oak (*Q. velutina*), scarlet oak (*Q. coccinea*), post oak (*Q. stellata*), mockernut hickory (*Carya alba*), shagbark hickory (*C. ovata*), pignut hickory (*C. glabra*), tulip poplar (*Liriodendron tulipifera*), American beech (*Fagus grandifolia*), southern sugar maple (*Acer barbatum*), and red maple (*A. rubrum*). For additional information regarding pine species, understory species, and herbaceous vegetation found in the oak-hickory forest community, refer to Section 3.3.1.2 of this document. Vegetation in the small, fragmented areas along the project alignment where the secondary pine forest community is found include Virginia pine, loblolly pine, and to a lesser extent, red cedar. The herbaceous layer includes such species such as Japanese honeysuckle, wild blackberry (*Rubus* spp.), and greenbrier. The maintained/disturbed community encompasses regularly maintained areas that are dominated by fescue (*Festuca* spp.), ryegrass (*Lolium* spp.), white clover (*Trifolium repens*), red clover (*T. pratense*), plantain (*Plantago rugelii*), wild onion, (*Allium* spp.), wood sorrel (*Oxalis* spp.), and dandelion (*Taraxacum officinale*) and irregularly maintained areas that are dominated by those species previously listed as well as Japanese honeysuckle, tick seed sunflower (*Bidens* spp.), trumpet creeper, wild rose (*Rosa multiflora*), Johnson grass (*Sorghum halepense*), lespedeza (*Lespedeza* spp.), goldenrod (*Solidago* spp.), and wild blackberry. Estimated impacts to terrestrial communities are included in Table 4.14 in this document. Approximately 185 acres of the three community types are estimated to be impacted by the Preferred Alternative.

Comment 2: The provisions the contractor will take to utilize the merchantable timber removed during construction. Emphasis should be on selling all wood products. However, if the wood products cannot be sold then efforts should be made to haul off the material or turn it into mulch with a tub grinder. This practice will minimize the need for debris burning, and

the risk of escaped fires and smoke management problems to residences, highways, schools, and towns.

Response: The NCDOT will ensure that the contractor complies with the *Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects* (FHWA, 2003), specifically Section 203.05 Disposing of Material. This section states that “Where economically and practically feasible, the Contractor is urged to recycle material.” This section discusses methods to recycle or dispose of material off the project, including processing material, selling it for recycling, and burning, among others.

Comment 3: The provisions that the contractor will take during the construction phase to prevent erosion, sedimentation and construction damage to forest land outside the right-of-way and construction limits.

Response: The NCDOT will ensure that the contractor complies with the *Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects* (FHWA, 2003), including all relevant erosion control guidelines and installation methods. Specifically, Section 157.04 states “Before grubbing and grading, construct all erosion controls around the perimeter of the project including filter barriers, diversion, and settling structures. Limit the combined grubbing and grading operations area to 30,000 square meters of exposed soil at one time.” This section also includes specific erosion control and sediment control measures. The contractor will utilize these construction methods to the maximum extent practicable.

With respect to preventing construction damage to land outside the right-of-way and construction limits, Section 201.03 of the *Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects* (FHWA, 2003) states “Perform work within designated limits. Do not damage vegetation designated to remain. If vegetation designated to remain is damaged or destroyed, repair or replace the vegetation in an acceptable manner. Where possible, preserve all vegetation adjacent to bodies of water. Treat cuts or scarred surfaces of trees and shrubs with tree wound dressing.” In addition, Section 212.04 Grading Tolerance states “Do not encroach on stream channels, impact wetlands, or extend beyond right-of-way or easement limits. Do not make alignment or profile grade adjustments that adversely affect drainage.”

The NCDOT will also ensure that the contractor complies with the *NCDOT Standard Specifications for Roads and Structures Book* (July 2006), including Section 1650, which provides guidelines for wooded area cleanup. Section 1650.4 Damage to Remaining Vegetation states that the contractor will “Conduct operations in such a manner as to prevent injury to trees, shrubs, or other types of vegetation that are to remain growing, and also to prevent damage to adjacent property.”

Comment 4: If woodland burning is needed, the contractor must comply with the laws and regulations of open burning as covered under G.S. 113-60.21 through G.S. 113-60.31. Alamance County is classified as a non-high hazard county and G.S. 113-60.24 requiring a regular burning permit applies.

Response: If woodland burning is needed, the contractor will comply with appropriate laws and regulations. In addition, a regular burning permit would be obtained.

North Carolina Wildlife Resources Commission (NCWRC)

Letter Date: November 5, 2007

Comment: The DEIS reflects NCWRC comments from prior meetings and coordination. Additional natural resource minimization efforts will be assessed during concurrence point 4a once the Merger Team has selected a LEDPA. At this time, we concur with the DEIS for this project.

Response: Comment noted.

North Carolina Department of Environment and Natural Resources, Division of Water Quality, Transportation Permitting Unit (NCDWQ)

Letter Date: November 2, 2007

Comment 1: This project is being planned as part of the 404/NEPA Merger Process. As a participating team member, the NCDWQ will continue to work with the team.

Response: Comment noted.

Comment 2: All of the streams in the project area have a supplemental NSW classification for waters of the State. DWQ is very concerned with sediment and erosion impacts that could result from this project. DWQ recommends that highly protective sediment and erosion control BMPs be implemented to reduce the risk of nutrient runoff to the streams in the project area. DWQ requests that road design plans provide treatment of the stormwater runoff through best management practices as detailed in the most recent version of NCDWQ *Stormwater Best Management Practices*.

Response: The NCDOT will use the BMPs outlined in *Best Management Practices for the Protection of Surface Waters* along the entire project, and incorporate sediment and erosion control measures according to the *Design Standards in Sensitive Watersheds* for all construction in High Quality Waters (HQW). During final design of the Preferred Alternative, NCDOT will investigate and implement appropriate stormwater treatment measures as detailed in the most recent version of NCDWQ *Stormwater Best Management Practices*, which may include grassed swale treatment, preformed scour holes, pipe end-treatments, and level spreaders to the extent practicable. The NCDOT will coordinate with regulatory agencies throughout the design process to ensure compliance with applicable environmental regulations.

Comment 3: Review of the project reveals the presence of surface waters classified as Water Supply Critical Area (WS CA) in the project study area. Given the potential for

impacts to these resources during the project implementation, the DWQ requests that DOT strictly adhere to North Carolina regulations entitled *Design Standards in Sensitive Watersheds* (15A NCAC 04B .0124) throughout design and construction of the project. This would apply for any area that drains to streams having WS CA classifications.

Because the project is proposed within the Critical Area of a Water Supply, the NCDOT will be required to design, construct, and maintain hazardous spill catch basins in the project area. The number of catch basins installed should be determined by the design of the bridge, so that runoff would enter said basin(s) rather than flowing directly into the stream, and in consultation with the DWQ.

Response: The NCDOT will incorporate sediment and erosion control measures according to the *Design Standards in Sensitive Watersheds* throughout design and construction of the project. This would apply for any area having Water Supply Critical Area (WS CA) classification.

Hazardous spill protection measures will be provided at stream crossings within ½ mile of the water supply watershed critical area during final design of the Preferred Alternative. At this time, final mapping is anticipated to be available. The NCDOT's *Guidelines for Drainage Studies and Hydraulic Design* (1999) specifies the criteria regarding the location and design of hazardous spill basins. The NCDOT will coordinate with NCDWQ throughout the design process and continue to work with NCDWQ and USACE for Concurrence Points 4b (review development of drainage design with 30 percent hydraulic design) and 4c (review completed drainage design and permit drawings with 100 percent hydraulic design).

Comment 4: Review of the project reveals the presence of surface waters classified as High Quality Waters of the State in the project study area. This is one of the highest classifications for water quality. Given the potential for impacts to these resources during the project implementation, the DWQ requests that DOT strictly adhere to North Carolina regulations entitled *Design Standards in Sensitive Watersheds* (15A NCAC 04B .0124) throughout design and construction of the project. Pursuant to 15A NCAC 2H .1006 and 15A NCAC 2B .0224, NCDOT will be required to obtain a State Stormwater Permit prior to construction.

Response: The NCDOT will incorporate sediment and erosion control measures according to the *Design Standards in Sensitive Watersheds* throughout design and for all construction in HQW. In addition, the NCDOT will obtain a State Stormwater Permit prior to construction.

Comment 5: It is unclear why NCDOT is proposing alternatives that will result in LOS E/F in several intersections for the design year. Although the proposed alternatives divert traffic away from the failing intersections, it appears that NCDOT will need to upgrade these intersections to provide an adequate transportation facility. DWQ feels that any impacts to the natural and human environment that would occur as a result of the intersection upgrades should be included in the impact analysis for the NC 119 Relocation.

Response: Four intersections would operate at LOS E/F in the design year. Three of these intersections (Fifth Street/Mebane Oaks Road, Fifth Street/US 70, and US 70/Third Street) are located along existing NC 119 (Fifth Street) outside of the proposed project study area. Upgrading these intersections throughout downtown Mebane is outside the scope of this project. There are no funded projects in the NCDOT TIP for any of these intersections nor is NCDOT aware of any short-term improvements to upgrade them. The remaining intersection, Mebane Oaks Road/I-85/40 westbound interchange ramps would continue to operate at LOS F in the design year. Upgrading this intersection would likely require additional lanes along the westbound I-85/40 interchange ramp and possibly widening the Mebane Oaks Road bridge over I-85/40, both of which are outside the scope of this project. The Mebane Oaks Road project, formerly TIP Project No. U-3445, which included the widening of Mebane Oaks Road to five lanes between I-85/40 and Fifth Street, as well as the I-85/40 bridge, was completed in 2005. There are minor roadway improvements required of a developer associated with the development of land at the Mebane Oaks Road/I-85/40 interchange, which would consist of lengthening existing turn lanes on exit ramps from I-85/40 to Mebane Oaks Road. There are no funded projects in the NCDOT TIP for this intersection.

Comment 6: Table 4.4 provides an assessment of the effects on Historic Resources for the three alternatives. Alternative 8 is listed as No Effect for the Cates Farm, and Alternatives 9 and 10 are listed as Adverse Effects for the Cates Farm. However, it is DWQ's understanding from field visits and past meetings that the owners of the Cates Farm have stated that they are willing to provide right-of-way for the proposed alternatives, despite the fact that the property is a historic site. Alternatives 8 and 9 impact streams in the Graham-Mebane Reservoir CA watershed. In addition, as stated above, these waters are classified as WS-II; NSW; HQW. DWQ has great concerns regarding any alternatives that would impact these waters.

Response: Alternatives 8, 9, and 10 were selected by the Merger Team from among the Preliminary Study Corridor Alternatives to carry forward for detailed study. Alternatives 8 and 9 pass through the water supply watershed critical area of the Graham-Mebane Reservoir, and Alternatives 9 and 10 pass through the northwestern corner of the Cates Farm property (within the NRHP listed boundary). The NCDOT has coordinated with NCDWQ and USACE to minimize impacts to wetlands and streams through Concurrence Point 2a (bridging decisions and alignment review) and selection of the Least Environmentally Damaging Practicable Alternative [LEDPA] (Concurrence Point 3). The selection of Alternative 9 as the LEDPA was a compromise to minimize impacts to both the Section 4(f) resource, as well as the water supply watershed critical area.

Comment 7: No direct discharges of stormwater shall be allowed for the entire project corridor.

Response: The Section 401 Water Quality Certification application will specify stormwater management methods. NCDOT will develop a stormwater management plan and use appropriate stormwater BMPs to control and/or treat stormwater runoff.

Comment 8: In Section 4.3.3 Jurisdictional Issues on page 4-55 under Compensatory Mitigation, the document states that, “Currently, NCDWQ requires a minimum of 1:1 restoration for wetland and stream impacts.” This statement is confusing. DWQ requires mitigation for streams at a 1:1 ratio. Stream mitigation can be provided by restoration, enhancement, or preservation. DWQ requires mitigation for wetlands at a 2:1 ratio. At least half of the required wetland mitigation must be provided through restoration.

Response: The text in Section 4.3.3 Jurisdictional Issues has been revised to incorporate NCDWQ’s comment.

Comment 9: The environmental document should provide a detailed and itemized presentation of the proposed impacts to wetlands and streams with corresponding mapping. If mitigation is necessary as required by 15A NCAC 2H .0506(h), it is preferable to present a conceptual (if not finalized) mitigation plan with the environmental documentation. Appropriate mitigation plans will be required prior to issuance of a 401 Water Quality Certification.

Response: Proposed impacts to jurisdictional wetlands and streams for the Preferred Alternative, with corresponding mapping, are provided in this document. The NCDOT began evaluating the project corridor for suitable on-site mitigation locations in August 2008. Feasible sites will be coordinated with the regulatory agencies through the Section 404/NEPA Merger process. If on-site mitigation locations are infeasible or insufficient to mitigate all project impacts, mitigation will be provided by the NCEEP through their Memorandum of Agreement with NCDOT and USACE. The NCDOT will continue to coordinate with NCDWQ, USACE, and USEPA regarding mitigation through the Section 404/NEPA Merger process.

Comment 10: Environmental assessment alternatives shall consider design criteria that reduce the impacts to streams and wetlands from stormwater runoff. These alternatives shall include road designs that allow for treatment of the stormwater runoff through best management practices as detailed in the most recent version of NCDWQ Stormwater Best Management Practices, such as grassed swales, buffer areas, preformed scour holes, retention basins, etc.

Response: The NCDOT will investigate and implement appropriate stormwater treatment measures as detailed in the most recent version of NCDWQ *Stormwater Best Management Practices* in the final design phase, which may include grassed swale treatment, preformed scour holes, pipe end-treatments, and level spreaders to the extent practicable. The NCDOT will coordinate with regulatory agencies throughout the design process to ensure compliance with applicable environmental regulations.

Comment 11: After the selection of the preferred alternative and prior to an issuance of the 401 Water Quality Certification, the NCDOT is respectfully reminded that they will need to demonstrate the avoidance and minimization of impacts to wetlands (and streams) to the maximum extent practical. In accordance with the Environmental Management Commission’s Rules {15A NCAC 2H .0506(h)}, mitigation will be required for impacts of

greater than 1 acre to wetlands. In the event that mitigation is required, the mitigation plan shall be designed to replace appropriate lost functions and values. The NC Ecosystem Enhancement Program (NCEEP) may be available for use as wetland mitigation.

