

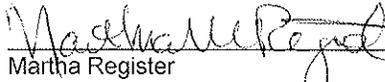
## **Feasibility Study**

Widening of Big Mill Farm Road/Hopkins Road  
from I-40 Business to West Mountain Street

June 30, 2008



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Senior Project Engineer



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### Feasibility Study

Hopkins Road Improvements/Big  
Mill Farm Road Extension

Prepared for:  
Town of Kernersville

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June 30, 2008

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## Feasibility Study

Hopkins Road  
Improvements/Big Mill Farm  
Road Extension

### 1. General Description

This feasibility study describes the proposed improvements to Hopkins Road (SR 2649) and Big Mill Farm Road (SR 2799) in Kernersville, North Carolina. Hopkins Road is proposed to be widened from West Mountain Street (NC 66/SR 2377) to the intersection with Big Mill Farm Road. The existing Big Mill Farm Road will be widened and improved; and it will be extended from its current terminus near Lamshire Road (SR 3895) south to join with Harmon Creek Road. Finally, the project will include the creation of an interchange at the future intersection of Big Mill Farm Road extension and I-40 Bus/US 421. The project is approximately 2.1 miles. The proposed project, as illustrated in Figure 1, is located near the western town limits of Kernersville.

This study is an initial step in the planning and design process for this project and is not the product of exhaustive environmental or design investigations. The purpose of this study is to describe the proposed project, including preliminary costs, and to identify potential problems that may require consideration in future planning and design phases.

### 2. Background

The Town of Kernersville, located in Forsyth County, is surrounded by the cities of Winston-Salem to the west, Greensboro to the east, and High Point to the southeast. The project area is part of the Winston-Salem Urban Area, for which the Winston-Salem Metropolitan Planning Organization (WSMPO) manages transportation planning. The project area consists of mainly single-family residential subdivisions with mixed-use development at the northern terminus (near West Mountain Street) and commercial/big-box development along Harmon Creek Road, the project's southern terminus. Immediately to the north and east of the project's northern terminus is the West Mountain Street Industrial Area. The West Mountain Street Industrial Area Plan (2003) recommends preserving and enhancing the area to encourage economic development. The Kernersville Loop System, which includes the proposed project, is noted in the land-use plan for the West Mountain Street Industrial Area as needed to induce industrial expansion within the area.

The WSMPO has included Hopkins Road widening and Big Mill Farm Road extension in their 2030 Long Range Transportation Plan (LRTP), as two separate projects. These two projects are combined and are included in the Winston-Salem/Forsyth County Urban Area – Thoroughfare Plan (2002). These combined projects are the proposed improvements discussed in this report. In the Thoroughfare Plan, the

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proposed project is noted as a major thoroughfare. The proposed improvements are intended to improve access to Kernersville Road (SR 4315) for the western half of the Town of Kernersville and subsequently to provide access to the future Winston-Salem Outer Loop (STIP No. U-2579). It is also noted in the Thoroughfare Plan that the Kernersville Loop, which includes the proposed improvements, is intended to reduce congestion in downtown Kernersville and provide access to the exterior regions of Kernersville.

The WSMPO also notes the proposed improvements discussed in this report in their 2003 Transportation Needs Report. The Needs Report is a prioritized list of project requests for transportation improvements in the Winston-Salem Urban Area which was submitted to the North Carolina Department of Transportation (NCDOT) and the Board of Transportation for funding in the State Transportation Improvement Program (STIP). The proposed improvements, identified in the Needs Report as Kernersville Southern Loop Road – Phase I, are given a project priority rank of 6. The Needs Report notes that the project would provide a traffic link to I-40 Bus/US 421 and will divert traffic from the congested South Main Street interchange area. Additionally, the report notes that the interchange will improve the linkage of the southern and western residential to employment and commercial centers.

Due to lack of access to the future Winston-Salem Outer Loop at West Mountain Street, the Town of Kernersville believes that it is essential to have improved access to I-40 Bus/US 421 and Kernersville Road and subsequently to the future Winston-Salem Outer Loop.

### 3. Description of Project

The proposed project alignment is illustrated in Figures 2A and 2B. The proposed project will upgrade a 1.13-mile portion of Hopkins Road and upgrade and extend Big Mill Farm Road (new length will be 0.96 mile); together these two pieces of roadway will form one contiguous 2.1-mile thoroughfare. The planned design speed is 50 mph and the proposed posted speed is 45 mph. At completion, the proposed project will be a 4-lane, median-divided facility with curb and gutter. The Kernersville Pedestrian and Bike Plan (2007) calls for sidewalks along Hopkins Road and Big Mill Farm Road. Sidewalks have been incorporated into the project design. Due to density of residential development in the northern portion of the project area and the proximity of commercial development at the southern terminus of the proposed project, additional width on the outside travel lane to accommodate bicyclists has been incorporated into the project design. The proposed typical section for this project is shown in Figure 3.

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The proposed project's northern terminus is the existing Hopkins Road intersection with West Mountain Street. Traveling to the southeast, the proposed project will widen and improve Hopkins Road from an existing 2-lane facility through its intersection with Bluff School Road (SR 2656). The proposed project will align the intersection of Hopkins Road, Big Mill Farm Road and Bluff School Road. The proposed project will then proceed south along Big Mill Farm Road and will also widen and improve that facility. Big Mill Farm Road is currently a 2-lane facility from Hopkins Road to the intersection with Selwyck Lane/Lamshire Road and a gravel road south of Selwyck Lane/Lamshire Road. The proposed project will extend Big Mill Farm Road to the south onto new location from its southern terminus, currently approximately 700 feet south of the intersection with Selwyck Lane/Lamshire Road, over I-40 Bus/US 421, to join with the existing Harmon Creek Road. The following locations will be full-movement intersections: Hopkins Road and Sutter Lane, Hopkins Road and Regents Park Road/Timberwood Trail, Hopkins Road/Big Mill Farm Road and Bluff School Road, Big Mill Farm Road and the planned extensions (not a part of this project) of Timberview Drive/Florence Cecil Drive. The remaining secondary road intersections and driveways will be right-in/right-out movements only.

