STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
PROJECT PLANNING DIVISION
SUITE 1000, JAMES K. POLK BUILDING
505 DEADERICK STREET
NASHVILLE, TENNESSEE 37243-0344

November 7, 2007

Mr. Don Ellis, Manager 2
Program Development and Scheduling Office
Suite 600, James K. Polk Building
Nashville, Tennessee 37243-0341

SUBJECT: Transportation Planning Report, State Route 266 (Jefferson Pike), From State Route 102 (Nissan Drive) to State Route 840, Smyrna, Rutherford County, PIN # 107045.00

Dear Mr. Ellis:

Enclosed is a copy of the subject report which has been signed by the appropriate department personnel. This report is being forwarded for your use in determining priorities, establishing future scheduling and initiating further development of the project. This report will also be available from a PDF file on the TDOT Transportal intranet site. If you have any questions, please contact me.

Sincerely,

Bill Hart

Bill Hart, Manager 2
Project Planning Division

BH:gw
Enclosure

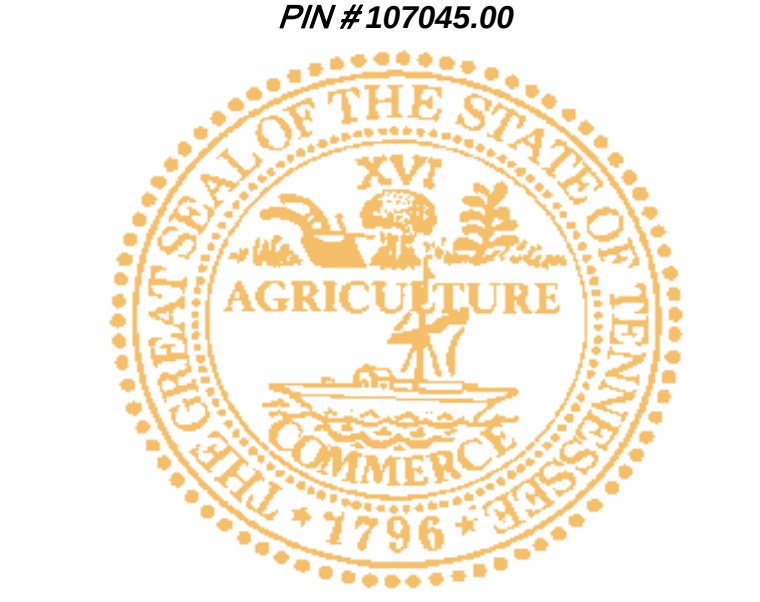
Cc/enc: Kelley Garrett, Ernest Burgess (Rutherford County Mayor), Del Corbitt (Rutherford County Engineer), Bobby Spivey (Mayor of Smyrna), Kevin Rigsby (Smyrna Planning), Michael Skipper (Nashville Area MPO)

Ec: Ed Cole, Paul Degges, Doug Delaney, Jeff Jones, Ed Wasserman, Jim Moore, Winston Gaffron, Steve Allen, Jeanne Stevens, Harold Jackson, Kelly Henshaw, Carolyn Stonecipher, Charles Bush, Teresa Estes, Elizabeth Smith, Terry Gladden

TRANSPORTATION PLANNING REPORT

STATE ROUTE 266

FROM STATE ROUTE 102 TO STATE ROUTE 840
TOWN OF SMYRNA AND RUTHERFORD COUNTY, TENNESSEE
PIN # 107045.00



PREPARED BY
GRESHAM, SMITH AND PARTNERS

FOR THE
TENNESSEE DEPARTMENT OF TRANSPORTATION
PROJECT PLANNING DIVISION

Approved by:	Signature	DATE
CHIEF OF ENVIRONMENT AND PLANNING	Ed Cole	11/1/07
TRANSPORTATION DIRECTOR PROJECT PLANNING DIVISION	Steve Allen	11-1-07
TRANSPORTATION MANAGER 2 PROJECT PLANNING DIVISION	Bill Hart	11/01/07

This document is covered by 23 USC § 409 and its production pursuant to fulfilling public planning requirements does not waive the provisions of § 409.