Response: Comments noted.

Comment 12: In accordance with the Environmental Management Commission's Rules {15A NCAC 2H .0506(h)}, mitigation will be required for impacts of greater than 150 linear feet to any single perennial stream. In the event that mitigation is required, the mitigation plan shall be designed to replace appropriate lost functions and values. The NC Ecosystem Enhancement Program may be available for use as stream mitigation.

Response: As mentioned previously, the NCDOT began evaluating the project corridor for suitable on-site mitigation locations in August 2008. Feasible sites will be coordinated with the regulatory agencies through the Section 404/NEPA Merger process. If on-site mitigation locations are infeasible or insufficient to mitigate all project impacts, mitigation will be provided by NCEEP through their Memorandum of Agreement with NCDOT and USACE.

Comment 13: Future documentation, including the 401 Water Quality Certification Application, shall continue to include an itemized listing of the proposed wetland and stream impacts with corresponding mapping.

Response: Proposed impacts to jurisdictional wetlands and streams for the Preferred Alternative, with corresponding mapping, are provided in this document and will also be included in the 401 Water Quality Certification Application.

Comment 14: DWQ is very concerned with sediment and erosion impacts that could result from this project. The NCDOT shall address these concerns by describing the potential impacts that may occur to the aquatic environments and any mitigating factors that would reduce the impacts.

Response: Impacts to aquatic communities as a result of the proposed project are discussed in Section 4.3.2 in the DEIS and in this document. In addition, Section 4.2.6.1 in the DEIS and in this document include measures to optimize sediment and erosion control during construction to protect water quality for aquatic organisms.

Comment 15: An analysis of cumulative and secondary impacts anticipated as a result of this project is required. The type and detail of analysis shall conform to the NC Division of Watery Quality Policy on the assessment of secondary and cumulative impacts dated April 10, 2004.

Response: Section 4.4 addresses the indirect and cumulative effects of the proposed project. The project is not anticipated to have growth-stimulating effects and downstream impacts; therefore, the analysis of ICE is qualitative in nature as per the April 10, 2004, policy. The analysis generally follows the eight-step process described in the "Guidance for

Assessing Indirect and Cumulative Impacts of Transportation Projects in North Carolina, Volume II: Practitioner's Handbook (November 2001)" prepared by the Louis Berger Group, Inc., for NCDOT.

Comment 16: The NCDOT is respectfully reminded that all impacts, including but not limited to, bridging, fill, excavation and clearing, to jurisdictional wetlands, streams, and riparian buffers need to be included in the final impact calculations. These impacts, in addition to any construction impacts, temporary or otherwise, also need to be included as part of the 401 Water Quality Certification Application.

Response: Comments noted. Section 4.2.6 of this document includes additional information regarding the impact calculations.

Comment 17: Where streams must be crossed, the DWQ prefers bridges to be used in lieu of culverts. However, we realize that economic considerations often require the use of culverts. Please be advised that culverts should be countersunk to allow unimpeded passage by fish and other aquatic organisms. Moreover, in areas where high quality wetlands or streams are impacted, a bridge may prove preferable. When applicable, DOT should not install the bridge bents in the creek, to the maximum extent practicable.

Response: For new culverts constructed in streams, the inverts will be buried at least one foot below the bed of the stream for culverts greater than 48 inches in diameter. For culverts 48 inches in diameter or smaller, the inverts will be buried below the bed of the stream to a depth equal to or greater than 20 percent of the diameter of the culvert. The NCDOT has coordinated with NCDWQ and USACE regarding bridging decisions through Concurrence Point 2a (bridging decisions and alignment review) and the Merger Team agreed to bridge Mill Creek, a high quality stream. There is one other major drainage structure crossing site that involves a high quality stream and due to the livestock in the stream, it was agreed that instead of bridging this unnamed tributary to Mill Creek (UT 14), a spanning (three-sided) bottomless culvert would be investigated if the site conditions permit it. In addition, the NCDOT will avoid installing bridge bents in creeks to the maximum extent practicable.

Comment 18: Sediment and erosion control measures should not be placed in wetlands or streams.

Response: Sediment and erosion control measures will not be placed in wetlands or streams to the maximum extent practicable. If placement of sediment and erosion control devices in wetlands or streams is unavoidable, they shall be removed and the natural grade restored once the project is complete and fill slopes have been stabilized.

Comment 19: Borrow/waste areas should avoid wetlands to the maximum extent practical. Impacts to wetlands in borrow/waste areas will need to be presented in the 401 Water Quality Certification and could precipitate compensatory mitigation.

Response: Contract standard specifications prohibit a contractor from selecting borrow/waste sites that are in wetland areas. However, unanticipated unavoidable impacts to

wetlands in borrow/waste areas will be included in the 401 Water Quality Certification application.

Comment 20: The 401 Water Quality Certification application will need to specifically address the proposed methods for stormwater management. More specifically, stormwater shall not be permitted to discharge directly into streams or surface waters.

Response: The Section 401 Water Quality Certification application will specify stormwater management methods. NCDOT will develop a stormwater management plan and use appropriate stormwater BMPs to control and/or treat stormwater runoff.

Comment 21: Based on the information presented in the document, the magnitude of impacts to wetlands and streams may require an individual permit application to the Corps of Engineers and corresponding 401 Water Quality Certification. Please be advised that a 401 Water Quality Certification requires satisfactory protection of water quality to ensure that water quality standards are met and no wetland or stream uses are lost. Final permit authorization will require the submittal of a formal application by the NCDOT and written concurrence from the NCDWQ. Please be aware that any approval will be contingent on appropriate avoidance and minimization of wetland and stream impacts to the maximum extent practical, the development of an acceptable stormwater management plan, and the inclusion of appropriate mitigation plans where appropriate.

Response: Comments noted.

Comment 22: Bridge supports (bents) should not be placed in the stream when possible.

Response: The NCDOT will avoid installing bridge bents in streams to the maximum extent practicable.

Comment 23: Whenever possible, the DWQ prefers spanning structures. Spanning structures usually do not require work within the stream or grubbing of the stream banks and do not require stream channel realignment. The horizontal and vertical clearances provided by the bridges allow for human and wildlife passage beneath the structure, do not block fish passage and do not block navigation by canoeists and boaters.

Response: Comment noted.

Comment 24: Bridge deck drains should not discharge directly into the stream. Stormwater shall be directed across the bridge and pre-treated through site-appropriate means (grassed swales, pre-formed scour holes, vegetated buffers, etc.) before entering the stream. Please refer to the most current version of NCDWQ *Stormwater Best Management Practices*.

Response: The NCDOT will investigate and implement appropriate stormwater treatment measures as detailed in the most recent version of NCDWQ *Stormwater Best Management Practices* in the final design phase. The NCDOT restricts the use of bridge deck drains on bridges, wherever practicable. Stormwater will be directed across the bridge and pre-treated

through site-appropriate means, wherever practicable. At the Section 404/NEPA Merger Concurrence Point 4b (review of conceptual drainage design with 30 percent hydraulic design) meeting, the NCDOT will review with the Merger Team the proposed drainage for purposes of team concurrence.

Comment 25: If concrete is used during construction, a dry work area should be maintained to prevent direct contact between curing concrete and stream water. Water that inadvertently contacts uncured concrete shall not be discharged to surface waters due to the potential for elevated pH and possible aquatic life and fish kills.

Response: These recommendations follow the NCDOT's standard design practices.

Comment 26: If temporary access roads or detours are constructed, the site shall be graded to its preconstruction contours and elevations. Disturbed areas shall be seeded or mulched to stabilize the soil and appropriate native woody species shall be planted. When using temporary structures the area shall be cleared but not grubbed. Clearing the area with chain saws, mowers, bush-hogs, or other mechanized equipment and leaving the stumps and root mat intact allows the area to re-vegetate naturally and minimizes soil disturbance.

Response: Where temporary access roads and detours are required, the NCDOT will consider regrading to preconstruction contours and elevations on a case-by-case basis and will do so where reasonable. Disturbed areas will be reseeded following construction. Where temporary bridge structures are required, the area will be cleared but not grubbed.

Comment 27: Placement of culverts and other structures in waters, streams, and wetlands shall be placed below the elevation of the streambed by one foot for all culverts with a diameter greater than 48 inches, and 20 percent of the culvert diameter for culverts having a diameter less than 48 inches, to allow low flow passage of water and aquatic life. Design and placement of culverts and other structures including temporary erosion control measures shall not be conducted in a manner that may result in dis-equilibrium of wetlands or streambeds or banks, adjacent to or upstream and downstream of the above structures. The applicant is required to provide evidence that the equilibrium is being maintained if requested in writing by DWQ. If this condition is unable to be met due to bedrock or other limiting features encountered during construction, please contact the NCDWQ for guidance on how to proceed and to determine whether or not a permit modification will be required.

Response: Comments noted. Placement of culverts and other structures in waters, streams, and wetlands will be countersunk as indicated above. The NCDOT will continue to work with NCDWQ and USACE through Concurrence Points 4b (review of conceptual drainage design with 30 percent hydraulic design) and 4c (review surface drainage design and permit drawings with 100 percent hydraulic design).

Comment 28: If multiple pipes or barrels are required, they shall be designed to mimic natural stream cross section as closely as possible including pipes or barrels at floodplain elevation and/or sills where appropriate. Widening the stream channel should be avoided. Stream channel widening at the inlet or outlet end of structures typically decreases water

velocity causing sediment deposition that requires increased maintenance and disrupts aquatic life passage.

Response: At the Section 404/NEPA Merger Concurrence Point 4b (review of conceptual drainage design with 30 percent hydraulic design) meeting, the NCDOT will review with the Merger Team the proposed drainage for purposes of team concurrence.

Comment 29: If foundation test borings are necessary; it shall be noted in the document. Geotechnical work is approved under General 401 Certification Number 3494/Nationwide Permit No. 6 for Survey Activities.

Response: It is anticipated that foundation test borings will be necessary. During the final design stage of the project, the NCDOT will obtain any required permits pertaining to foundation test borings prior to beginning the construction phase of the project.

Comment 30: Sediment and erosion control measures sufficient to protect water resources must be implemented and maintained in accordance with the most recent version of North Carolina Sediment and Erosion Control Planning and Design Manual and the most recent version of NCS000250.

Response: In order to sufficiently protect water resources in the project area, the NCDOT will implement the appropriate sediment and erosion control measures as detailed in the most recent version of the North Carolina Sediment and Erosion Control Planning and Design Manual and the most recent version of NCS000250. This includes sediment and erosion control measures according to the Design Standards in Sensitive Watersheds for all construction in HQW zones.

Comment 31: All work in or adjacent to stream waters shall be conducted in a dry work area. Approved BMP measures from the most current version of NCDOT Construction and Maintenance Activities manual such as sandbags, rock berms, cofferdams and other diversion structures shall be used to prevent excavation in flowing water.

Response: All current approved and appropriate BMPs will be followed.

Comment 32: While the use of National Wetland Inventory (NWI) maps, NC Coastal Region Evaluation of Wetland Significance (NC-CREWS) maps and soil survey maps are useful tools, their inherent inaccuracies require that qualified personnel perform onsite wetland delineations prior to permit approval.

Response: Wetlands in the project study area were identified by qualified personnel performing onsite surveys and delineations.

Comment 33: Heavy equipment should be operated from the bank rather than in stream channels in order to minimize sedimentation and reduce the likelihood of introducing other pollutants into streams. This equipment shall be inspected daily and maintained to prevent

contamination of surface waters from leaking fuels, lubricants, hydraulic fluids, or other toxic materials.

Response: These recommendations follow the NCDOT's standard design practices.

Comment 34: Riprap shall not be placed in the active thalweg channel or placed in the streambed in a manner that precludes aquatic life passage. Bioengineering boulders or structures should be properly designed, sized, and installed.

Response: These recommendations follow the NCDOT's standard design practices.

Comment 35: Riparian vegetation (native trees and shrubs) shall be preserved to the maximum extent possible. Riparian vegetation must be reestablished within the construction limits of the project by the end of the growing season following completion of construction.

Response: The NCDOT will include language in the construction contract to address minimizing the amount of vegetation that is removed and reestablishing the riparian vegetation to the amount practical within the project limits.

North Carolina Department of Environment and Natural Resources, Division of Environmental Health, Public Water Supply Section

Letter Date: October 11, 2007

Comment 1: The portion of this project north of Highway 70 will drain into the Graham-Mebane Water Supply Reservoir. Therefore, extreme care should be taken to provide adequate spill protection and erosion control. Proper catchment design and construction is critical.

Response: The NCDOT will incorporate sediment and erosion control measures according to the *Design Standards in Sensitive Watersheds* throughout design and construction of the project. Hazardous spill protection measures will be provided at stream crossings within ½ mile of the water supply watershed critical area during final design of the Preferred Alternative. At this time, final mapping is anticipated to be available. The NCDOT's *Guidelines for Drainage Studies and Hydraulic Design* (1999) specifies the criteria regarding the location and design of hazardous spill basins.

8.3.2 Public Comments and Responses

8.3.2.1 General Summary of Comments Received

Verbal and written comments received at and following the Corridor Public Hearing, including those from the White Level Community petition, were grouped into common comment categories. Common topics raised by citizens after publication of the DEIS are summarized below, with number of comments indicated. Copies of all comment letters received from the public are included in Appendix I – Part 2.

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Corridor Road	2
Request for Right-of-Way and Relocation Pamphlet	1
Loss of Buffers	1
Design Recommendations / Questions	

8.3.2.2 *Comments and Responses*

Verbal and written responses that were received from the public commenting on the project are summarized below, with responses as appropriate. The commenter's name is included in parenthesis after each comment.

No-Build Alternative (22)

Comments: One citizen indicated that at every meeting she has attended, it is stated that a No-Build Alternative still exists. She adds that there is an overwhelming amount of opposition to

the project; however, the project continues to move forward. She questions whether a No-Build option still exists (*Auditori*).