A modified diamond interchange is planned at the Big Mill Farm Road extension intersection with I-40 Bus/US 421. This interchange will be designed to allow for future widening of I-40 Bus/US 421. The proposed interchange with Big Mill Farm Road and I-40 Bus/US 421, this project, is located approximately 1.25 miles east of the future Winston Salem Outer Loop and I-40 Bus/US 421 interchange (Figure 1). In order to provide sufficient room for weaving at an acceptable level of service on I-40 Bus/US 421, the entrance-exit auxiliary lanes were extended between these two interchanges as follows:

- The westbound entrance ramp from Big Mill Farm Road onto I-40 Bus/US 421 will be extended approximately 400 feet to connect with the exit ramp for the future Winston-Salem Outer Loop. This proposed design will result in a weaving distance of approximately 3,350 feet on I-40 Bus/US 421, which exceeds the maximum distance for weaving capacity analysis.
- The eastbound entrance ramp from the future Winston Salem Outer Loop onto I-40 Bus/US 421 will have two lanes. The second lane will be extended approximately 1,000 feet to the proposed exit loop for Big Mill Farm Road. This design will result in a weaving distance of approximately 2,600 feet, which exceeds the maximum distance for weaving capacity analysis.

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The road improvements and widening will include changes in the vertical alignment to more safely accommodate the projected traffic volumes at the proposed posted speed limits. These changes may make it necessary during construction to limit the use of the road to local traffic only. Construction staging, including location and timing of limited access, will be determined during later stages of project design.

There are two existing culverts conveying perennial streams in the project corridor. The project will cross Kerners Mill Creek, located just north of Regents Park Road (SR 4214) on the Hopkins Road section of the project. Kerners Mill Creek flows under the existing Hopkins Road through a double, 60+ inch, corrugated, steel pipe culvert. Second, an unnamed tributary to Smith Creek flows under I-40 Bus/US 421, at the location of the proposed interchange, through an 8-foot by 10-foot concrete box culvert. Based on functional designs, it appears that the interchange ramps will cross this tributary at several locations. The box culvert at I-40 Bus/US 421 is also a conduit for a 10-inch ductile iron pipe (dip). Based on the location of a series of man-holes, it is assumed that the 10-inch dip is part of the sanitary sewer system. These two existing culverts will need to be extended as part of the proposed project. The size and other design details of these culverts will be determined during later stages of project design.

### 3.1 Traffic

Based on a 2007 No Build Forecast (Gibson Engineers, 2007), existing Annual Average Daily Traffic (AADT) on Hopkins Road ranges from 9,400 to 10,200 vehicles and on Big Mill Farm Road the existing AADT is approximately 400 vehicles. Based on a 2035 Build Forecast, the AADT on Hopkins Road will range from 22,800 to 24,200 vehicles and on Big Mill Farm Road the AADT will range from 9,800 to 22,200 vehicles. Diagrams showing the 2035 Build Forecast are included as Figures 4A-4C.

### 3.2 Level of Service

Level of service (LOS) is a quality measure describing operational conditions for highway facilities. The *Highway Capacity Manual 2000 (HCM 2000)*, published by Transportation Research Board, outlines the procedures of capacity analysis and defines LOS. Six levels of service are defined in the *HCM 2000* ranging from A to F, with LOS A representing the condition where vehicles are almost completely unimpeded in their ability to maneuver within the traffic stream and LOS F representing the condition where there are breakdowns in vehicular flow.

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The Level of Service (LOS) for the 2035 Build condition was analyzed utilizing HSC+ and Synchro 7 software, for the mainline and intersection analysis, respectively. A multi-lane, divided-highway analysis conducted for mainline Hopkins Road, in the project area, resulted in an LOS A. For the 2035 Build condition, there is proposed to be five total signalized intersections. (Final determination of the need for a signal at an intersection will be based on a warrant analysis study for each intersection). The intersection of Hopkins Road and West Mountain Street will have an LOS F, due to limitations in traffic capacity on West Mountain Street. The proposed signalized and aligned intersection at Hopkins Road/Big Mill Farm Road/Bluff School Road will function at an LOS B. The third and fourth proposed signalized intersections are at the proposed ramps at I-40 Bus/US421; both are anticipated to function at an LOS B. The proposed signalized intersection of Big Mill Farm Road with Kernersville Road will function at an LOS C. A diagram showing LOS for the 2035 Build condition is included as Figure 5.

The spacing between the interchanges at Big Mill Farm Road and the Winston-Salem Outer Loop, each with I-40 Bus/US 421, is of sufficient distance to be beyond the realm of a weaving analysis. The following ramp analysis is based on a normal entrance and exit analysis. The level of service for Big Mill Farm Road and I-40 Bus/US 421 entrance and exit ramps are LOS E and F, respectively, for the 2035 design year. The low level of service is due to the heavy traffic volumes on I-40 Bus/US 421. In order to improve the level of service at the ramps, I-40 Bus/US 421 would need to be widened to a six-lane section. A six-lane section on I-40 Bus/US 421 will improve the Big Mill Farm Road entrance and exit ramps to an LOS B and C, respectively.

### 3.3 Costs

The estimated costs for Hopkins Road Improvements/Big Mill Farm Road Extension were developed using NCDOT procedures and policies. The costs are as follows:

From US 421 interchange to Hopkins Road:

Right of way =	\$3,500,000
Construction =	\$13,500,000
Engineering & Inspection =	\$2,000,000
<i>Subtotal</i> =	<i>\$19,000,000</i>

From Hopkins Road to West Mountain Street:

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Right of way =	\$4,000,000
Construction =	\$7,000,000
Engineering & Inspection =	\$1,000,000
<i>Subtotal</i> =	<i>\$12,000,000</i>
<b>Total cost =</b>	<b>\$31,000,000</b>

### 3.4 Relocations

Based on a preliminary analysis of the functional design, two businesses (Blakley's Auto World and Skate World), both at the intersection with West Mountain Street, may need to be relocated. Additionally, one residence, at the southern terminus of Big Mill Farm Road, may need to be relocated. Also, there may be impacts to 1 additional business and 15 additional houses due to the close proximity of the widened road. This is preliminary and subject to change. Updated relocation and property acquisition information will be available upon completion of the right-of-way cost estimate.