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TABLES

1.0 PROJECT HISTORY

The subject of this Transportation Planning Report (TPR) is the section of State Route 266 (Jefferson Pike) from State Route 102 (Nissan Drive) in the Town of Smyrna to State Route 840 in Rutherford County.

In 1983, the Nissan manufacturing plant was built in the Town of Smyrna on State Route 102, just south of the project area. The completion of State Route 840 increased traffic along the subject roadway considerably since State Route 266 is the primary access route for vehicles traveling from State Route 840 to the Nissan Plant. At the same time, Smyrna was experiencing significant population growth.

The State Route 266 improvement project was initiated by the Tennessee Department of Transportation (TDOT) at the request of three State Representatives. The project is intended to:

1. Relieve traffic congestion,
2. Address geometric features that do not meet current standards, and
3. Support future economic development efforts in and around the study area.

TDOT's 2001 Advance Planning Report (APR) included preliminary alignment studies, traffic analyses and preliminary environmental screening to identify sensitive historic, archaeological and ecological areas.

The Nashville Area Metropolitan Organization (MPO) required a Tier 2 Analysis for the improvements before moving into the next stage of transportation project development. The analysis was prepared pursuant to the MPO's Congestion Management System (CMS). The report concluded that the improvements proposed by TDOT, when combined with other recommended CMS toolbox strategies (e.g., traffic operational improvements and provisions for bicyclists and pedestrians), would increase traffic capacity within the corridor, thereby reducing projected congestion. The MPO approved the Tier 2 Analysis in October 2006.

The proposed improvements are included in the MPO's *2030 Long Range Transportation Plan* (*LRTP*) as a Near Horizon (2016) project. The project is also listed in the *Smyrna Major Thoroughfare Plan* (2003). The *Major Thoroughfare Plan*, which was coordinated with the public during development, indicates that the proposed State Route 266 improvement project is the number one priority project because the existing traffic is high in relation to the roadway's existing capacity. The *Major Thoroughfare Plan* indicates the route carries a high volume of both commercial truck traffic and school bus traffic, therefore congestion is considered a potential safety issue.

2.0 STUDY AREA

The 4.1± mile section of State Route 266 that is under study is classified by TDOT as an urban minor arterial within the Town of Smyrna City Limits and a rural major collector in Rutherford County. For the purpose of this TPR, the urban minor arterial portion of the roadway is referred to as Segment 1, while the rural major collector portion of the subject roadway is referred to as Segment 2. Segment 1 extends 1.6 miles from the intersection of State Route 266 and State Route 102 to the eastern end of Stones River Bridge.

Segment 2 (2.5 miles) originates at the terminus of the urban segment and ends just past the northbound ramps of State Route 840. Together, the segments provide direct access from the Town of Smyrna to State Route 840 and to much of the new residential development occurring in this area of Rutherford County. State Route 840 is a full access-controlled highway built in 1996 between I-40 east of Nashville and I-24. In 2003, the extension of State Route 840 westward from I-24 to I-40 west of Nashville was halted because of the lack of support from citizens and local officials. Once completed, State Route 840 will serve as a beltway for the Nashville metropolitan area. Figure 1 shows the project within its area context and Figure 2 depicts the project limits and shows the two study segments.

The U.S. Army Corps of Engineers (USACOE) manages a large amount of land in the study area in addition to controlling much of the area's navigable waters. In the 1960s, the USACOE constructed J. Percy Priest Dam, which impounded the Stones River Reservoir and led to major changes in residential growth patterns in the study area. A map in Appendix A shows the location of USACOE property in the project area as well as the Stones River Reservoir. This project is consistent with the USACOE Master Plan for the Stones River/J. Percy Priest area (which is currently being updated). The agency supports necessary improvements to existing river crossings because the impacts on their property are less than those of a new Stones River crossing (see Appendix A for documentation of preliminary coordination).

The U.S. Coast Guard commented that the State Route 266 crossing of the Stones River at mile 37.2 is not a waterway over which the Coast Guard exercises jurisdiction for bridge administration purposes. Consequently, a bridge permit is not required (See Appendix A for documentation of coordination).