Several citizens do not want to see the project built and request that NCDOT consider cancelling the project (*Bradley, B. Byrd, McCracken, I. Byrd, Oldham, Albright, Benson, D. Bumgarner, B. Tate, Piper, Petty, Steering Committee, Wells, Ekwueme-Okoli, J. Godfrey, M. Godfrey, W. Godfrey, Crawford, Ridge*). Ms. McCracken added that there are other places that need improvement more than this project is needed. Mr. Hawks is against the project due to the hardship it would create for his property (*Hawks*), while the Weavers commented that the project should be looked at closely or dropped (*Weaver*).

Responses: Comments noted. The No-Build Alternative has not formally been eliminated under the National Environmental Policy Act (NEPA) process. However, the No-Build Alternative does not meet the purpose and need for the Relocation of NC 119 project, as discussed in the DEIS and in this document. This project is also still included in the NCDOT's 2009-2015 State Transportation Improvement Program (TIP), as well as on the Burlington / Graham Long Range Thoroughfare Plan.

Progress of Project / Project Concerns (21)

Comments: One citizen requested to be kept informed on the progress of the project since his property would be impacted and possibly relocated based on the current design (*Warren - Sonic Drive In*), while another citizen questioned how many people attended the meeting (*Harrison-d'Almada*). One citizen wanted to know who determined the impact on agricultural use, as well as NCDOT's contact at the National Register of Historic Places concerning this project (*W. Jeffreys*).

Responses: All individuals who submitted written comments at the Public Hearing were added to the project mailing list, if they were not on it already. In addition, newsletters are distributed throughout the planning process of the project to update the public on the status of the project. As required by the Farmland Protection Policy Act (FPPA), coordination with the Natural Resources Conservation Service (NRCS) for this project was initiated by submittal of Form AD-1006, *Farmland Conversion Impact Rating*, included in Appendix E. The NRCS completed their portions of this form and provided a relative value of farmland that may be affected (converted) by the proposed project. Additional information regarding farmland is included in Section 4.2.5 in the DEIS and in this document. The NCDOT's contact person regarding historic properties is Ms. Mary Pope Furr, NCDOT Historic Architecture Supervisor [(919) 715-1620 or mfurr@ncdot.gov].

Comments: Two citizens indicated that they were not aware that the project's design changes would affect them, one of them saying "the bypass has gone from a four-lane road to a six-lane road without any public notification" (*Gerringer, D. Bumgarner*). Ms. Bumgarner doesn't understand the need for six lanes and comments that a portion of Section A was changed because of the West End Community and requests the NCDOT to look at the options for the first phase again – "our entire way of life depends on you." Two citizens stated that they were not notified of the project's impact on their neighborhood and home; one requesting to be notified in the future (*Wicker, Ekwueme-Okoli*). Ms. Ekwueme-Okoli commented that Part A of the project has no alternative routes and has not been discussed with the community affected by the project. She thinks Part A should have alternative routes. One citizen commented that the City opened N. Fifth Street to Stagecoach Road

without notifying the affected residents and adds that the residents north of US 70 have a voice in this project (*J. Moffitt*). Another citizen was shocked that Section A would take his home. He had not received the newsletter distributed in June 2006 and would not have put a brand new home on the property, had he known (*Murphy*). Mr. Murphy commented that Mebane does not need a six-lane highway and adds that four-lanes are enough since this project will lead to a rural part of the community to the north. One citizen questioned why this route was chosen so long ago and has taken so long to implement (*Oldham*).

Responses: Newsletter No. 4 was distributed in June 2006 and included a discussion, as well as a picture, of the six-lane typical section at the beginning of the project. The typical section proposed near the beginning of the project varies in width due to projected traffic volumes. As mentioned in the newsletter, the six-lane roadway extends from the I-85/40 interchange to the new intersection of realigned Third Street Extension and realigned Fifth Street. The objective of the identification of the preliminary study corridors was to compare and evaluate corridors sharing common end points and eliminate those with fatal flaws or those that had substantially more impacts when compared to other corridors. Potential roadway alignments were overlaid onto land suitability maps to avoid the sensitive features identified to the extent possible and in accordance with the design criteria for the project. Then, preliminary study corridors were developed for the project area. The study corridors were combined to create seven Preliminary Corridor Alternatives for study on this project. These corridors were presented to the public at various workshops, as well as the Merger Team, to get input. At this time, there were several preliminary study corridors south of US 70 in Part A. The Merger Team then reduced the number of preliminary study alternatives based on various impacts to each alternative to four and finally to three alternatives. As stated in the newsletters, several ways the community can stay involved and obtain project information is by calling the project hotline, accessing the project website, or contacting a member of the project team. The NCDOT is available to hold small group meetings with communities, upon request. Any agency that proposes a project with federal involvement, such as federal funding, must comply with the NEPA. Under NEPA, an agency must study the adverse and beneficial impacts of reasonable alternatives that meet the project's purpose and need. This process requires numerous engineering, community, and environmental studies, as well as extensive public and agency involvement. The NCDOT strives to maintain a reasonable schedule for its projects while ensuring full compliance with NEPA.

Comments: Ms. Albright believes it was unethical that the project was impacted by weekly contacts between the City and NCDOT for more than a year (*Albright*). One citizen questioned if the purpose of the proposed project is to resolve projected or current traffic problems (*Jackson*). Mr. Jackson added that there will be a bottleneck at Mrs. White Lane once the four-lane highway ends in White Level, while another citizen agreed that the project should not stop at Mrs. White Lane (*Dove*). One citizen is concerned about the road width being too wide (*Hoover*), while another citizen commented that the proposed project passes through Mebane and would divide the town (*Piper*). Mr. Piper added that "the word bypass means go around, not through." Two citizens commented that the proposed road is an interstate, one of them adding that "a road with limited access, no private drives, and four to six lanes is not a bypass (*Holland, Baptiste*)." Mr. Holland asked who benefits from the project, while another citizen asked what "no driveway access" means (*Bradley*). One citizen commented that "all existing alternatives do not address the tremendous amount of growth south of I-85 (*Moore*)." Another citizen inquired which of the many perspectives voiced at the public hearing would be considered (*Adkins*). Mr. Adkins added that "as a business

owner along Fifth Street, your [NCDOT's] actions will affect my future growth plans and have caused me to delay one expansion to date. When will we, as business owners, have a concrete decision to work with so that we can move forward and develop our investments?" One citizen commented that the State has six other major cities that have approved bypasses that are delayed and questions how there is money to fund this project (*Holloway*).

Responses: One purpose of the project is to reduce traffic congestion in downtown Mebane. Both existing and projected deficiencies in levels of service along existing NC 119 cause substantial travel delay. Traffic flow on most sections of NC 119 in and around the project study area is projected to reach undesirable levels of service by the year 2030. However, traffic flow on the cross streets at several of the intersections studied along the existing NC 119 corridor is currently exceeding the capacity limits of the intersection. There is a project in the NCDOT's TIP (Project R-3105) that includes widening NC 119 in Alamance County beginning south of White Level Road and constructing a connector to NC 62 on new location in Caswell County. However, this project is currently unfunded. The NCDOT initially studied several Preliminary Corridor Alternatives that tied into existing NC 119 north of Mrs. White Lane; however, these alternatives were eliminated due to their impacts to the water supply watershed critical area of the Graham-Mebane Reservoir. The length of these alternatives within the watershed critical area was much greater than alternatives tying into existing NC 119 south of Mrs. White Lane. The Travel Analysis Report prepared for the project indicates that additional lanes are needed at the beginning of the project to handle the projected traffic volumes. As the project continues northward and based on the traffic volumes, the typical section is decreased to a four-lane facility for the remainder of the project. The proposed road is not an interstate, but will be similar to a parkway. An interstate has full control of access and limited control of access is proposed for this project; therefore, access to the facility will be provided at existing intersections. Limited control of access does not allow private driveways along the proposed facility. Residents would access the proposed facility through the existing intersections such as Mebane Rogers Road and US 70 or realigned roads proposed as a part of this project such as realigned Third Street Extension and realigned Fifth Street. This project would benefit both the local community as well as regional commuters through the area. Removing through traffic from downtown Mebane would make it easier for residents along existing NC 119 to access their homes, as well as making it easier for citizens to drive through downtown. The proposed project would make it easier for through traffic and commuters to reach the areas west and north of Mebane and it would provide emergency vehicles an alternate way to get to emergencies on the south side of the railroad tracks when there is a train on the tracks. In addition, this project could potentially encourage economic development, specifically encouraging development of the North Carolina Industrial Center (NCIC). The project limits are based upon input from the Burlington-Graham Metropolitan Planning Organization (MPO), who initially included this project in the local TIP in 1992, as well as the NCDOT Board of Transportation Member for this area. All of the purposes of this project: to reduce traffic congestion, improve access to the local area, and provide Alamance County with a primary north-south route refer specifically to pressure on the downtown Mebane street system and the circuitous routing of NC 119 through the City of Mebane and between I-85/40 and northern Alamance County. The NCDOT discussed each of the verbal and written comments received at the Public Hearing during a Post Hearing Meeting. These meeting minutes serve as a record of what was discussed. There was a meeting held in June with the Merger Team to discuss the Least Environmentally Damaging Practicable Alternative (LEDPA) or Preferred Alternative for the project. At this meeting, the Merger Team selected Alternative 9 as the Preferred Alternative.

Relocation / Right-of-Way (19)

Comments: Several citizens are concerned about being impacted and possibly relocated by the project (*Brewer, Harrington, Bradley, Dove, Hoover, Oldham, Causey, Ritchie, W. Bumgarner, Whitted*), some of whom are trying to sell their property, but cannot find a buyer due to the uncertainty regarding whether their home will be taken. Some of the citizens are opposed to various alternatives or sections of the project which either take part of their property, diminishing its value or take all of their property (*Heafner, Ekwueme-Okoli*). Ms. Ekwueme-Okoli comments that having two small children and having to rethink schools for them, makes the project timeline seem very near for her. One citizen does not feel that the NCDOT's offer will be sufficient to replace what he has worked to upgrade since 1971 (*G. Bumgarner*), while another citizen requests that his 30-year home restoration project not be destroyed (*Piper*). One citizen suggests that NCDOT should impact the vacant Walter Kidde building instead of her home (*D. Bumgarner*), while another citizen is concerned about one of the alternate routes coming behind his house on a "farm that's been there over 100 years (*J. Jeffreys*).” There were also some general questions concerning right-of-way acquisition such as “When is the anticipated purchase date for houses? Would they [NCDOT] buy earlier? The market might change by 2010 (*Gerringer*)” and “What happens to the property NCDOT buys, but does not use it all (*Murphy*).” Two citizens commented that regardless of whether NCDOT buys property or takes property, they want to be treated fairly (*O. Wilson, Warren – Sonic Drive In*).

Responses: Comments noted. The Walter Kidde plant was not impacted because it is an operating business at this time. According to the NCDOT 2009 – 2015 TIP, right-of-way acquisition is anticipated to occur in Fiscal Year (FY) 2011. An impacted property owner may request to be purchased sooner through NCDOT's Hardship Acquisition process. Hardship acquisition is initiated by the property owner because of particular financial or health-related hardship. Decisions regarding whether a property will be acquired sooner than the right-of-way date included in the NCDOT's TIP are evaluated on a case by case basis. The NCDOT is not in the business of purchasing property that is not needed for the project right-of-way. However, if property is purchased and then all of it is not needed, the property owner would be given the opportunity to buy that portion back from the State.

East Side Alternative / Traffic Study (19)

Comments: Several citizens indicated that an alternative on the east side of town should be revisited (*Harrington, Baptiste, Bradley, Jackson, B. Byrd, Hoover, M^cCracken, I. Byrd, Buffington, Oldham, Causey, Weaver, Crawford, Burke, B. Tate, Piper, Murphy, Robinson, Phillips*). They believe that Mebane's growth areas have changed in the last few years and a traffic study should be done now, rather than using outdated data collected years ago before Mebane's growth pattern changed. They comment that most development has occurred on the east and south side of Mebane/I-85 and new development appears to be coming to the former Buckhorn Jockey lot. In addition, one citizen adds that traffic is heavy on Lebanon Road and from Lebanon Road to Efland; which will not be alleviated by a highway on the west side of town. Another citizen commented that the east side alternative is shorter, costs less, and would remove more traffic from downtown Mebane by utilizing High Rock Road, Lebanon Road, US 70, and Washington Street, as well as Fifth Street for eastbound traffic. The east side alternative would incorporate ramps at Mattress

Factory Road allowing traffic to use the Mebane Oaks Road interchange, the new Mattress Factory Road interchange, and the Buckhorn Road interchange. Comments were made that no one will use the new road because it requires motorists to drive west of town to go east. In addition, several citizens commented that the Lumber Company on the east side of town is no longer in operation and felt that the east option from Mattress Factory Road or Buckhorn Road should be revisited. Several citizens would like to see the “known” impacts of an east side alternative compared to the west side alternatives (such as number of relocations), instead of the “possible” impacts mentioned in the document.