## 4. Environmental Screening

A detailed environmental study was not conducted for this feasibility study. However, an environmental screening did result in the following possible occurrences, which will need to be further evaluated in later stages of project development.

### 4.1 Community Facilities

A windshield survey of the project area was conducted on January 30, 2008. Two community facilities were noted in the project area. Talley's Crossing Volunteer Fire Department is located at 656 Hopkins Road at the northern terminus the project. The community swimming pool for the Timber Trails subdivision is located in the southeast corner of the intersection of Hopkins Road and Timberwood Trail (SR 3869).

Two greenway trails are planned and detailed in the Kernersville Pedestrian and Bicycle Plan (2007) to cross the project. The first trail will run along Kerners Mill Creek and is planned to cross Hopkins Road. The second trail will follow an unnamed tributary to Smith Creek (UT #2 – see section 4.4.1 for description) south of I-40 Bus/US 421 in the vicinity of the proposed interchange. The Pedestrian and Bicycle Plan did not appear to include this proposed road project. Sharon Richmond, Senior Planner – Town of Kernersville, indicated in a phone conversation on March 13, 2008, that right-of-way has not been purchased for either of the two greenways noted here.

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Under provisions of Section 4(f) of the Department of Transportation Act (recodified in 49 U.S.C. 303 and 23 U.S.C 138), if a federally funded transportation project would result in adverse effects to the park or recreation facility, the transportation agency (Federal Highway Administration) must conduct an evaluation to demonstrate that there is no prudent and feasible alternative to the use of the 4(f) property. To preclude potential conflicts with Section 4(f) if this proposed roadway project will be constructed utilizing federal money, the Town of Kernersville at the time of greenway right-of-way purchase for the lands adjoining the roadway corridor should designate "use" of sufficient land to improve the road to "roadway corridor" and not to "greenway."

### 4.2 Architectural and Archaeological Resources

A preliminary records review was conducted at the North Carolina Department of Cultural Resources for locations of known historic architectural and archaeological sites. Two historic architectural sites are known from a 0.5-mile radius of the project. Neither of the two properties is listed on the National Register of Historic Places. They are the Moser Fulp House at the northern end of Fulp Road (SR 2007), approximately 0.4 mile northeast of the project terminus at West Mountain Street; and the Stanley House on the east side of Stanly Farm Road (SR 2811), approximately 0.25 mile east of Hopkins Road. The location of these houses is shown on Figures 2A and 2B.

Information provided by a Town of Kernersville employee suggests that a historic structure may exist at 445 Hopkins Road. According to tax information available on the Forsyth County webpage, a potentially historic log cabin may exist on the property. The location of this cabin is shown on Figures 2A and 2B.

A windshield survey of the project area was conducted on January 30, 2008. Based on this preliminary survey, there did not appear to be any additional structures that would be eligible for the National Register of Historic Places adjacent to the proposed project.

One archaeological site is known from the project vicinity. Site number 369 is located just north of the intersection of Hopkins Road/Big Mill Farm Road/Bluff School Road. It is a prehistoric site and its eligibility for the National Register of Historic places has not been assessed. This archaeological site is noted on Figures 2A and 2B.

Additional studies and coordination will be needed to identify potential sites and determine their eligibility for the National Register of Historic Places.

### **4.3 Minority and Low Income Populations**

The 2030 LRTP, in order to comply with Title IV of the Civil Right Act (1964) and a 1994 Federal Action on Environmental Justice, identifies minority and low-income (MLI) populations based on U.S. Census block data from the 2000 Census. Based on the information presented in the 2030 LRTP, one minority population was identified adjoining the project area. The population is located west of Hopkins Road and appears to be located between Sutter Lane and Regents Park Road. Based on the information presented in the 2030 LRTP, there are no low-income populations adjoining the project area.

A windshield survey of the project area was conducted on January 30, 2008. There appears to be a low-income population, consisting of about six to ten residences, located along a gravel road south of Florence Cecil Drive. This population is located immediately to the east of the Big Mill Farm Road extension.

Additional studies and coordination will be needed to determine if minority or low-income populations exist in the project vicinity. Additional outreach activities may be needed to ensure that these traditionally underserved populations have enhanced opportunities for active participation.

### **4.4 Natural Resources**

#### **4.4.1 Jurisdictional Waters**

The U.S. Fish and Wildlife Service (USFWS) National Wetland Inventory (NWI) maps were reviewed to identify potential wet habitats within the project study area. These maps show the location, size, and type of wet habitats within defined geographical areas and are typically used for planning purposes only. NWI maps attempt to show all types of wetlands and deepwater habitats. NWI identifications are limited to the scale, quality, and time of year of the aerial photographs. These maps are not field-verified and tend to omit drier or forested wetlands and wetlands less than 3.0 acres in size. The NWI digital maps indicate the presence of wet habitats along Kerners Mill Creek.

Preliminary walk-through field surveys of the project area were conducted on January 30, 2008. Jurisdictional wetland determinations were performed according to the *1987 Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory, 1987). Supplementary technical literature describing the parameters of hydrophytic

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vegetation, hydric soils, and hydrological indicators was also utilized. The following information was gathered during the surveys.

The project will cross Kerners Mill Creek, located just north of Regents Park Road. This is a perennial stream approximately 10 to 15 feet wide. The stream flows through a forested floodplain that contains pockets of jurisdictional wetlands, especially to the east side of the road.

The interchange of the Big Mill Farm Road extension and I-40 Bus/US 421 will impact two unnamed tributaries (UTs) to Smith Creek. UT #1 to Smith Creek is located to the west of Cathi Lane. This stream is 1 to 2 feet wide and appears to be perennial. UT #1 flows into UT #2 to Smith Creek southwest of the end of Cathi Lane. UT #2 is 3 to 5 feet wide and is also a perennial stream. At the time of the preliminary field surveys, there did not appear to be any jurisdictional wetlands associated with either UT to Smith Creek.