The existing facility from the western termini at State Route 102 or Nissan Blvd. to approximately 400 linear feet east is four 12-foot through lanes and a 12-foot center turn lane with curb and gutter. The existing right-of-way is approximately 90 feet. The section transitions over the next 500 feet into two 12-foot through lanes with varying shoulders of two to four feet. The existing right-of-way section reduces to 60 feet 900 feet east of the western termini. This section is maintained to the bridge crossing over State Route 840.

The route under discussion contains two bridges: at log miles 6.30 and 8.71. The bridge at 6.30 over the Stones River has three main spans and is classified as structure type Welded Plate Girder on the main span. There is one main approach span that is categorized as structure type Precast Concrete I Beam. This bridge is 550 feet in length, 31.5 feet deck out-to-out and 26 feet curb to curb. This bridge was constructed in 1969 and is being recommended for replacement in the proposed improvements. The bridge at 8.71 crosses over State Route 840 and has four main spans and is categorized as structure type Precast Concrete T Beam on the main span. The bridge is 280 feet in length, 66 feet deck out-to-out and 64 feet curb to curb. This bridge was constructed in 1995 and is recommended for widening in the proposed improvements.

Major utilities along the roadway consist of a 30" water main located north of State Route 266 from Sharp Springs Road to State Route 102 and gas lines alternating to the north and south of the subject roadway from State Route 102 to State Route 840.
Based upon traffic analyses and the environmental constraints identified in the 2001 APR, TDOT recommended a five-lane roadway to appropriately address the

improvement of State Route 266. The APR recommended urban and rural typical sections within 84' to 200' of right-of-way. The typical sections are being re-evaluated in this TPR. TDOT and the Town of Smyrna indicated that a greenway pedestrian and bike path could also be included in future phases of the proposed project.