Responses: Preliminary alternatives for Project U-3109 were identified in 1997. As a result of public input, two different east side alternatives were added to the preliminary alternatives. Both alternatives were eventually eliminated because they did not meet the purpose and need for the project. Impacts and costs were anticipated to be of equal or greater magnitude with the east side alternatives. Although both east side and west side routes would be beneficial to the area, the needs served by a west side route would differ from the needs served by an east side route. An east side alternative would not serve the local Mebane community as well as a west side alternative since it would not pass through the areas anticipated to experience the most growth. Additionally, the western route would provide connectivity among several highly-traveled routes – Mebane Rogers Road, US 70, South Third Street, and I-85/40 – in close proximity to the central business district, and would thus benefit local travel. Historically, the relocation of NC 119 has consistently been proposed for the west side of Mebane. The City of Mebane thoroughfare plan cites the west side of Mebane as the most beneficial place for the relocation of NC 119. Local officials anticipate Mebane will experience large amounts of industrial and residential growth on the west side of the city, as indicated in the city’s land use plan. The current Burlington/Graham Long Range Thoroughfare Plan map shows a new location route proposed for the east side of Mebane in addition to TIP Project U-3109, shown on the west side of Mebane. Reducing traffic congestion in downtown Mebane is a purpose of the proposed project. Results of traffic forecast models indicate that west side alternatives are much more effective than east side alternatives in reducing traffic through Mebane’s Central Business District. The east side alternative reduces traffic in downtown Mebane to such a low degree, it was eliminated from further consideration as not being an effective, as well as cost effective, measure of reducing the traffic congestion in downtown by comparison to the western alternatives. Another purpose of the NC 119 Relocation project is to provide Alamance County with a primary north-south route. An east side alternative would require motorists to travel a longer distance along NC 119 from north of Mebane to I-85/40 compared to west side alternatives. A west side alternative would reduce the distance from existing NC 119 north of town to the existing segment of NC 119 south of the interstate to approximately 4.5 miles as compared to 8 miles for the east side alternatives. In addition, due to the location of the Buckhorn Road interchange and the Mattress Factory Road grade separation at I-85/40, the close proximity of a city-owned recreational lake (Lake Michael) and existing development (residential, industrial, and commercial), east side alternatives would require a lengthier route that would provide less direct access to the interstate, especially to motorists desiring to travel west on I-40 or south on I-85. In contrast, the west side alternatives provide a direct, north-south route to areas north of Mebane for those who are trying to access the I-85/40 corridor. A north-south route is currently lacking in the Alamance County Urban Area. After a review of the east side corridors, it appears that either east side alternative would have equal or greater impacts to both the natural and human environments than a west side alternative. Impacts for the east side alternative connecting to Mattress Factory Road included higher residential

relocations, possible impacts to public park land, and increased wetland impacts. The alternative that connects to Buckhorn Road would have similar environmental impacts. This alternative would also pass near the Paisley-Rice Cabin, which is listed on the National Register of Historic Places. In addition, the City of Mebane does not feel that the growth pattern in Mebane has changed and adds that the development at Buckhorn Road is outside of Mebane's Extraterritorial Jurisdiction (ETJ) and is within Orange County.

Access / Median Openings (16)

Comments: Several citizens are concerned about access to their property with the proposed project (*Warren – Sonic Drive In, Skenes, Sejpal, Benson, Hoover*). Ms. Causey indicates that all three alternatives divide the Cates Farm property into sections; leaving some areas unusable without proper access to the proposed route and other areas landlocked (*Causey*). Ms. Conyard is concerned that the State is moving the access problem from one area along NC 119 to another (*Conyard*). The White Level Community is concerned about access to Ray's Community Store, as well as nearby residences (Alston, White) (*White Level Community*). In addition, the White Level Community is concerned that existing NC 119 is not accessible and will take longer with the proposed tie-in. They are concerned that some residents, especially older citizens, would find the new route distracting and confusing. The Mill Creek Homeowners Association (MCHOA) is concerned about the proposed design for access to and from the proposed bypass and their community in the vicinity of St. Andrews Drive near the northern terminus of the project (*Nunemaker*). Mr. Hall requested that the Smith Drive intersection be relocated on the north side of the Duke Power easement to better serve the surrounding acreage of the NCIC and added that an access point on the northern side of the NCIC is imperative (*Hall*). Mr. Petty is not in favor of this project because it puts a cul-de-sac at his property and due to the placement of the road, he will not be able to sell his property as commercial or business (*Petty*).

Responses: Comments noted. Ray's Community Store is situated across the street from White Level Road; therefore, patrons leaving Ray's Community Store would be able to access NC 119 either north or south. The Alston's would have access onto NC 119 in either direction also. The White's would have access onto existing NC 119 south. The NCDOT acknowledges that residents from the White Level community, and other areas north of Mebane, would be required to make an additional left turn to access existing NC 119 with the proposed project. The proposed traffic signal in that area is anticipated to facilitate access to existing NC 119; however, there may be a slight delay trying to make the left turn. The NCDOT will also provide directional signs to existing NC 119 from the proposed roadway. Under the proposed design, a motorist would be required to make one turn to get from existing NC 119 onto the proposed roadway. The design proposed by the MCHOA would require a motorist to make two turns to get from existing NC 119 onto the proposed roadway. The proposed design should facilitate access from existing NC 119 to the proposed roadway; therefore, the design to and from the proposed roadway near the northern project limit will remain as it is currently proposed. The North Carolina Industrial Center (NCIC) requested two access points off the proposed NC 119 roadway. One access point, located across from the Fieldstone community, was shown on the Public Hearing Map. The NCIC requested that NCDOT shift the Smith Drive intersection north of the Duke Power easement so that it would line up with the NCIC's second access point shown on their Master Plan. The NCDOT considered shifting the Smith Drive intersection to the north side of the Duke Power easement; however, this shift would require a

realignment of Smith Drive and relocation of several residences along Smith Drive. The NCDOT will provide an access point on the northern side of the NCIC across from the Smith Drive intersection; however, it will be south of the Duke Power easement. The NCDOT will continue to work with the NCIC regarding the design and placement of this access point.

Comments: Mr. Hawks is concerned about the lengthy median in front of the property he represents, Fox Run Investments Partnership, resulting in right-in/right-out access and requests that the median be reconsidered and “alternatives that allow businesses in this corridor to continue to serve the traveling customer without creating difficulties in returning to their journey” be considered (*Hawks*). Mr. Tate [Dogwood Properties & Dev. Corp.] is concerned about access to the back of his property with the re-routing of S. Fifth Street from the front of his property to the back and the concrete divider shown on the map at the hearing and requests full access to S. Fifth Street behind his property (*W. Tate*). Mr. Tate spoke with a right-of-way agent at the hearing who suggested that this would not be a problem. The City states that it will discourage those developments that will require new access points to NC 119 north of US 70 other than those areas of access deemed to be necessary in the planning stages for the service of existing communities (*Mebane City Council*). Ms. Phillips would like to see access to La Casina shown more clearly on the maps (*Phillips*). One citizen is concerned about accessing the proposed road if the four-lane highway runs from Mebane to Danville (*Dove*).

Responses: The NCDOT requires full control of access approximately 1,000 feet on either side of an interchange. This means that residences and businesses, such as Fox Run Investments Partnership, that are situated within 1,000 feet from the I-85/40 interchange would not have direct access onto NC 119, but would access NC 119 from a service road or connector road. Controlling the access and providing channelization in the vicinity of the interchange decreases the turning conflicts for drivers. The proposed roadway is six lanes in this area and removing the median to allow vehicles to turn left across three lanes, plus a median is a safety concern for the NCDOT. In addition, the NCDOT requires a minimum of approximately 1,200 feet between intersections with the design speed that is currently proposed. Providing a full movement intersection at the Fox Run Investments Partnership property or at the proposed service road next to the property would not provide the necessary intersection spacing required by the NCDOT. Therefore, the median in this area will not be eliminated. Providing full access onto S. Fifth Street from the back of the Dogwood Properties & Dev. Corp. property would not provide the necessary intersection spacing of 1,200 feet required by the NCDOT. In addition, realigned S. Fifth Street has three lanes turning left onto the proposed NC 119 in addition to through lanes and providing full access from the Dogwood Properties & Dev. Corp. property onto S. Fifth Street is a safety concern for the NCDOT; therefore, the concrete median will not be eliminated in this area. However, the NCDOT could provide a right-in/right-out access into the Dogwood Properties & Dev. Corp. property from S. Fifth Street, if desired. Access to La Casina will be shown more clearly on the public hearing maps. The NCDOT will work with Cambridge Center LLC to determine access to the property. In addition to the I-85/40 interchange, access to the proposed four-lane facility would be provided at Holmes Road, realigned Fifth Street and realigned Third Street Extension, as well as realigned Third Street Extension near the US Post Office, Smith Drive, US 70 connector, Mebane Rogers Road, and White Level Road.

Water Supply Watershed (16)

Comments: Several citizens, including the Steering Committee, are concerned about the project's impact on the water supply watershed critical area, including runoff from the new road causing more drainage into the watershed and major spills on the new road contaminating the community's water supply. They believe impacting the water supply watershed critical area would have a negative long-term impact on the quality of the Graham-Mebane Critical Water Supply for citizens of the area (*Brewer, Harrington, B. Byrd, Steering Committee, Owens, Nunemaker, L. Davis, T. Johnson, Petersen, White Level Community, G. Bumgarner, Bateman, Albright*). The majority of these citizens prefer an alternative that is not in the watershed or that steps are taken to minimize impact on the watershed. One citizen feels that the project will cause watershed pollution to their children "for years to come" (*B. Tate*), while another citizen feels that the project's impact on the Graham-Mebane reservoir should receive the highest priority by applying design techniques that will minimize the runoff of pollutants (*Nunemaker*). The Mebane City Council wants to ensure that the NC 119 project does not intrude into the water quality critical area of the City of Graham/Mebane water supply (*Mebane City Council*).

Responses: Comments noted. There was a meeting held in June with the Merger Team to discuss the LEDPA, or Preferred Alternative, for the project. At this meeting, the Merger Team selected Alternative 9 as the Preferred Alternative. The selection of Alternative 9 as the LEDPA was a compromise to minimize impacts to the Cates Farm, a Section 4(f) resource, as well as the water supply watershed critical area. An estimate of impervious surfaces that will be added for the length of each alternative in the watershed critical area is included in this document. In addition, construction of the Preferred Alternative (Alternative 9), a portion of which lies within the Graham-Mebane Reservoir water supply watershed, would include various methods to protect the water quality in the streams and waterbodies receiving runoff from the proposed project. The NCDOT's *Best Management Practices for Protection of Surface Waters* (1997) will be adhered to during construction of the proposed project. In addition, sediment and erosion control BMPs as described for HQW in *Design Standards in Sensitive Watersheds* (15A NCAC 04B .0124) must be adhered to throughout design and construction of the project. These regulations require that sediment and erosion control measures, structures, and devices within high quality water zones be planned, designed, and constructed to provide protection from the runoff of the 25-year storm that produces the maximum peak rate of runoff. Hazardous spill protection measures will be provided in the design of the Preferred Alternative at stream crossings within ½ mile of the water supply watershed critical area. These basins are included along highway segments that are in close proximity to particularly sensitive waters, such as water supply sources.

Fifth Street (14)

Comments: Several citizens expressed concern about the amount of traffic along Fifth Street which makes it difficult for them to access their driveways. Some citizens expressed concern at the thought of traffic on N. Fifth Street continuing at the present rate or getting worse, calling it a "nightmare and dangerous situation" (*Matthews, J. Moffitt, R. Moffitt, Jobe*). There is concern among other citizens that based on the current traffic volumes, Fifth Street and Third Street now serve as thoroughfares instead of residential streets, as intended (*Nunemaker*). One citizen is concerned about all the traffic on Third Street and Fifth Street and stated that it is dangerous to get

into and out of South Mebane Elementary School (*Phillips*). Ms. Phillips added that the congestion and traffic in downtown is a “mess.” Another citizen commented that trucks are going through Mebane and coming out on Fifth Street to avoid the weigh station (*Hoover*). One citizen stated that “if the DOT is so concerned about Fifth Street, why did they build a five-lane road and dump it straight into Fifth Street (*Wells*)?” Ms. Wells added that she does not see how the proposed road would get any traffic off Fifth Street. Residents of Fifth Street hope the project would reduce the traffic down that street; however, they feel that would not happen due to the “commercial zoning that feeds to that particular street (*Albright*).” Another citizen did not understand why Fifth Street would “dump into a four-lane highway just to go about a half mile to an intersection of the new six-lane 119 highway and dead end the existing Fifth Street (*Murphy*)?” Dr. Troutman is concerned because his new dental office is affected by the Fifth Street realignment and he can’t lose any parking spaces (*Troutman*). He inquires whether the beginning of the realignment could be moved south of his property. One citizen is concerned with the Fifth Street realignment since his property has been on the market for some time; however, no one is interested in his property because of this project (*W. Tate*). Still another citizen who travels Fifth Street and downtown almost every day did not think there is a heavy traffic problem (*B. Tate*). One citizen currently has access to Fifth Street and is concerned whether she will have access to the proposed realigned Fifth Street (*Oldham*). Ms. Oldham also questions whether revisions to the realignment of Fifth Street would occur now that Dr. Troutman is building a dental office and how such revisions to the design would affect her property. Another citizen suggested widening existing NC 119 from Stagecoach Road to Mill Creek since this does not involve relocations (*McCracken*).

Responses: A table including the 2030 traffic volumes on existing NC 119 for the No-Build Alternative and the Build Alternatives was prepared based on traffic volumes developed using the *Project Traffic Forecasts – NC 119 Relocation* report (see Section 2.6.1 in the DEIS and FEIS). Existing NC 119 (Fifth Street) was divided into four segments for comparison purposes. According to the table, existing NC 119 (Fifth Street) would experience reductions in traffic volumes of 23 – 81 percent under the Build Alternatives in comparison to the No-Build Alternative. The reduction in traffic volume through the central business district of Mebane compared to the No-Build Alternative is 67 percent. The proposed project is anticipated to result in decreased traffic volumes, including truck traffic, and congestion within the downtown area by removing through traffic on existing NC 119. The NCDOT discussed Dr. Troutman’s concerns and will look at the preliminary design in the vicinity of Dr. Troutman’s property to see if anything can be done to reduce impacts to the property. Ms. Oldham voiced her concerns previously in an email and the NCDOT responded that based on what the public hearing map shows, she would not be landlocked because there is no proposed control of access shown along that section of the realigned Fifth Street, it appears a driveway would be permitted. However, if that were to change and her property were to be landlocked, the Department would acquire her entire property. Widening existing NC 119 from Stagecoach Road to Mill Creek may not involve any relocations; however, widening a small section of existing NC 119 would not support the purpose or need of the proposed project. In order to meet the purpose and need of the project, existing NC 119 would need to be widened from Stagecoach Road to I-85/40; which would require numerous relocations.

Requests for Response to Written Comment / Phone Call / Meeting (13)

Comments: Several citizens asked for a response to their written comments (*McCracken, Buffington, Skenes, Ekwueme-Okoli, Jackson-White Level Community, Nunemaker, B. Tate, W. Tate, Murphy, Hawks, Adkins*), while one citizen requested a phone call (*C. Johnson*). Another citizen who owns 18 acres zoned B2 along S. Fifth Street voiced concerns that the road is going too close in front of his property and requested a meeting (*Benson*).