### 4.4.2 Floodplains

Forsyth County is a participant in the National Flood Insurance Program (NFIP). The NFIP defines a floodplain as any land area susceptible to being inundated by water. The Federal Emergency Management Agency (FEMA), in cooperation with other federal agencies and state and local governments, conducts detailed flood studies to determine designated floodways to safely remove floodwater during flood events. These studies result in floodway boundaries which are illustrated on Flood Insurance Rate Maps (FIRM). Digital FIRMs, that illustrate the proposed project's area, show floodzones along Kerners Mill Creek and Smith Creek. This information is depicted on Figures 2A and 2B.

### 4.4.3 Threatened and Endangered Species

The USFWS list of federally protected species known from Forsyth County, dated January 16, 2008, includes two endangered species (red-cockaded woodpecker [*Picoides borealis*] and small-anthered bittercress [*Cardamine micranthera*]), one species threatened due to similarity of appearance (bog turtle [*Clemmys muhlenbergii*]) and one federal species of concern (brook floater [*Alasmidonta varicosa*]). Based on preliminary field surveys and a review of preferred habitat information, habitat is available for small-anthered bittercress within the floodplains of Kerners Mill Creek and the UTs to Smith Creek and habitat is available for brook floater within Kerners Mill Creek and UT #2 to Smith Creek.

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The North Carolina Natural Heritage Program (NCNHP) list of federally- and state-protected species known from Forsyth County, dated January 28, 2008, includes the species listed on the USFWS list and includes the following species receiving state protection: bog rose (*Arethusa bulbosa*) as state endangered; creeper (*Strophitus undulatus*), yellow fringeless orchid (*Platanthera integra*), Small's portulaca (*Portulaca smallii*), and bigeye jumprock (*Moxostoma ariommum*) as state threatened; and loggerhead shrike (*Lanius ludovicianus*) as special concern. Based on preliminary field surveys and a review of preferred habitat information, habitat is available for loggerhead shrike along most of the project corridor and habitat is available for creeper within Kerners Mill Creek and UT #2 to Smith Creek.

Based on a review of North Carolina Heritage Program GIS data ([http://www.nconemap.net/Portals/7/documents/metadata\\_records/nheo.htm](http://www.nconemap.net/Portals/7/documents/metadata_records/nheo.htm)) (February 2008), there are no known populations of federal or state protected species within a 1-mile radius of the project area.

### 4.5 Hazardous Waste Sites and Landfills

Environmental Data Resources, Inc. (EDR) was contracted to search the appropriate federal and state databases for known hazardous waste sites/landfills that may be located within a half-mile radius of the project area. The results of this records search is noted in a report by EDR dated January 11, 2008. Table 1 lists the properties identified in the EDR report within a half-mile radius of the proposed project corridor.

**Table 1: Known Hazardous Waste Sites and Landfills identified by EDR.**

Name	Address	Code	Distance (mile)
Coastwise Transport	6000 Ashley park Dr.	FINDS RCRA-NonGen	<0.12
R Roberts and S Dotson	527 Bluff School Road	SWF/LF HIST LF	0.25 to 0.5
Service America Corp.	960 Old Winston Road	UST	0.25 to 0.5
Modern Machine and Metal Fabricators, Inc	920 Old Winston Road	RCRA – SQG FINDS	0.25 to 0.5
Wal-mart Supercenter	1130 South Main Street	FINDS RCRA-CESQG	0.25 to 0.5
Target Store	1024 South Main Street	RCRA-CESQG	0.25 to 0.5
Flynt Property	4864 Hwy 150	LUST LUST Trust	0.25 to 0.5

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Name	Address	Code	Distance (mile)
Pantry	2020 West Mountain Street	UST LUST Trust	<0.12
Atlantic Scrap and Processing LLC	1426 West Mountain Street	SWF/LF HIST/LF RCRA- SQG FINDS	<0.12
Tri City Building Company	Hwy 66 South Talley's Crossing	UST	<0.12
Blue Ox	5599 Kerwin Circle	LUST	0.12 to 0.25
Loflin Concrete Company, Inc	4880 Old Hollow Road	LUST UST FINDS	0.12 to 0.25
South East Lumber Company	West Mountain Street and Fulp Road	TRIS RCRA-CESQG FINDS	0.25 to 0.5