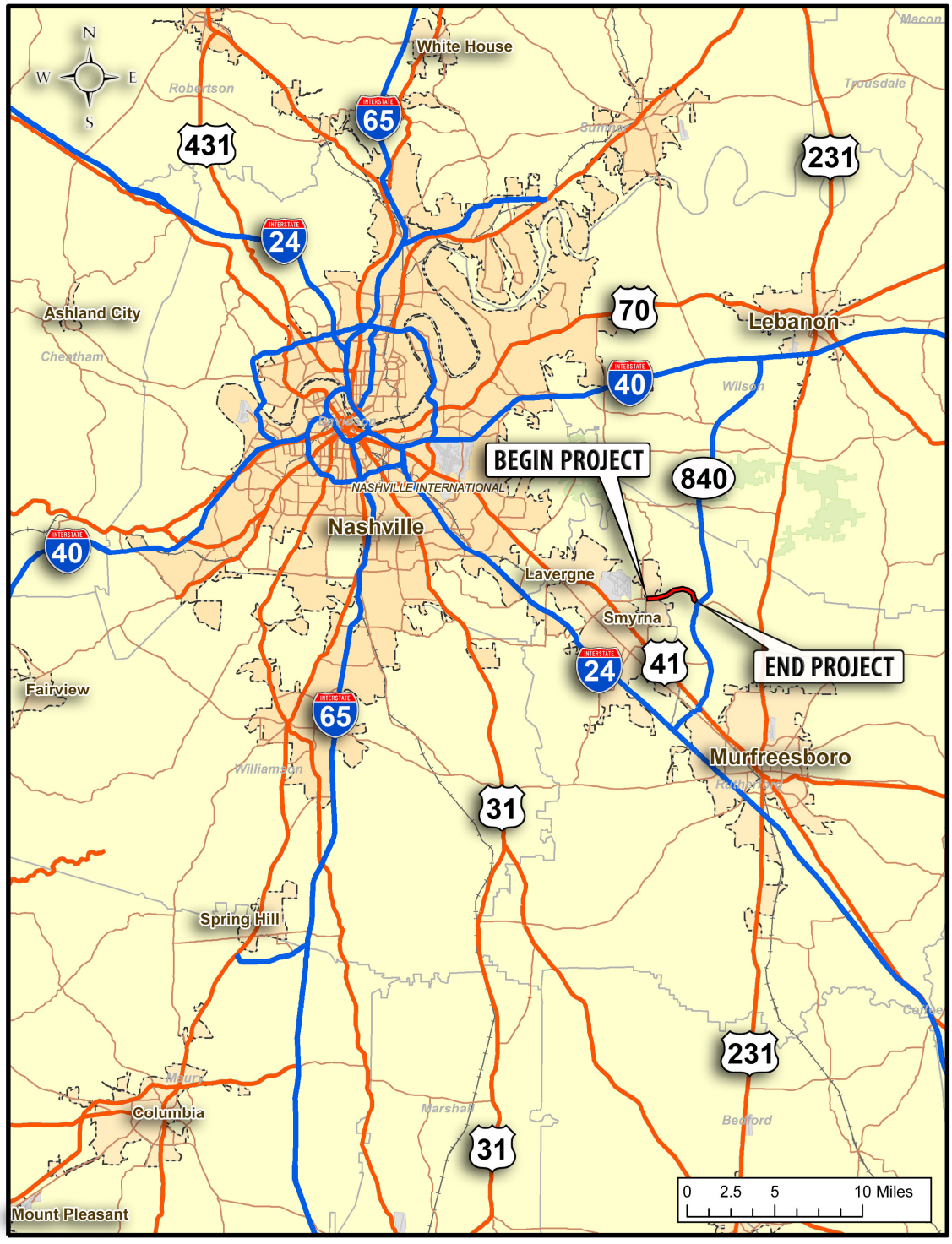

Figure 1: General Location Map. State Route 266, between State Route 102 and State Route 840, Smyrna and Rutherford County, Tennessee.