Response: The NCDOT will respond to the individuals listed above either through writing, a phone call, or a meeting, as requested.

Traffic (10)

Comments: A few citizens indicated that there is not a traffic problem in town and disagree with the way the project adds traffic to Mrs. White Lane (*B. Tate*). Another citizen said there is not sufficient traffic to warrant a bypass (*Holloway*). One citizen commented that some help with traffic was needed (*G. Bumgarner*). An additional request to place traffic calming devices when connecting Tate Avenue to Corridor Road was made by the Mebane City Council (*Mebane City Council*). Two citizens commented that if the reason for the project is traffic on Third and Fifth Streets, the City should have banned truck traffic on these streets already (*Baptiste, B. Byrd*). One citizen asked what could be done to ease the traffic problem in the Mrs. White Lane area (*Jackson*). Mr. Jackson adds that if there isn't a plan for Part C, then the community is going to have to live with the amount of traffic that would be directed from Mebane to Mrs. White Lane. Another citizen commented that regardless of which direction (east or west) you are traveling, Map Quest queries do not recommend taking Fifth Street (*J. Jeffreys*). Mr. Jeffreys added that to get to I-85, he travels Buckhorn Road. One citizen commented that Mill Creek has other exits in addition to NC 119, but the White Level Community only has one way to NC 119. They also noted that a proposed retirement complex would add traffic to NC 119 (*Wells*). One citizen commented that the Mebane City Council stated that Mebane Oaks Road from I-85/40 is already being overloaded with traffic coming from the housing developments located south of Mebane (*Robinson*).

Responses: Comments noted. As discussed in Sections 1.3 and 1.4 in the DEIS and in this document, traffic flow and levels of service on most segments of NC 119 in and around the project study area are projected to reach undesirable levels of service by the year 2030. According to the *Project Traffic Forecasts – NC 119 Relocation* report prepared for this project, average daily traffic (ADT) volumes along existing NC 119 from Mebane Oaks Road to US 70 for the year 2030 are predicted to be between 32,000 and 36,100 which is substantially above the daily capacity of a two-lane, two-way urban street. Similar traffic congestion is also forecasted for US 70 between Fifth Street and Second Street within the central business district of Mebane. The forecasted ADT for this segment of US 70 ranges from 27,200 to 31,100 which are well over the capacity of a two-lane, two-way street. Existing and projected deficiencies in levels of service along existing NC 119 cause substantial travel delay by decreasing travel speeds, increasing the potential for accidents, and contributing substantially to the inefficient operation of motor vehicles. Additional information regarding the transportation network in the Mebane area is included in Sections 1.9 and 2.6 in the DEIS and in this document. The NCDOT heard from several residents that trucks working in the Mill Creek community are contributing to the truck traffic on Mrs. White Lane. In response to the

White Level community's concerns, the NCDOT is studying whether a traffic signal is currently warranted at the NC 119 / Mrs. White Lane intersection and whether a traffic signal would be warranted within five years of construction of the proposed project. Results of this analysis are included in this document. The NCDOT cannot place traffic calming devices on state roads, such as Corrigidor Road or Tate Avenue; however, the NCDOT will evaluate providing a crosswalk with a required stop along Corrigidor Road near the Mebane Arts and Community Center. If Corrigidor Road becomes a City of Mebane owned and maintained street (i.e. on their street system), then it would up to the City to decide whether to add traffic calming devices. In addition, truck traffic can be directed to an alternate route bypassing Corrigidor Road; however, the NCDOT cannot prohibit trucks from Corrigidor Road if it remains a state owned road. The NCDOT 2009 – 2015 TIP includes a project immediately north of the NC 119 Relocation project which is the proposed widening of NC 119 between White Level Road in Alamance County and NC 62 in Caswell County; this project is currently unfunded. Several concerns received pertain to topics that are under the City of Mebane's jurisdiction; however, the NCDOT is willing to facilitate discussions with the City concerning banning truck traffic on various roads around the City, re-routing Mill Creek community construction traffic to alleviate the congestion in the Mrs. White Lane area, and addressing exit routes to NC 119 from the Mrs. White Lane area.

Mill Creek Development (9)

Comments: Many citizens stated the belief that the proposed project is being constructed to benefit the Mill Creek Community and provide direct access to its golf course. Some feel that the proposed road goes to nowhere and needs to serve the majority of Mebane area residents, not just one development that was promised this road years ago (*Robinson, Buffington, Petty, G. Bumgarner, B. Tate, Murphy*). One citizen does not agree with "building a super highway for people in the Mill Creek Community or to get to a golf course" and does not think the bypass would save time (*McCracken*). One citizen wondered what direction the golfers are coming from and stated that Mill Creek knew when they built the development that they would have a distant, indirect route from the interstate. One citizen stated that the proposed road would add seven miles to the Mill Creek residents commute to RTP each way (*Baptiste*). Another citizen commented that Mill Creek is getting a lot of the project's advantages (*Jackson*).

Responses: Comments noted. As indicated in the DEIS and in this document, the purpose of the NC 119 Relocation project is to reduce traffic congestion in downtown Mebane, improve access to surrounding communities, and provide Alamance County with a primary north-south route. The realignment of Third Street Extension to intersect with the proposed facility would facilitate access to the new roadway for residents of the Fieldstone community, as well as residents along Third Street. The improvements to Corrigidor Road would facilitate access to the Mebane Arts and Community Center for the West End community. Additionally, the proposed connection of Smith Drive to the new facility would facilitate access to the new roadway for the West End community. The proposed project would also provide a bridge that crosses over the railroad, US 70, and Holt Street; providing Mebane with its only route across the railroad tracks when a train occupies the tracks. The proposed project would be situated just east of the North Carolina Industrial Center (NCIC), facilitating access to the NCIC from I-85/40 which is anticipated to bring economic development to the area. The proposed facility would also provide a more direct and efficient north-

south route for commuters to reach the areas west and north of Mebane, including into Caswell County.

Construction Phasing / Maintenance (9)

Comments: Several citizens are concerned about the project being constructed in two phases, with Section A going nowhere until Section B is built. They think the project should be constructed in its entirety (Sections A and B) because “minimal benefit will accrue to the Mebane area if Section B of this project” is not built (*Harrington, G. Bumgarner, D. Bumgarner, Nunemaker*). One citizen asked who is going to maintain the new road and expressed concern that there are few connections from the proposed route to the community (*Conyard*). Another citizen commented that there are already many miles of roads that need repair in North Carolina (*Albright*), while another citizen asked about the number of the interstate that is planned for this bypass (*Hoffman*). One citizen wanted information on when this project would begin construction so she has an idea what to do about her plans (*C. Johnson*) and another citizen inquired how long construction would take (*Bradley*).

Responses: Comments noted. The NCDOT discussed constructing the project in its entirety (Sections A and B); however, funding allocations in NCDOT’s 2009 – 2015 TIP necessitate the project being constructed in sections. The NCDOT also discussed construction options such as whether a portion of Section B can be constructed at the same time Section A is constructed. As the final design phase approaches, the NCDOT will request updated cost estimates to assist with this determination. The proposed facility would be a state owned road and therefore, maintained by the State. The proposed route name has not been established at this time, but would not be part of the interstate system. The proposed facility would provide several connections to the community. As discussed above, the realignment of Third Street Extension to intersect with the proposed facility near the US Post Office would facilitate access to the new roadway for residents of the Fieldstone community, as well as residents along Third Street. The improvements to Corrigidor Road would facilitate access to the Mebane Arts and Community Center for the West End community. The proposed connection of Smith Drive to the new facility would facilitate access to the new roadway for the West End community. The proposed project would also provide a bridge that crosses over the railroad, US 70, and Holt Street; providing Mebane with its only route across the railroad tracks when a train occupies the tracks. A connector road from the proposed facility to US 70 would facilitate access to the new roadway. Additional access points to the proposed facility include the realignment of Third Street Extension and Fifth Street just north of the NC 119 / I-85/40 interchange and the Mebane Rogers Road intersection. According to the NCDOT 2009 – 2015 TIP, right-of-way acquisition for Section A is anticipated to occur in Fiscal Year (FY) 2011. Construction for Section A is scheduled to occur in FY 2013. The TIP includes money appropriated for construction for Section A for FY 2013, FY 2014, and FY 2015. Right-of-way acquisition and construction for Section B are scheduled post year, after FY 2015, and is currently unfunded. In general, a project of this size takes anywhere from three to five years to be constructed.

Project Delays (8)

Comments: Several citizens commented that this project has been delayed and fought over for too long. They want the NCDOT to pick a route and aggressively proceed with the project with no more delays (*Causey, R. Moffitt, Gill, R. Wilson, Mebane City Council, Bateman, Louis, Matthews*).

Responses: As discussed previously, Alternative 9 was selected as the Preferred Alternative at a meeting held in June with the Merger Team. The FEIS is anticipated to be completed spring 2009. Construction is currently scheduled to begin in 2013.

Street Closings (7)

Comments: Several citizens, including the Steering Committee, voiced concern that the proposed project, specifically the dead end streets being created by the project, would promote drug traffic, crime, or gangs in the Mebane area requiring additional expense to monitor and resulting in increased financial and health expenses for damages to the persons and property affected (*Brewer, Holland, Ekwueme-Okoli, Steering Committee*). Ms. Ekwueme-Okoli added that the project's purpose is to make downtown more accessible, allowing residents access to the local businesses, but Part A converts Third Street into a dead-end road before Holmes Road, cutting off access to Food Lion and doctor's offices that were a mile away.

Responses: Comments noted. Modifications to local roads are common for new location projects. T-turn arounds (similar to cul-de-sacs) are designed in areas where access onto the new roadway by local traffic would not be safe or would diminish the facility's use according to the design criteria. The NCDOT provided service roads and right-in/right-out access where practical along the project to facilitate access to existing residences and businesses. In response to public input from the West End community, the NCDOT proposed roadway improvements that include the extension of Corrigidor Road to connect with Tate Avenue and a short extension of Roosevelt Street to connect with the Corrigidor Road extension. These proposed roadway extensions would provide improved access for the West End community to community facilities and services and would also create improved circulation patterns within a community that currently has several dead-end streets. Also in response to public input from the West End community, the NCDOT proposed the extension of Smith Drive to tie into the new NC 119 facility; improving circulation patterns within the community and eliminating a dead-end street. In addition, during final design the NCDOT will evaluate whether right-in/right-out access to the Brookhollow Shopping Center can be provided from a design and safety perspective to facilitate access to local businesses in the shopping center.

Comments: Several citizens raised concerns about the proposed closing of existing NC 119 at Mill Creek at the end of the project near Mrs. White Lane. They feel that southbound turns from Mrs. White Lane would be dangerous and northbound turns would be compromised or impossible. Access to existing NC 119 south of the Mill Creek community would be circuitous and time consuming for citizens coming from Mrs. White Lane (*Jackson, Connally, White Level Community*). Mr. Jackson added that traffic coming from Ray's Store is going to have to take a right turn and work its way back to Mrs. White Lane to make a right turn onto NC 119. The Steering Committee added that existing NC 119 would not be accessible and travel times for residents using the proposed tie-in would be increased. They added that the proposed tie-in could be potentially confusing for elderly residents.

Responses: The NCDOT acknowledges that residents from the White Level community, and other areas north of Mebane, would be required to make an additional left turn to access existing NC 119 with the proposed project. The proposed traffic signal in that area is anticipated to facilitate

access to existing NC 119; however, there may be a slight delay trying to make the left turn. The NCDOT will also provide directional signs to existing NC 119 from the proposed roadway.

Property Values (7)

Comments: Several citizens are concerned and/or have questions about the proposed project decreasing their property value (*Harrington, Arnold, Causey, White Level Community, Wicker, Whitted*). Another citizen is concerned about the median shown in front of the property he represents [Fox Run Investments Partnership], resulting in right-in/right-out only access, which would not only devalue the property, but also probably force closures of establishments that feed off highway traffic (*Hawks*).

Responses: Comments noted. In an effort to minimize impacts to the human environment, the NCDOT proposed a service road that would provide access from the Fox Run Investments Partnership property to the proposed facility, as opposed to the NCDOT purchasing the property as part of the project.

Upcoming Meetings (6)

Comments: One citizen suggested information he would like to see presented at the next hearing, including traffic studies of the main arteries coming off of NC 119 from I-85/40 to downtown Mebane; a timeline regarding all meetings/discussions that have led to the current plan/suggestion; and address why there was not an east side of Mebane option connecting I-85/40 to NC 119 (*Burke*). The White Level Community recommended showing the end of this project from I-40 to Danville, VA on presentation maps, instead of stopping at Mrs. White Lane (*White Level Community*). One citizen commented that the Mill Creek Community was not shown on the maps and requested that it be added to the maps (*Holland*). Another citizen questioned the credibility of what was shown at the hearing (*O. Wilson*). One citizen commented that a larger map would show the affected watershed (*J. Jeffreys*). Another citizen suggested that a form of visual presentation of the area, showing what the alternatives would look like on the ground, would assist in making a recommendation on an alternative (*Nunemaker*).

Responses: Comments noted. A capacity analysis for the NC 119 Relocation project was performed to compare roadways in the project study area for the Build and No-Build Alternatives. Results of this analysis are included in the *NC 119 Relocation Travel Analysis Report* prepared for the proposed project. This information is usually not discussed in detail at public meetings because there are typically only a handful of individuals that are interested in this type of information. However, the *NC 119 Relocation Travel Analysis Report* is available upon request and the NCDOT is available to meet with small groups of individuals to discuss project information. In addition, traffic volumes at various intersections along the project are shown on the Public Hearing Maps. Details regarding public involvement activities, including small group meetings, merger team meetings, steering committee meetings, citizen informational workshops, and elected officials meetings are included in Chapter 8 Agency Coordination and Public Involvement in the DEIS and in this document. For discussion on an alternative on the east side of Mebane, refer to the East Side Alternative / Traffic Study comment category above, as well as Section 2.5.3.1 in the DEIS and in this document. The maps included in the DEIS include the project begin and end limits (I-85/40 to

south of Mrs. White Lane); however, there is a map in the DEIS that shows the existing road network from south of I-85/40 to north of Mrs. White Lane into Caswell County, but it does not include portions of Virginia. The NCDOT can display this Existing Road Network map from the DEIS at a larger scale or can prepare a reference map that includes southern Virginia for future public meetings, if desired. Including portions of Virginia on every project map would affect the scale of each map and the project study area would appear quite small on the maps. In addition, the NCDOT will look into adding the Mill Creek community and a larger portion of the watershed to various project maps for reference, if the mapping is currently available. In the future, the NCDOT will consider utilizing a form of visual presentation or renderings of each of the alternatives to assist the public in selecting their preferred alternative.