### Notes:

RCRA - Resource Conservation and Recovery Act

RCRA-SQG: RCRA - Small Quantity Generators

RCRA-CESQG: RCRA - Conditionally Exempt Small Quantity Generators

RCRA-NonGen: RCRA - Non Generators

TRIS: Toxic Chemical Release Inventory System

FINDS: Facility Index System/Facility Registry System

SWF/LF: List of Solid Waste Facilities

HIST LF: Solid Waste Facility Listing

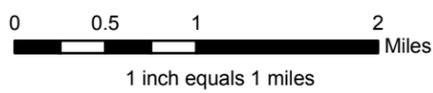
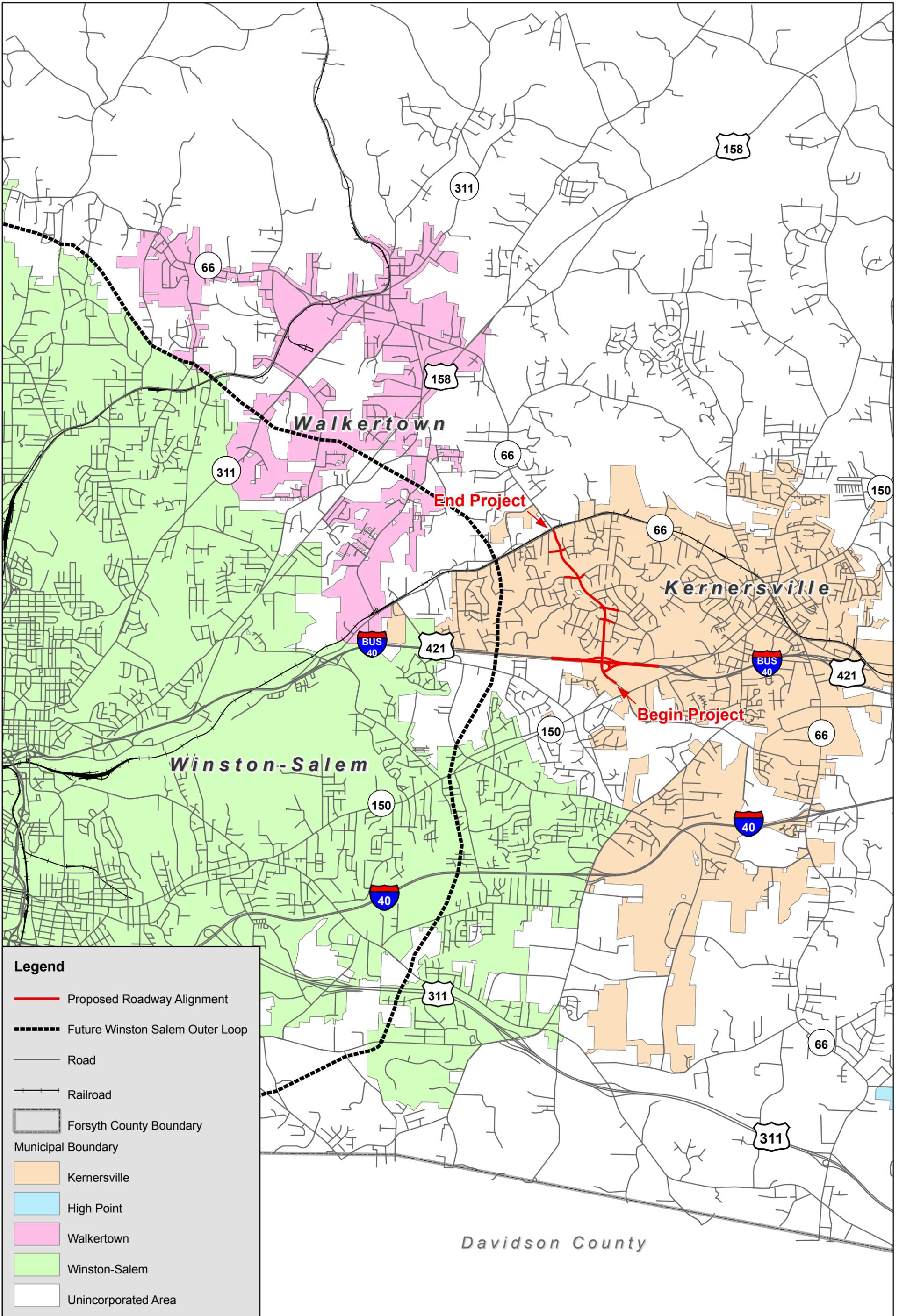
UST: Underground Storage Tank

LUST: Leaking Underground Storage Tank

LUST TRUST: State Trust Fund Database

Based on information reported in the EDR report, the sites with underground storage tanks (USTs) or leaking underground storage tanks (LUST) are closed; the solid waste facilities (SWF/LF and HIST LF) are closed; and none of the other sites have reported violations (RCRA-SQG, -CESQG and -NonGen).

In addition to Internet research, a field reconnaissance survey was conducted on January 30, 2008, to field check "orphan sites" identified by EDR. "Orphan sites" is a term used by EDR and refers to those facilities that cannot be mapped due to poor or inadequate address information. None of the orphan sites were determined to be within a half-mile radius of the project corridor.



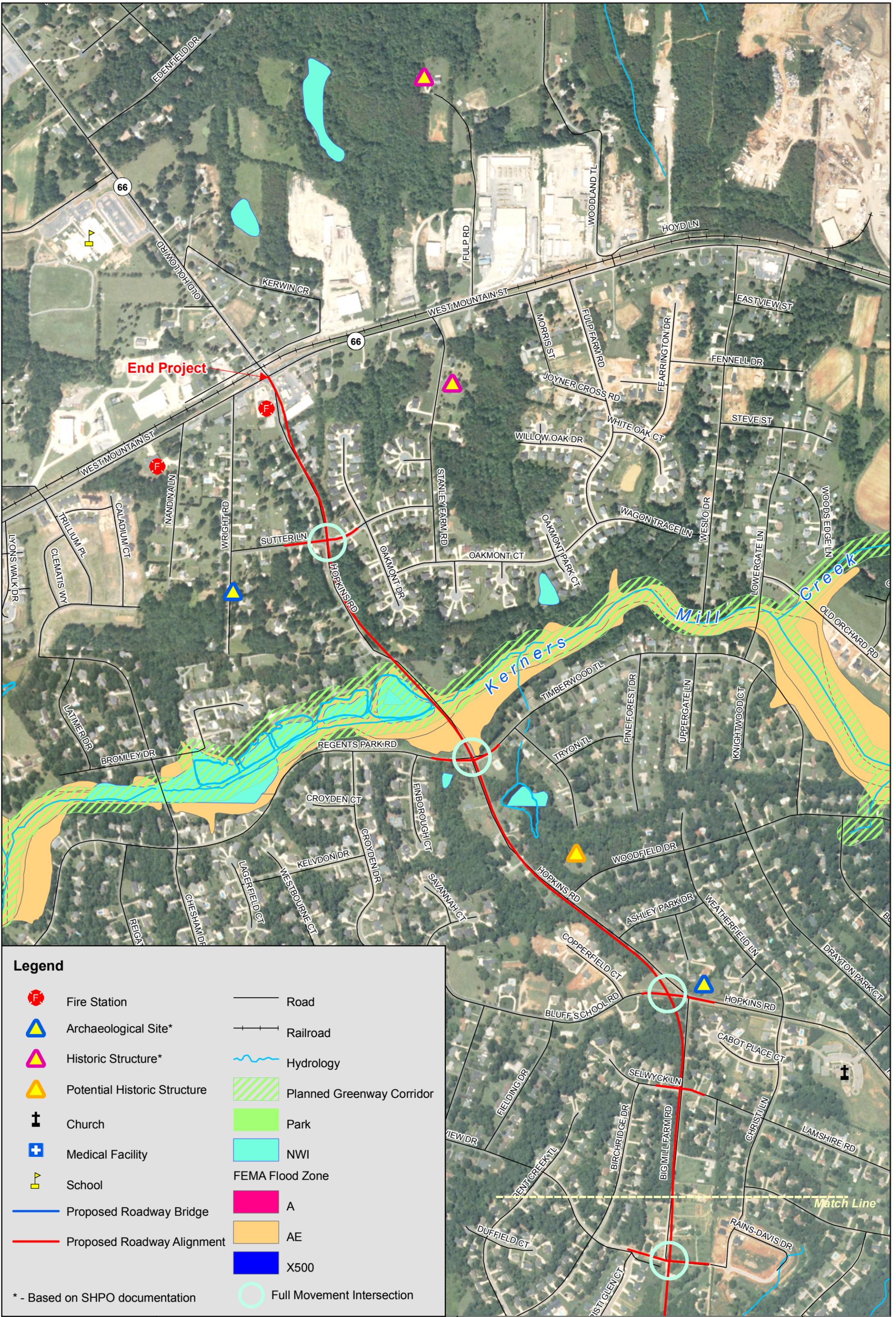
Prepared By: ARCADIS U.S.  
Date: March 2008

**Big Mill Farm Road Vicinity Map  
Town of Kernersville**

Sources: Town of Kernersville, Forsyth County and NCDOT

**Figure**

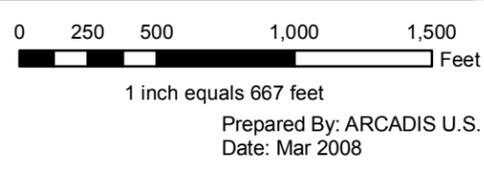
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**Legend**

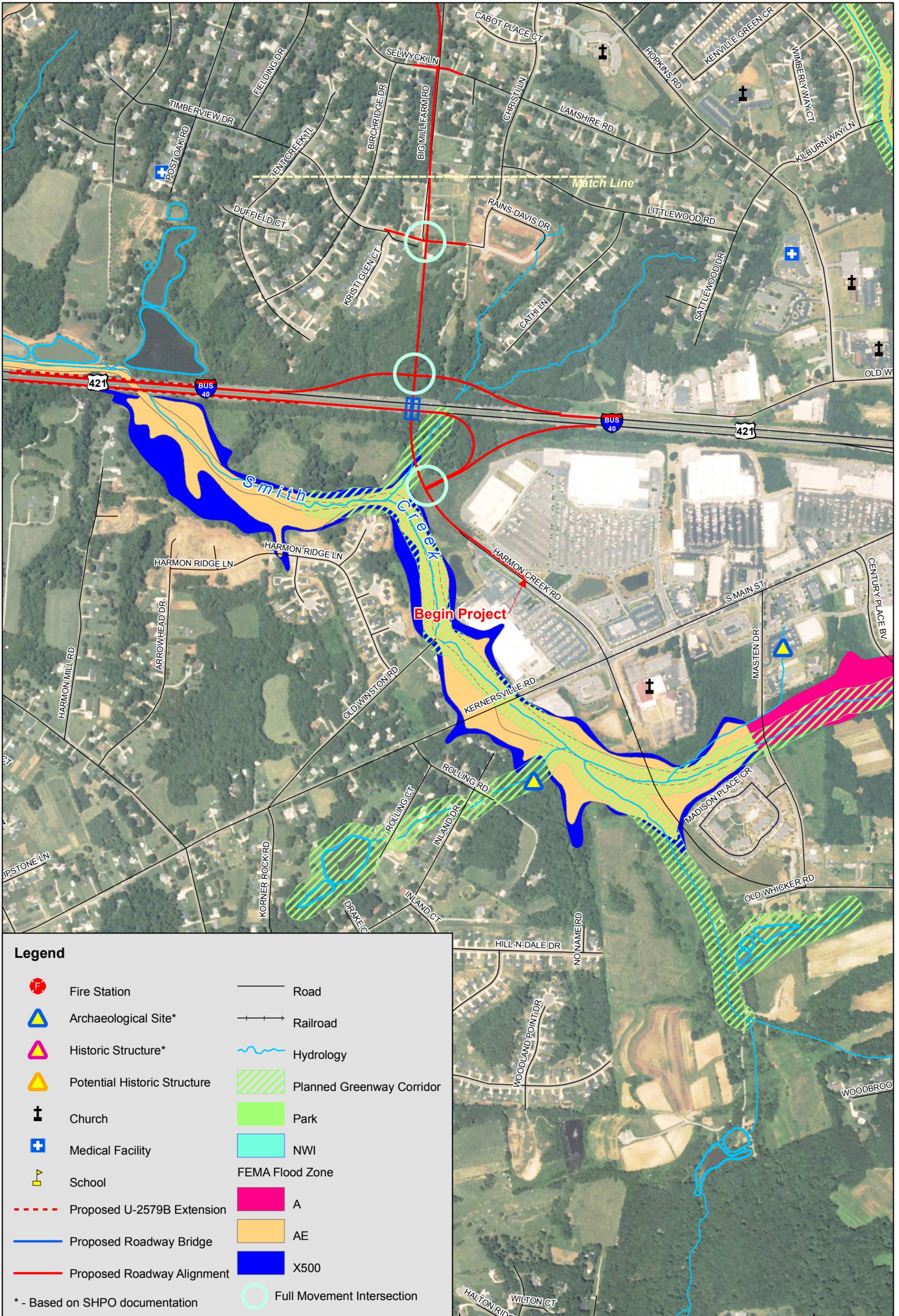
	Fire Station		Road
	Archaeological Site*		Railroad
	Historic Structure*		Hydrology
	Potential Historic Structure		Planned Greenway Corridor
	Church		Park
	Medical Facility		NWI
	School		FEMA Flood Zone A
	Proposed Roadway Bridge		FEMA Flood Zone AE
	Proposed Roadway Alignment		FEMA Flood Zone X500
			Full Movement Intersection

\* - Based on SHPO documentation



**Big Mill Farm Road Project Location  
Town of Kernersville**

Sources: Town of Kernersville, Forsyth County, FEMA, NCDOT, NCIA



**Legend**

- |  |                              |                        |                            |
|--|------------------------------|------------------------|----------------------------|
|  | Fire Station                 |                        | Road                       |
|  | Archaeological Site*         |                        | Railroad                   |
|  | Historic Structure*          |                        | Hydrology                  |
|  | Potential Historic Structure |                        | Planned Greenway Corridor  |
|  | Church                       |                        | Park                       |
|  | Medical Facility             |                        | NWI                        |
|  | School                       | <b>FEMA Flood Zone</b> |                            |
|  | Proposed U-2579B Extension   |                        | A                          |
|  | Proposed Roadway Bridge      |                        | AE                         |
|  | Proposed Roadway Alignment   |                        | X500                       |
|  |                              |                        | Full Movement Intersection |