Traffic Signals (6)

Comments: Several individuals had comments regarding traffic signals or signal studies at various intersections. Several individuals requested a traffic signal be studied at Mrs. White Lane and existing NC 119 due to poor visibility and long waits during peak hours, especially with Mill Creek residents using this road to access NC 119 also (*Jackson, Connally, White Level Community*). One citizen requested that sensors on the traffic lights be considered to avoid long waits when through traffic is minimal (especially from the access to the Post Office) (*L. Davis*). One citizen indicated that a previous request for a signal at Holmes Road and Fifth Street was denied due to signal warrants not being met (*Murphy*). Another citizen indicated that it is difficult to turn left off Holmes Road onto NC 119 due to the backup of traffic at this intersection and indicated that a traffic signal is necessary (*Anonymous*).

Responses: In response to public input, the NCDOT is studying whether a traffic signal is currently warranted at the NC 119 / Mrs. White Lane intersection and whether a traffic signal would be warranted within five years of construction of the proposed project. If a traffic signal is warranted during the five year timeframe, the traffic signal will be included as part of this project. The NCDOT will investigate actuated traffic signals (traffic signals with a sensor loop) instead of pretimed traffic signals, specifically at the realigned Third Street Extension near the US Post Office. The NCDOT previously studied whether signal warrants were met at the Holmes Road / Fifth Street intersection. Based on the NCDOT's study, if a traffic signal was installed at the Holmes Road / Fifth Street intersection, the traffic turning left onto Holmes Road from Fifth Street would backup into the I-85/40 interchange. Additionally, based on the crash data for this intersection, installing a traffic signal would not eliminate many of the reported accidents at this intersection. Therefore, the request for a traffic signal at the Holmes Road / Fifth Street intersection was denied. As part of the proposed project, the Holmes Road / Fifth Street intersection would become a right-in/right-out; therefore, a traffic signal would not be provided at this intersection.

Environmental Impacts (6)

Comments: One citizen stated concern for irreplaceable impacts to air, water, the quality of the land, as well as other health impacts (*O. Wilson*). The Steering Committee believes that the proposed project would "degrade the air quality throughout the Mebane area." They noted that "gasoline and diesel burning vehicles are a major source of air pollution associated with adverse respiratory and cardiovascular damage (*Steering Committee*)." One citizen, as well as the White

Level Community indicated that an increase in large trucks would compromise air quality, increasing smog, air pollution, and noise pollution, etc (*Brewer, White Level Community*), while another citizen asked about pollution associated with the proposed project (*Ekwueme-Okoli*). The Steering Committee stated concern that the proposed project would “cause deterioration of the quality of life in three very old historic and family-oriented communities of West End, White Level, and Woodlawn (first rural incorporated NC community).” One citizen is concerned about added noise since the project would be built behind her home (*Arnold*).

Responses: Comments noted. Section 4.2 in the DEIS and in this document includes a discussion of air quality and noise impacts as a result of the proposed NC 119 Relocation project. The worst-case air quality scenario was determined to be in the vicinity of the intersection of the proposed roadway and Third Street Extension due to potential grade separation at other intersections. Since the results of the worst-case 1-hour CO analysis for Alternatives 8, 9, and 10 are less than 9 parts per million (ppm), it can be concluded that the 8-hour CO level does not exceed the standard. Comparison of the predicted CO concentrations with the National Ambient Air Quality Standards (NAAQS) indicates that standards would not be exceeded in 2005, 2015, or 2025. Therefore, none of the Detailed Study Alternatives are anticipated to create an adverse micro-scale effect on air quality in the study area. The DEIS and FEIS also include a discussion in Section 4.2.1.4 of air toxics regulated by US Environmental Protection Agency (EPA). For each alternative in the DEIS, the amount of MSATs emitted would be proportional to the vehicle miles traveled, or VMT, assuming that other variables such as fleet mix are the same for each alternative. The VMT estimated for each of the Detailed Study Alternatives is slightly higher than that for the No-Build Alternative, because the additional capacity increases the efficiency of the roadway and attracts rerouted trips from elsewhere in the transportation network. This increase in VMT would lead to higher MSAT emissions for the action alternative along the highway corridor, along with a corresponding decrease in MSAT emissions along the parallel routes. The emissions increase is offset somewhat by lower MSAT emission rates due to increased speeds. Because the estimated VMT under each of the Detailed Study Alternatives are the same, it is expected there would be no appreciable difference in overall MSAT emissions among the various alternatives. Also, regardless of the alternative chosen, emissions will likely be lower than present levels in the design year as a result of USEPA’s national control programs that are projected to reduce MSAT emissions by 57 to 87 percent between 2000 and 2020. The relocation of the roadway contemplated as part of the project alternatives will have the effect of moving some traffic closer to nearby homes, schools and businesses; therefore, under each alternative there may be localized areas where ambient concentrations of MSATs could be higher under the Detailed Study Alternatives than the No-Build Alternative. The localized increases in MSAT concentrations would likely be most pronounced along the roadway sections that would be built near the Fieldstone community, residences located along the western boundary of the West End community, and near the Woodlawn community near Mebane Rogers Road under all of the Detailed Study Alternatives. However, the magnitude and the duration of these potential increases compared to the No-Build Alternative cannot be accurately quantified due to the inherent deficiencies of current models. In summary, when a highway is relocated and, as a result, moves closer to receptors, the localized level of MSAT emissions for the Detailed Study Alternatives could be higher relative to the No-Build Alternative, but this could be offset due to increases in speeds and reductions in congestion (which are associated with lower MSAT emissions). Also, MSATs will be lower in other locations when traffic shifts away from

them. Additional information regarding MSAT's is included in this document based on comments received from USEPA.

Construction of the Preferred Alternative (Alternative 9), a portion of which lies within the Graham-Mebane Reservoir water supply watershed critical area, would include various methods to protect the water quality in the streams and waterbodies receiving runoff from the proposed project. NCDOT's *Best Management Practices for Protection of Surface Waters* (1997) will be adhered to during construction of the proposed project. In addition, sediment and erosion control BMPs as described for HQW in *Design Standards in Sensitive Watersheds* must be strictly adhered to throughout design and construction of the project. These regulations require that sediment and erosion control measures, structures, and devices within HQW zones be planned, designed, and constructed to provide protection from the runoff of the 25-year storm that produces the maximum peak rate of runoff. Hazardous spill protection measures will be provided in the design of Alternative 9 at stream crossings within ½ mile of the water supply watershed critical area. These basins are included along highway segments that are in close proximity to particularly sensitive waters, such as water supply sources. The design of the proposed roadway includes a shoulder typical section for the majority of the project instead of curb and gutter. Several methods may be used in areas with grass shoulders to treat stormwater runoff in the roadway right-of-way. NCDOT will investigate and implement appropriate stormwater treatment measures in the final design phase, which may include grassed swale treatments, preformed scour holes, pipe end-treatments, and level spreaders to the extent practicable. NCDOT typically develops a Stormwater Management Plan for all projects. In addition, because high quality waters are affected by this project, a State Stormwater Permit is required.

Without the proposed project, trucks comprise about six percent of the average daily traffic along existing NC 119 between I-85/40 and US 70. Along US 70, trucks comprise about five percent of the average daily traffic, which decreases to three percent along NC 119 north of US 70. With the proposed NC 119 Relocation project, trucks make up about six percent of the average daily traffic along the proposed facility between I-85/40 and north of Mebane Rogers Road, while the percentage of trucks along existing NC 119 from north of I-85/40 to US 70 is projected to decrease to four percent. The truck percentage along US 70 and along NC 119 north of US 70 is projected to remain the same with or without the proposed project. In addition to reducing the traffic volumes along existing NC 119, the proposed project would decrease the truck traffic through downtown Mebane by providing an alternative north-south route in Alamance County.

As discussed in Section 4.2.2 in the DEIS and in this document, Alternatives 8 and 10 would incur the most noise impacts with 11 residences and 1 business impacted. Alternative 9 would impact 10 residences and 1 business. Of these, there are four substantial noise level impacts anticipated by this project by the selection of Alternatives 8 or 10. Alternative 9 has three anticipated substantial noise level impacts. The Project Commitments included in the DEIS state that "once a preferred alternative is selected, noise impacts will be re-evaluated and a determination made if noise barriers should be re-considered." The NCDOT re-evaluated the noise impacts and the results of the study are included in this document.

Section 4.1.2.3 in the DEIS and in this document addresses the potential effects of the NC 119 Relocation project on neighborhoods and the community at large. Community cohesion impacts

could include the effects of neighborhood division, social isolation, changes in community character, increased/decreased neighborhood or community access, and shortened travel times. This section in the DEIS and in this document describe the impacts specific to the neighborhoods identified in the study area.

Infrastructure (5)

Comments: One citizen commented that changes to the White Furniture building in downtown Mebane have been approved to include numerous shops, business and office space, and residential units (*Nunemaker*). Mr. Nunemaker adds that this change will bring additional traffic to downtown and relieving downtown congestion by “removing those vehicles that otherwise must pass through the downtown” cannot be overemphasized. Another citizen commented that the proposed roadway does not provide additional connections to area communities and questioned if there would be on and off ramps (*Conyard*). Ms. Conyard added that Mebane has existing infrastructure problems, such as sewer, sidewalks, maintaining local roads, and roadside cleanup. Another citizen stated that new sidewalks were recently added to sections of Third Street and questioned why this was completed if the NCDOT is planning to tear it up (*Gerringer*). In addition, the City will not encourage development along NC 119 north of US 70 and will institute zoning and subdivision protection to protect the environmental resources of the community (*Mebane City Council*). One citizen questioned how the NCDOT would resolve all the road and driveway connections that currently connect to NC 119, if the proposed roadway is planned to be limited access. He also questions how these connections can be constructed to facilitate access for the White Level Community, as well as communities around town (*Jackson*). He added that he has a direct path to town now, but with the improvements proposed near the northern terminus of the project, he would have to go through the Woodlawn area to get a loaf of bread.

Responses: The NC 119 Relocation project is not being proposed as a freeway and will therefore, not have on and off ramps. The proposed facility will be similar to a parkway. Limited control of access is being proposed; therefore, access to the facility will be provided at existing and future intersections. In addition to providing access at existing intersections along the project, such as US 70 and Mebane Rogers Road, the proposed facility would provide additional connections to area communities via the realigned Third Street Extension and realigned Fifth Street intersection, the proposed realignment of Third Street Extension near the US Post Office, and the connection of Smith Drive to the new facility. If an existing roadway is proposed to be realigned, the NCDOT would provide a tie-in so that the existing portion of the roadway can still be accessed. There are also several locations where an existing roadway is not permitted to have access onto the proposed roadway due to the limited access control; a T-turn around is proposed at the end of the existing roadway. The NCDOT designed the proposed NC 119 Relocation project to meet the purpose and need of the project, but acknowledges that some communities or citizens located along a proposed route may experience a slight increase in travel time to various destinations, while experiencing a slight decrease in travel time to other destinations. The portion of the proposed roadway that includes curb and gutter from the beginning of the project to south of the Fieldstone subdivision and US Post Office would include 5-foot sidewalks, upon request by the City of Mebane. For information regarding the City of Mebane’s sewer system, please refer to the Urban Sprawl / County Taxes category or Section 4.4.6 in the DEIS or FEIS. In 2006, the City of Mebane added sidewalks along a portion of Third Street in the vicinity of the US Post Office. The NC 119 Relocation project

is not anticipated to be constructed until fiscal year 2013, which means that the existing sidewalks would be in place to service the pedestrian traffic in that area for seven years before the proposed project is constructed. In 2006, the City of Mebane recognized a need for sidewalks in this area and instead of waiting for a future project to include sidewalks, the City went ahead and incorporated sidewalks along that portion of Third Street. The benefit of providing the sidewalk in the short term with the possibility that a portion would have to be replaced under the proposed project outweighed waiting for the NC 119 Relocation project to be constructed. In addition, the proposed NC 119 Relocation project would include sidewalks along the proposed roadway, not necessarily along the intersecting roads, such as Third Street. In addition to providing access at existing intersections as mentioned above, such as US 70 and Mebane Rogers Road, the proposed facility would provide additional connections to area communities with the extension of Smith Drive in the West End community and the realignment of Third Street Extension near the US Post Office in the Fieldstone community. The Woodlawn community could access the proposed facility along Mebane Rogers Road or White Level Road and the White Level community could access the proposed facility along Mrs. White Lane.

Area Middle and High Schools (5)

Comments: Several citizens, including the Steering Committee, expressed concern that the proposed project would create a safety hazard for middle and high school students and staff, as well as the residents of the Woodlawn Community, by encouraging truck and car traffic heading south on NC 49 toward I-85/40 to take the shorter route by traveling Mebane Rogers Road (*Brewer, Steering Committee, Aycock, B. Tate, Albright*).

Responses: Comments noted. According to the *Project Traffic Forecasts – NC 119 Relocation* prepared for this project, trucks comprise about three percent of the average daily traffic along Mebane Rogers Road west of existing NC 119. With the proposed NC 119 Relocation project, trucks will make up about three percent of the average daily traffic along Mebane Rogers Road west of the proposed facility in the design year (2030). Therefore, the same truck percentages are projected along Mebane Rogers Road with or without the proposed facility. While a section of Mebane Rogers Road (east of existing NC 119) would experience increased traffic volumes with the proposed project, the design year traffic volumes west of the proposed roadway with the proposed project would be lower than the design year traffic volumes west of existing NC 119 (Fifth Street) without the proposed project (Figures 1.6 and 2.4). The NCDOT recognizes that experienced truck drivers may take the shorter route by traveling Mebane Rogers Road from NC 49; however, the NCDOT would not sign the roadways in the project area, such as Mebane Rogers Road as a truck route to I-85/40.

Truck Route (4)

Comments: The Steering Committee is concerned that the proposed roadway would “become a busy truck route into Virginia” and “a probable route for a future landfill up 119 N (Pleasant Grove area) (*Steering Committee*).” One citizen feels that if the proposed highway becomes a truck route, it would “create environmental damage and health problems (*Conyard*).” Two citizens do not think that truck traffic exists on NC 119 (*Wells, Murphy*).

Responses: Comments noted. Without the proposed project, trucks comprise about six percent of the average daily traffic along existing NC 119 between I-85/40 and US 70. Along US 70, trucks comprise about five percent of the average daily traffic, which decreases to three percent along NC 119 north of US 70. With the proposed NC 119 Relocation project, trucks comprise about six percent of the average daily traffic along the proposed facility between I-85/40 and north of Mebane Rogers Road, while the trucks along existing NC 119 from north of I-85/40 to US 70 is projected to decrease to four percent. The truck percentage along US 70 and along NC 119 north of US 70 is projected to remain the same with and without the proposed project. The proposed project would decrease the truck traffic through downtown Mebane, while maintaining the current truck percentage along the proposed facility as along existing NC 119 through downtown. The potential development of a future landfill along NC 119 north of Mebane would be a result of the decisions made by the appropriate city or county government.

Third Street (4)

Comments: Several citizens expressed opposition to the realignment of Third Street Extension (*McCracken, Ekwueme-Okoli*). Ms. Ekwueme-Okoli commented that the realignment would not ease congestion in downtown, but access to the Post Office would bring more traffic to Third Street and downtown. She comments that traffic would not take the proposed roadway because it is too far from downtown. She adds that rerouting Third Street takes advantage of homeowners who do not have much road frontage; forcing them to sell their property. Ms. Ekwueme-Okoli commented that if Part B goes through, she proposes a connection on Third Street below Holmes Road which would not require any displacements and would maintain access to the businesses. Another citizen suggested that for safety reasons, Third Street can be closed at Holmes Road (*Sejpal*). One citizen does not think Third Street has a traffic problem (*Wells*).

Responses: Comments noted. The realignment of Third Street Extension was included as a part of this project to give Mebane area residents, particularly those who live between Fifth Street and US 70, access to the proposed facility in addition to the realigned Fifth Street / realigned Third Street Extension intersection and the extension of Smith Drive intersection with the proposed NC 119. Without the realignment of Third Street Extension near the US Post Office, the remaining intersections with the proposed NC 119, including those mentioned previously, would experience traffic congestion from vehicles trying to access the proposed facility.

Woodlawn Road (4)

Comments: The Mebane City Council does not want Woodlawn Road to become a dead-end. They suggested giving the property owners a new connection from Woodlawn Road to Mebane Rogers Road (*Mebane City Council*). One citizen commented that “Option 8 [is] very undesirable due to [its] relationship to road (Schmidt).” Another citizen commented that instead of increasing access between I-40, US 70, Mebane Rogers Road, and Stagecoach Road, access was being cut off for one of Mebane’s main arteries, Woodlawn Road (*Baptiste*). Mr. Baptiste added that closing Woodlawn Road would add a mile to the high school students’ drive to school and instead of taking the proposed roadway, they would drive through town, passing by an elementary school. Another citizen is concerned about access for the Woodlawn Community, the high school students, and the whole area by closing Woodlawn Road (*Bradley*).

Responses: The NCDOT previously studied realigning Woodlawn Road to tie into Mebane Rogers Road, but providing this connection would impact Johnson Chapel A.M.E. Church, as well as a stream in that area. The NCDOT discussed several possibilities regarding how to provide additional access to the proposed facility for the Woodlawn Road residents, as well as the Woodlawn community. Based on public input, the NCDOT has decided to study a potential realignment of Woodlawn Road to tie into the proposed facility. This realignment is included in this document and will be presented to the public at the next public meeting.

Cates Farm (4)

Comments: Two citizens expressed concern regarding impacts to the Cates Farm historic property, especially with North Carolina continuing to lose its farms (*Ritchie, Albright*). Ms. Ritchie added that four generations of Cates descendants have and are residing on the property. The Mebane City Council requested that the NCDOT facilitate highway construction in the vicinity of the Cates Farm to not distract from the historical significance of the site (*Mebane City Council*). One citizen indicated that crossing Mill Creek where proposed in the three alternatives would be expensive due to the geographical components of the property and that crossing along Cooks Mill Road would be less expensive (*Causey*). Ms. Causey added that “there are other possible alternatives which are not being considered for reasons similar to those affecting the use of the Cates property. If these concerns can be overlooked for the Cates property, why not for others?”

Responses: The NCDOT developed several alternatives for this project to avoid or minimize impacts to the watershed critical area and to the Cates Farm historic property. The three alternatives selected for detailed study included one alternative that avoided each of these resources and one that impacted both, but following an alignment that minimized impacts to each as much as possible. The alternative that was selected by the Merger Team as the Least Environmentally Damaging Practicable Alternative (LEDPA) is Alternative 9. One of the reasons why this alternative was selected as the Preferred Alternative was because it minimized impacts to both resources. The design cost associated with crossing Mill Creek along a Cooks Mill Road alternative would be significantly higher than where the project currently proposes to cross Mill Creek.

Health / Human Impact (4)

Comments: The White Level Community is concerned about the health impact, specifically the increase in stress from decision making with the proposed project (*White Level Community*). One citizen commented that health impacts from the proposed roadway may include reduced IQ and lung capacity for area children, increased incidents of asthma, and increased cardiac disease and cancer (*Holland*). Mr. Holland added that lead would enter the community from vehicle tires. One citizen is concerned with property taken from low-income and minority communities (*O. Wilson*). Another citizen is concerned about the African-American community in west Mebane and feels the project would destroy their neighborhood (*Robinson*).

Responses: Comments noted. In terms of air quality, the air quality analysis determined that none of the Detailed Study Alternatives are anticipated to create an adverse micro-scale effect on air quality in the study area. According to the EPA, there are plans to phase out the use of lead wheel

weights by the year 2011, well before the anticipated construction of the project. As mentioned in Section 2.5.3 in the DEIS and in this document, several alternatives were eliminated from further study due to their impacts (specifically numerous relocations) on the West End community. In addition, based on input from the communities in the project study area, new alternatives were developed that met the purpose and need while minimizing impacts to the surrounding communities. Additionally, the NCDOT is proposing to extend Smith Drive to intersect the proposed facility, thus providing access for the West End community to the proposed facility. The proposed project also includes extending Corrigidor Road from Third Street, past the Mebane Arts & Community Center, to Tate Avenue in the West End community. Roosevelt Street would also tie into the extension of Corrigidor Road, providing additional connectivity within the West End community. Additional information regarding concerns about environmental impacts associated with the proposed project is discussed above under Environmental Impacts.

Brookhollow Plaza / Access (3)

Comments: Citizens are concerned that the proposed project would make ingress and egress from the Brookhollow Plaza Shopping Center, as well as the Cambridge Center LLC property difficult. They requested a change in the access, north of the Holmes Road intersection, to allow a right-in/right-out entrance to the Center (*Skenes, Mebane City Council*). Another citizen suggests changing the proposed access from “controlled access” to “partially restricted access” into the shopping center (*Anonymous*). This access would be parallel to the Fidelity Bank property line and would replace the existing full access being taken by the proposed project. They also request “full access” at the rear of the shopping center on S. Third Street extension to allow rear entry for trucks servicing Food Lion and other tenants. This access would be directly in alignment with the access for the Kidde Fire Extinguisher Building at the end of the median divider.

Responses: Comments noted. The NCDOT will evaluate driveway access issues, including a right-in/right-out entrance and improved access for trucks servicing the Brookhollow Plaza Shopping Center during the right-of-way stage of the project. In addition, the NCDOT will work with Cambridge Center LLC to determine access to their property. The NCDOT typically requires full control of access within 1,000 feet of an interchange to facilitate the movement of traffic through the interchange area. In addition, the shopping center is located along the six-lane section of the project and therefore, access must be controlled for safety.

Emergency Response (3)

Comments: The White Level Community raised concerns about the added response time for emergency services with the proposed project and suggested providing a service road connected to Mrs. White Lane from existing NC 119 to keep a safer route open for the community to the city for emergency response (*White Level Community*). The fire department Chief stated that it has become almost impossible for the fire department to respond to fire and medical emergencies south of the two City stations due to an increase in growth that has produced significant traffic issues (*Louis*). Mr. Louis adds that the fire department is concerned about traffic on Third Street as well as NC 119 which is causing delays in response times for fire and medical emergencies. He adds that although the fire department will not have direct access to the proposed roadway, the project will decrease traffic congestion along US 70, NC 119, and S. Third Street. The Mebane City Council stated that a

bridge located to the east of the city would not allow sufficient response time for emergency vehicles and “would impede the safety of the persons within the City of Mebane (*Mebane City Council*).”

Responses: Comments noted. The NCDOT considered a service road connected to Mrs. White Lane from existing NC 119; however, in order for the service road to serve its intended purpose, it would need to be situated relatively close to existing NC 119. Placing the service road immediately east of existing NC 119 would necessitate the relocation of Ray’s Community Store, as well as other potential relocations. Placing the service road near the eastern edge of the Henderson property would not serve the intended purpose of the service road. Therefore, a service road in this area would not be practical and will not be studied as a part of this project.

Urban Sprawl / County Taxes (3)

Comments: Two citizens, in addition to the Steering Committee are concerned that the proposed project would increase urban sprawl requiring more city and county services and thereby increasing taxes for all Alamance County residents (*Holland, Brewer, Steering Committee*).

Responses: Section 4.4 in the DEIS and in this document include a summary of indirect and cumulative effects of the proposed project and the potential for land use changes is summarized in this section. With the construction of a new highway through developable land south of US 70, there is a high potential for the project to induce land use changes in this portion of the study area. This development, primarily industrial and commercial uses along with some in-fill of residential uses, is consistent with the City’s land use and growth management plans for this area. It is expected that vacant land parcels adjacent to the proposed NC 119 Relocation corridor would be fully developed with medium to high density mixed uses such as industrial, commercial, and residential developments, as indicated in the City’s land use plans. Due to the urbanizing character of the southern portion of the study area, local planning officials anticipate that increased development would continue in this area regardless of whether the proposed project is constructed. However, the proposed project would likely accelerate the rate of change in land uses and development.

By contrast, the construction of the NC 119 Relocation project within the northern portion of the study area (north of US 70) is not expected to result in major land use changes and future growth and is generally expected to follow existing development patterns. The majority of the area north of US 70 is located in the Watershed Critical Area (WCA) or Balance of Watershed (BOW) overlay districts and development would be restricted by local regulations that limit densities and types of land uses in the area. In addition, limited control of access or access only at existing secondary roads is proposed north of US 70. Providing limited control of access would prohibit driveways along this northern section of the proposed roadway. Access to the proposed roadway would be along existing secondary roads that currently intersect the proposed roadway. Providing this type of access control north of US 70 would limit urban sprawl and strip development along the proposed roadway in this area. Therefore, substantial changes in land use patterns are not anticipated for the northern portion of the study area with or without the proposed project. This area is expected to remain as low density residential, agricultural, and open space uses. One exception to this forecast is the planned development of a Neighborhood Activity Center in the vicinity of the intersection of the NC 119 Relocation project with the existing NC 119 roadway. The City’s land use plan identifies this future intersection as a small scale mixed use development that would serve local

neighborhoods. More detailed information can be found in Section 4.4 in the DEIS and in this document.

Section 4.4 in the DEIS and in this document also includes a discussion regarding future water and sewer service in the project area and states that the Graham-Mebane Reservoir Water Treatment Plant has increased its capacity to 12 million gallons per day (MGD) to serve the City of Mebane and new development within the City's Extraterritorial Jurisdiction (ETJ). According to the 2010 Land Development Plan for the City of Mebane, the City's existing water supply and treatment plant appears adequate to accommodate a moderate amount of growth over the next ten years.

The City of Mebane Wastewater Treatment Plant, located within the project study area on Corrigidor Road, currently has a capacity of 2.5 million gallons of wastewater per day (MGD). Between July 2007 and June 2008, the City treated an average of 1.0 MGD, or less than half of its sewage treatment capacity. With an average of about 1.5 MGD in excess wastewater treatment capacity, the City can continue to provide excellent sewer service to existing customers, while accommodating a small to moderate amount of new development over the next ten years according to the 2010 Land Development Plan for the City of Mebane.

Mebane's wastewater collection system serves most of the area within existing City limits and a few industrial properties along I-85/40 within the City's ETJ. The City does not currently share in the cost of installing sewer pump stations or force mains to service new land development. The City has extended sewer service in areas located west of the City limits within the West End community with funds provided through federal programs. Phases 1 and 2 of the extensions of sewer service to this area have been completed. More detailed information can be found in Section 4.4 in the DEIS and in this document.

Property Acquisition (3)

Comments: Three citizens expressed concern that the project would be close to their home and requested that their homes / land be purchased and that they be relocated. 1) The Davis' requested that their home and remaining land, except for a corner where their son has a home, be taken during right-of-way acquisition. Based on an environmental study done when a cell tower was installed on their land, only 4 percent usage is left of their land due to the watershed. According to the hearing maps, their carport and barn would be taken, but not their home. An FHWA representative told them in 1999 that their home would be taken and right-of-way acquisition would begin in October 1999 and then they would have three months to evacuate their property. They were told not to upgrade their home. They allowed this project to control their lives for many years and have experienced a great deal of stress due to the project (*W. Davis*). 2) Ms. Johnson understood from the maps that the project would come close to her property. She is 87 years old and would like for the NCDOT to take her property (*C. Johnson*). "Recommend to buy this one" appears on the written comment signed by a Division 7 Right-of-Way Agent. 3) Mr. and Mrs. Whitted commented that it appeared from the mapping that several properties on their street, S. Third Street Extension, would be purchased for this relocation project and requested that their home be included (*Whitted*). They have lived in Mebane for 14 years and planned to do some renovations to their home; however, they have put that on hold after learning about the project.