\* - Based on SHPO documentation



0 250 500 1,000 1,500 Feet

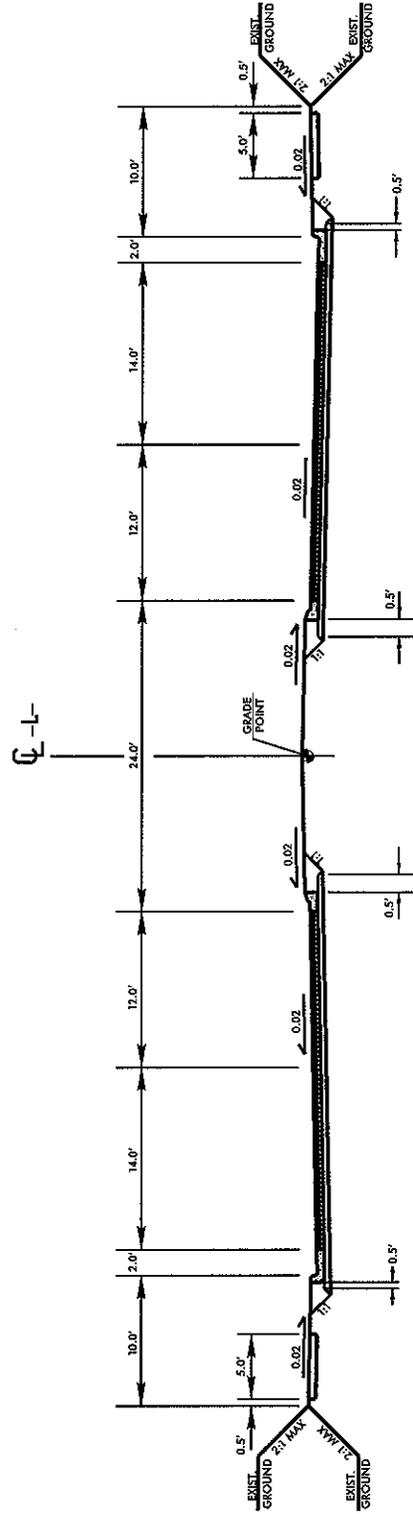
1 inch equals 667 feet

Prepared By: ARCADIS U.S.  
Date: Mar 2008

**Big Mill Farm Road Project Location  
Town of Kernersville**

Sources: Town of Kernersville, Forsyth County, FEMA, NCDOT, NCIA

**Figure  
2B**



TYPICAL SECTION

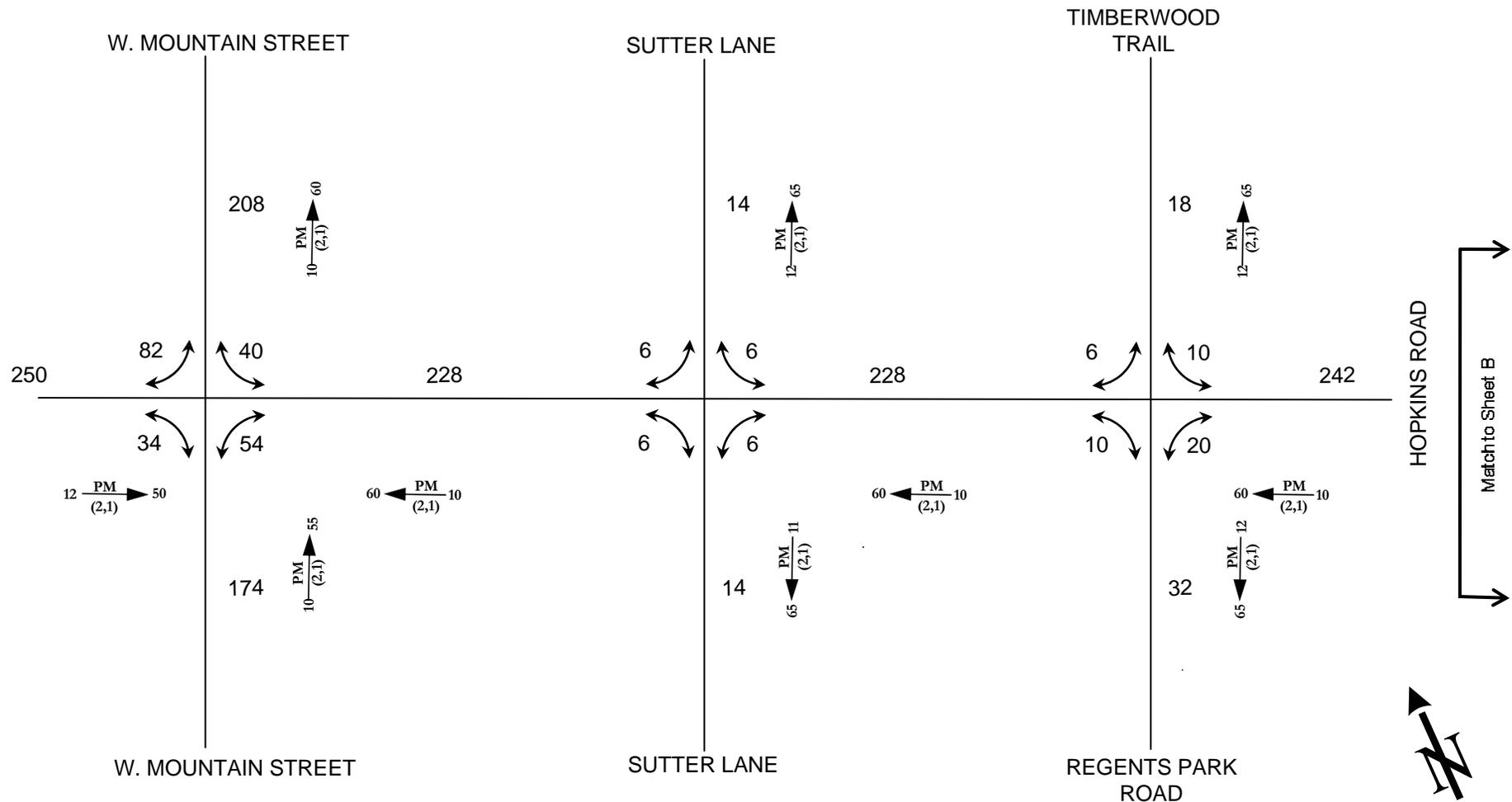
FIGURE 3

TYPICAL SECTION

Big Mill Farm Road Feasibility Study  
 Forsyth County Date: March, 2008



NOT TO SCALE

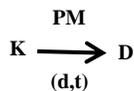