Responses: Construction design plans have not been completed. These plans will indicate the specific impacts of the project on each individual parcel. Right-of-way acquisition decisions are based on these plans. Private property in the path of the selected alternative for the NC 119 Relocation project will be purchased by the NCDOT as right-of-way. For renters and homeowners who must relocate because of the project, the NCDOT has several programs to minimize the inconvenience of relocation: relocation assistance, relocation moving payments, and relocation replacement housing payments or rent supplements. A relocation officer will be assigned to the project. The relocation officer will assist homeowners, renters, and owners of displaced businesses, non-profit organizations, and farm operations in searching for and moving to replacement property. Section 4.1.2.2 in the DEIS and in this document includes additional information regarding Relocation Assistance. In addition, an impacted property owner may request to be purchased through the NCDOT's Hardship Acquisition process. Hardship acquisition is initiated by the property owner because of particular financial or health-related hardship. Decisions regarding whether a property will be acquired sooner than the right-of-way date included in the NCDOT TIP are evaluated on a case-by-case basis.

Requests for Post-Hearing Meeting Minutes (2)

Comment: Two citizens asked for copies of the post-hearing meeting minutes (*Wicker, Gerringer*).

Response: Post-Hearing Meeting Minutes will be sent to Ms. Wicker and Ms. Gerringer.

Downtown Mebane Businesses (2)

Comments: Citizens, including the Steering Committee, expressed concern that the project would negatively impact businesses in downtown Mebane, causing a financial loss by drawing businesses and customers away from downtown. Another citizen mentioned that the project would bypass a historic downtown district that is working on revitalization (*Steering Committee, Albright*).

Responses: As discussed in Section 4.1.2.3 and Section 4.1.3.1 in the DEIS and in this document, the proposed project could have both beneficial and negative impacts on downtown Mebane residents and businesses. The proposed project is anticipated to result in decreased traffic volumes and congestion within the downtown area by removing through traffic on existing NC 119. Although the proposed project would reduce traffic congestion in downtown Mebane, the diversion of through traffic could also remove potential customers from businesses along existing NC 119 in the downtown area. A positive benefit to travel conditions in downtown Mebane would be the reduction in commercial truck traffic and congestion along existing NC 119. This reduction in truck traffic could enhance pedestrian safety in downtown Mebane and make the environment more conducive to shopping and other activities.

Drainage Concerns (2)

Comments: The White Level Community suggested that sewer service be provided to alleviate drainage issues (*White Level Community*). One citizen stated that the culvert under existing NC 119 near the Dogwood Properties & Development Corporation property is undersized and creates a backwater condition on this property during heavy rains (*W. Tate*). Mr. Tate is concerned that the additional stormwater generated by the proposed roadway would make the situation worse. He requests that the culvert be replaced as a part of this project.

Responses: The NCDOT can facilitate discussions between the White Level Community and the City of Mebane regarding obtaining grants to provide sewer service in the Community. The NCDOT will investigate and address the drainage concern near the Dogwood Properties & Development Corporation during final design.

Corrigidor Road (2)

Comments: One citizen is concerned about making Corrigidor Road a thoroughfare by connecting it through to Tate Avenue (*Baptiste*). Mr. Baptiste is concerned about the danger of having a soccer complex split by a through street, as well as the pollution from the proposed road affecting the children using the soccer complex. Another citizen questioned if the Roosevelt Street to Tate Avenue project depended on whether the NC 119 project occurs (*D. Tate*). Mr. Tate added that the only outlet in this section of West End is Giles Street and requested that Vance Street and McKinley Street tie into Roosevelt Street.

Responses: The NCDOT understands the community's concern regarding connecting Corrigidor Road to Tate Avenue. The NCDOT also understands concern from nearby communities regarding the lack of access from neighboring communities to the Mebane Arts & Community Center, which can be seen from their homes, but not easily accessed. The NCDOT coordinated the proposed improvements to Corrigidor Road with the City of Mebane so the newly planned soccer fields would not be impacted by the proposed project. In addition, with development growing in this area, the City of Mebane indicated that Corrigidor Road would have been connected through to Tate Avenue by developers at some point. Once ownership of the Corrigidor Road extension is established, additional pedestrian friendly features may be implemented along this portion of Corrigidor Road. The improvements to Corrigidor Road are dependent on the NC 119 project moving forward. The NCDOT discussed the requested improvements to Vance and McKinley Streets, but these improvements are beyond the scope of this project.

Request for Right-of-Way and Relocation Pamphlet (1)

Comment: One citizen requested the right-of-way and relocation procedure pamphlet (*Murphy*).

Response: A right-of-way and relocation pamphlet will be sent to Mr. Murphy.

Loss of Buffers (1)

Comment: The MCHOA has significant investment in landscaping and irrigation along the east side of NC 119 that beautifies the section of highway that borders their community. They ask what will happen with the right-of-way where hundreds of feet of existing NC 119 would be demolished and are concerned that this area would be left to grow up in weeds and scrub brush (*Nunemaker*).

Response: Once the project is constructed, the NCDOT will make a determination as to abandonment of the right-of-way in the vicinity of the Mill Creek community. If the right-of-way is abandoned, the MCHOA can work with the Division 7 Office regarding landscaping.

Design Recommendations / Questions

Comments: Several citizens had recommendations and questions regarding various aspects of the proposed design. In addition to those listed in the individual categories above, these include:

- 1) What happens after the project connects to Third Street at Holmes Road and then goes to Gibson Road (*G. Bumgarner*)?
- 2) Suggests another route where Cook's Mill Road comes out to Mebane Rogers Road, approximately 50 plus feet to the north across Mebane Rogers Road through the wooded section to the back of Craftique Furniture Company (*Piper*). A similar comment that it makes more sense to use existing roadways, such as Woodlawn Road to Cooks Mill Road and White Level Road to access NC 119 north from US 70 (*Causey*).
- 3) The bypass should be built as an overpass and old NC 119 kept as business route down to Kimes Chapel Church (*White Level Community*).
- 4) Provide a service road connected to Mrs. White Lane from existing NC 119 behind several properties (Miles, Henderson) to keep a safer route open for the community to the city for emergency response (*White Level Community*).
- 5) Utilize more historic property to end project in front of Mill Creek community and taper to two lanes, keeping NC 119 as is with no island from White Level Road to Mrs. White Lane (*White Level Community*).
- 6) The highway's design should include truck off-tracking calculations due to the large number of tractor trailer trucks that are drawn to the Mebane Business Park (*Nunemaker*).
- 7) The MCHOA proposed a revised tie-in near Mill Creek that they feel is more functional and would result in less right-of-way acquisition; fewer changes to utilities; reduced construction costs; no need to obliterate a section of existing NC 119; and quicker response time for emergency services to the Mill Creek Community. They also questioned the ownership of obliterated sections of existing NC 119 (*Nunemaker - MCHOA*).

- 8) Requested that her parcel be labeled on the hearing map; it is adjacent to Mildred Godfrey (*Ekwueme-Okoli*).
- 9) Would a cut-through from Fifth Street to Third Street solve some of the congestion on Fifth Street? Provide cut-throughs from Fifth to Third Street to increase access to the Post Office and lessen traffic on Fifth Street (*Brewer*)?
- 10) Why not look at some way to tie into NC 49 to go north (*Hoover*)?
- 11) For future development along the I-85/40 corridor, need left turn from Y5 (service road across from Holmes Road) to proposed NC 119 and right turn from Holmes Road to proposed NC 119 (*Sejpal*).
- 12) The southern project start point should be re-considered. One alternative would be to start in the vicinity of the intersection of NC 119 and Kimrey Road, traverse toward the intersection of I-85 and Trollingwood Road, redesign that interchange and continue to US 70. Another alternative would be to begin at the NC 54 and Cherry Lane intersection, improve Cherry Lane, utilize the overpass and convert to an interchange, then continue to US 70. The existing alternative does not address the tremendous amount of growth south of I-85 (*Moore*).

Responses:

- 1) No future improvements planned.
- 2) The NCDOT initially studied a preliminary corridor that roughly followed Cook's Mill Road; however, the linear distance of impacts to the water supply watershed critical area, as well as impacts to several historic properties made this alternative undesirable. If an existing roadway such as Cook's Mill Road or Woodlawn Road was used for a portion of the alignment and a similar type of roadway was proposed with limited control of access; the majority of the residences located along the existing roadway would be relocated. Therefore, alignments utilizing existing roadways lined with residences were eliminated from consideration.
- 3) Comment noted. Constructing the project as an overpass would require additional funding than what is proposed with the current project design.
- 4) Providing a service road in this location would require the relocation of Ray's Store.
- 5) This suggestion would require sharper curves along the proposed NC 119 than what is currently proposed, which would require additional impacts to streams and utilities, as well as additional impacts to the Section 4(f) historic property.
- 6) The current preliminary design includes truck turning movements already.
- 7) A response to this comment is provided above in the Access / Median Openings category.

- 8) Comment noted. Parcel will be labeled.
- 9) Providing a cut-through from Fifth Street to Third Street would not relieve traffic because both Fifth Street and Third Street have heavy traffic volumes.
- 10) Tying into NC 49 to go north is not a feasible option. Among other things, NC 49 is situated further from downtown Mebane than the proposed facility and typically, roads that are situated further from town do not carry as much traffic to relieve the congestion in downtown.
- 11) A left turn from Y5 to proposed NC 119 will not be provided due to the amount of traffic in the interchange area and the close spacing of Y5 to the I-85/40 interchange.
- 12) Revising the southern project limit as suggested would not meet the purpose and need of the project. Recommendations for future projects should be discussed with the Burlington-Graham Metropolitan Planning Organization (MPO) and local officials.

8.3.2.3 *Conclusion*

Public involvement activities throughout the EIS process provide citizens with an opportunity to comment and provide input before project decisions were made. The activities included conducting workshops and hearings and soliciting information from the public on the selection criteria and the individual alignments as they were being evaluated. In addition, a combination of newsletters, a toll-free telephone number, project website, small group meetings, as well as Steering Committee Meetings were used to give citizens access to information about the technical aspects of the project.

Comments received from environmental regulatory and resource agencies, as well as public comments, were considered in the selection of a preferred alternative for the NC 119 Relocation project.

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10.2 ACRONYMS

A.M.E	African, Methodist, Episcopal
AADT	Annual Average Daily Traffic
AASHTO	American Association of State Highway and Transportation Officials
ACTA	Alamance County Transportation Authority
ADA	Americans with Disabilities Act
ADT	Average Daily Traffic

AHEC	NC Area Health Education Centers
APE	Area of Potential Effects
AR	Agricultural Residential
BARA	Burlington-Alamance Regional Airport
BGMPO	Burlington-Graham Metropolitan Planning Organization
BMPs	Best Management Practices
BOD	Biochemical Oxygen Demand
BOW	Balance of Watershed
CAA	Clean Air Act
CAC	City Activity Center
CBD	Central Business District
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CWA	Clean Water Act
dBA	Decibels on the A-Weighted Scale
DEIS	Draft Environmental Impact Statement
EAC	Early Action Compact
EIS	Environmental Impact Statement
EMC	Environmental Management Commission
ESA	Endangered Species Act
ETJ	Extraterritorial Jurisdiction
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FHWA	Federal Highway Administration
FONSI	Finding of No Significant Impact
FPPA	Farm Protection Policy Act
FSC	Federal Species of Concern
GIS	Global Information System
HC	Hydrocarbons
HOV	High-Occupancy Vehicle
HPO	North Carolina State Historic Preservation Office
HQW	High Quality Waters
LEDPA	Least Environmentally Damaging Practicable Alternative
LOS	Level of Service
LRTP	Long Range Transportation Plan
LWCF	Land and Water Conservation Fund
MGD	Million Gallons per Day
MHP	Mobile Home Park
MOA	Memorandum of Agreement

MSAT	Mobile Source Air Toxics
MSL	Mean Sea Level
MVM	Million Vehicle Miles
NAAQS	National Ambient Air Quality Standards
NCAC	N.C. Administrative Code
NCDCR	North Carolina Department of Cultural Resources
NCDENR	North Carolina Department of Environment and Natural Resources
NCDOT	North Carolina Department of Transportation
NCDWQ	North Carolina Division of Water Quality
NCEEP	North Carolina Ecosystem Enhancement Program
NCIC	North Carolina Industrial Center
NCRR	North Carolina Railroad Company
NCWRC	North Carolina Wildlife Resources Commission
NEPA	National Environmental Policy Act
NETS	Non-Emergency Travel Service
NHP	North Carolina Natural Heritage Program
NO	Nitrogen Oxide
NPDES	National Pollution Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NRI	National River Inventory
NRTR	Natural Resource Technical Report
NS	Norfolk Southern Railway
NSW	Nutrient Sensitive Waters
NWI	National Wetland Inventory
O ₃	Ozone
ORW	Outstanding Resources Waters
Pb	Lead
PD&EA	Project Development and Environmental Analysis Branch
PM ₁₀	Particulate Matter Less than 10 Microns in Size
PM _{2.5}	Particulate Matter Less than 2.5 Microns in Size
ppm	Parts Per Million
PSNC	Public Service Company of North Carolina
PTCOG	Piedmont Triad Council of Governments
PTIA	Piedmont Triad International Airport
PUD	Planned Unit Development
RDU	Raleigh-Durham International Airport
ROD	Record of Decision
RTP	Research Triangle Park
SEHSR	Southeast High Speed Rail

SEPA	State Environmental Policy Act
SIA	Special Intensity Allocation
SIP	State Implementation Plan
SO ₂	Sulfur Dioxide
SR	Secondary Road
TDM	Travel Demand Management
TEA-21	Transportation Equity Act for the 21st Century
TIP	Transportation Improvement Program
TND	Traditional Neighborhood Development
TNM	Traffic Noise Model
TSM	Transportation Systems Management
TSS	Total Suspended Solids
USACE	US Army Corps of Engineers
USDA	US Department of Agriculture
USDOJ	US Department of the Interior
USEPA	US Environmental Protection Agency
USFWS	US Fish and Wildlife Service
USGS	US Geological Survey
UST	Underground Storage Tank
VMT	Vehicle Miles Traveled
WCA	Watershed Critical Area
WDG	Wills Duncan Group, Inc.
WERA	West End Revitalization Association
WS	Water Supply
WWTP	Wastewater Treatment Plant