AADT in Hundreds

**Hopkins / Big Mill Farm Road  
Travel Demand Forecast  
May 28, 2008**

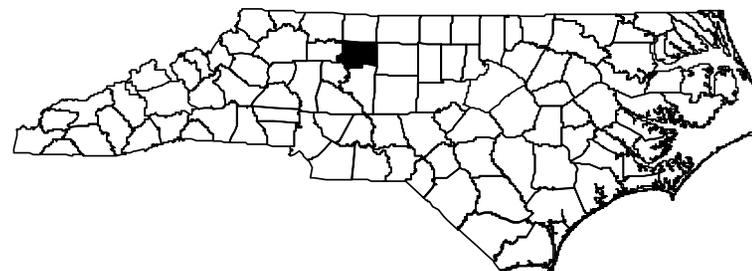
**2035 BUILD**

**Figure 4A**



**LEGEND**

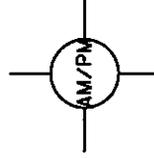
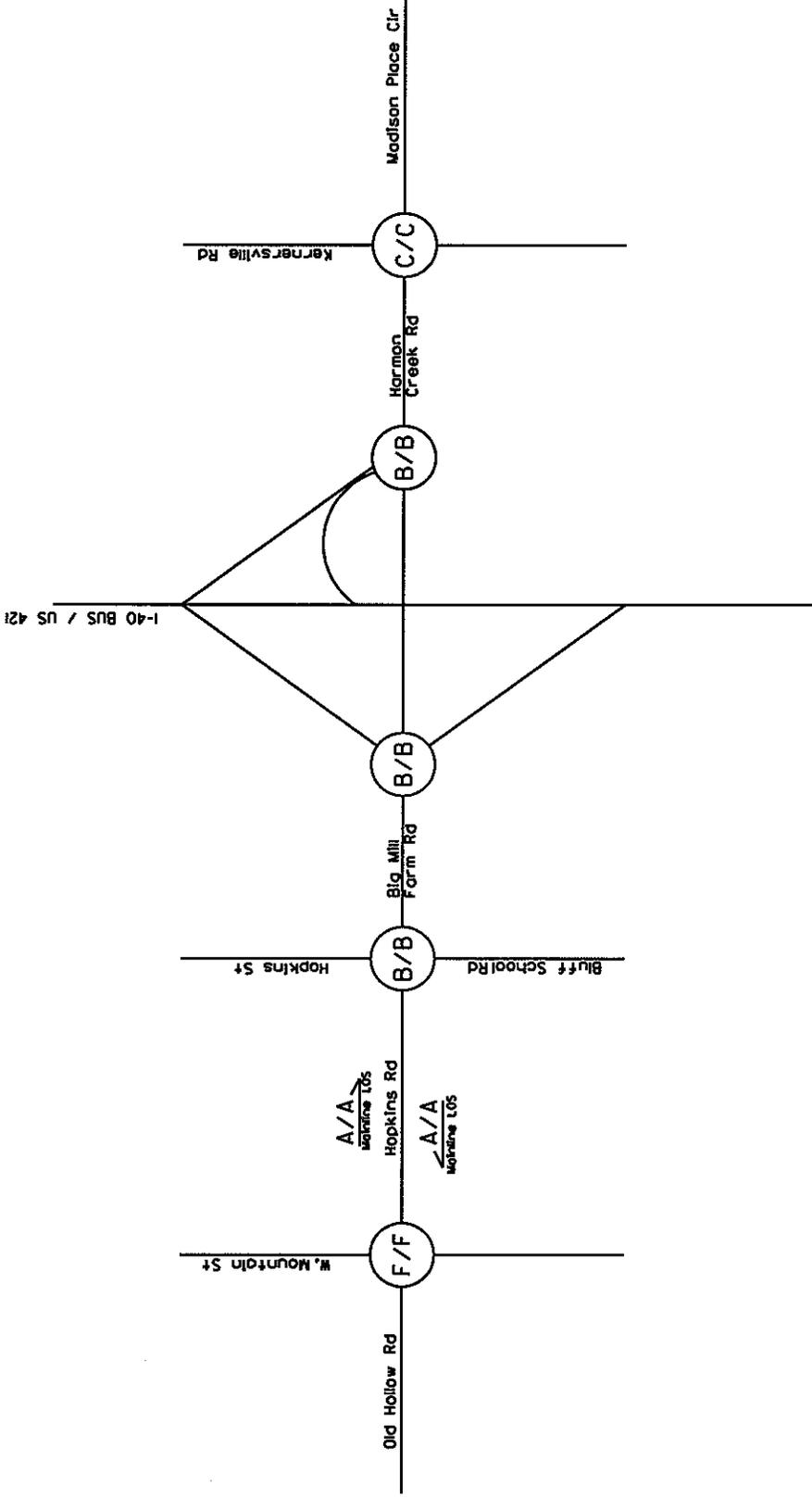
- K Design Hourly Volume = K30
- PM PM Peak Period
- D Directional Split (%)
- (d,t) %Duals, %TTST
- > Indicates direction D;  
reverse for AM



Not to Scale







NOT TO SCALE

FIGURE 5

2035 LEVEL OF SERVICE

Big Mill Farm Road Feasibility Study

Forsyth County

Date: March, 2008