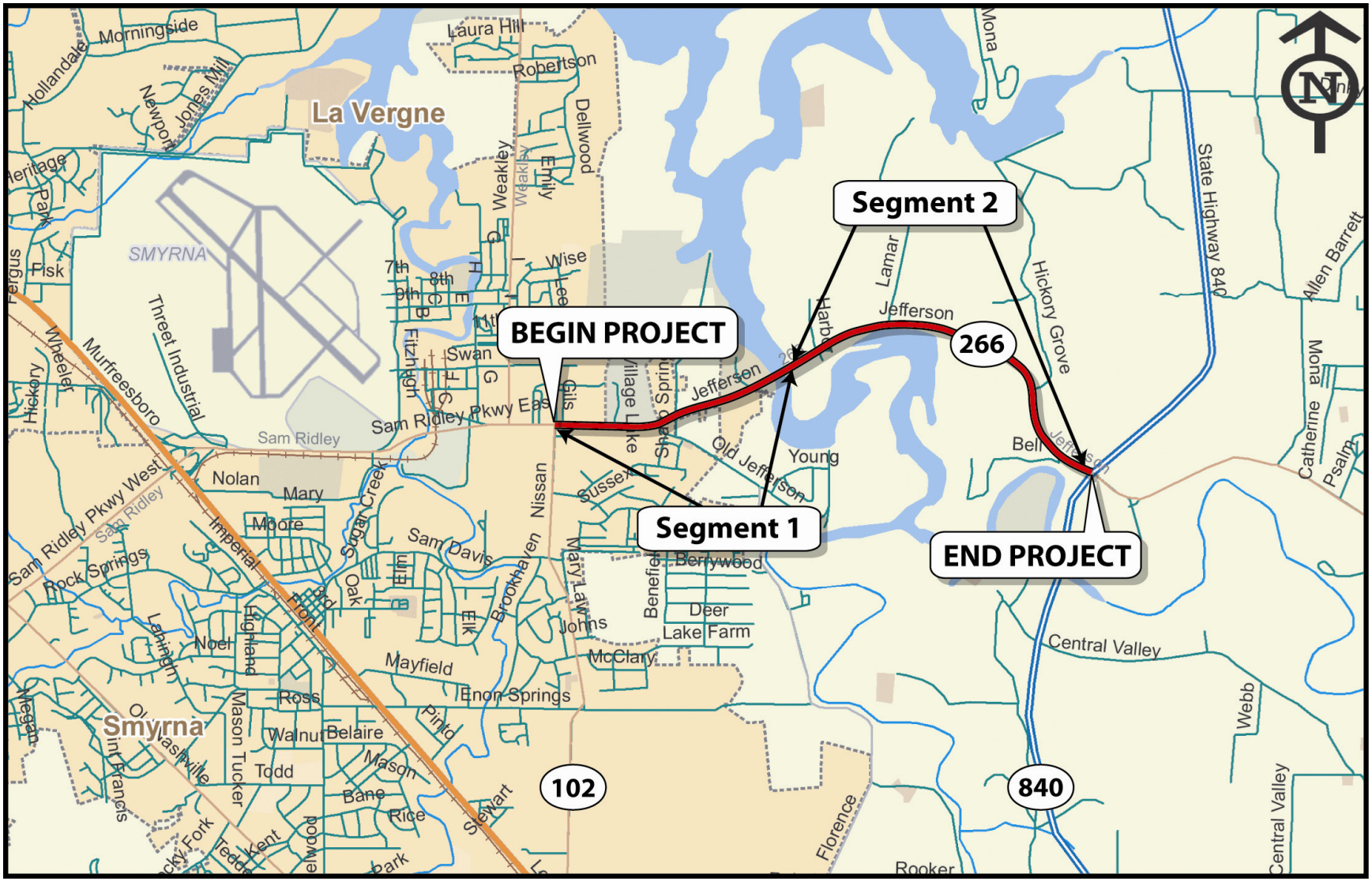

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Figure 2: Project Location Map. State Route 266, between State Route 102 and State Route 840, Smyrna and Rutherford County, Tennessee.

3.0 COMMUNITY CHARACTERISTICS

As previously stated, a portion of the subject roadway is in the Town of Smyrna and the remainder is in Rutherford County. Both Smyrna and Rutherford County are known for their rich history and their prime location in the "heart of Tennessee." Located just south of Nashville and north of Murfreesboro, the area prides itself on having the benefits of small town living with the amenities of a major metropolitan area.

Smyrna and Rutherford County have experienced an immense amount of growth over the past six years. The growth can be attributed to several factors. Smyrna has excellent access to the Middle Tennessee transportation system, making it a good location for business. Nissan of North America took advantage of this access and opened a manufacturing plant in the area, which led to a significant rise in the area's employment base and population. In addition, Smyrna offers a relatively low cost of living and a high quality of life with easy access to Stones River, Percy Priest Lake and an extensive City and County park and greenway system.

The largest industry sector in Rutherford County is manufacturing, which is 24 percent of the County's employment base. According to statistics compiled by the Tennessee Department of Labor and Workforce Development in October 2006, the labor force in Rutherford County is experiencing an unemployment rate of 3.2 percent. This is lower than the statewide average of 4.3 percent. Many residents of Smyrna and Rutherford County commute to Nashville or Murfreesboro for work.

State Route 266 is the major east-west route for northern Rutherford County. This segment of State Route 266 connects Rutherford County residents (often commuters) and businesses to the Town of Smyrna and I-24. It also connects Smyrna residents and local businesses to State Route 840, which is an important link to I-40 and Lebanon and I-24 and Chattanooga. As illustrated in Figure 3, there are several major traffic generators in the project area that add to the roadway's capacity and safety issues, including the:

- Nissan manufacturing plant, south of the project area on Nissan Drive;
- Smyrna Airport, west of the project area on Sam Ridley Parkway;
- BFI-Middle Point Sanitary Landfill, east of the project area on State Route 266; and
- Industrial land uses, north of State Route 266—particularly Smyrna Ready Mix concrete company and Hoover Crushed Stone on Hickory Grove.

All of these businesses generate truck traffic that use this segment of State Route 266 to access I-24, State Route 840, the Town of Smyrna and Rutherford County. In addition, many employees traveling to the Nissan manufacturing plant use this segment of State Route 266 for their work commute.

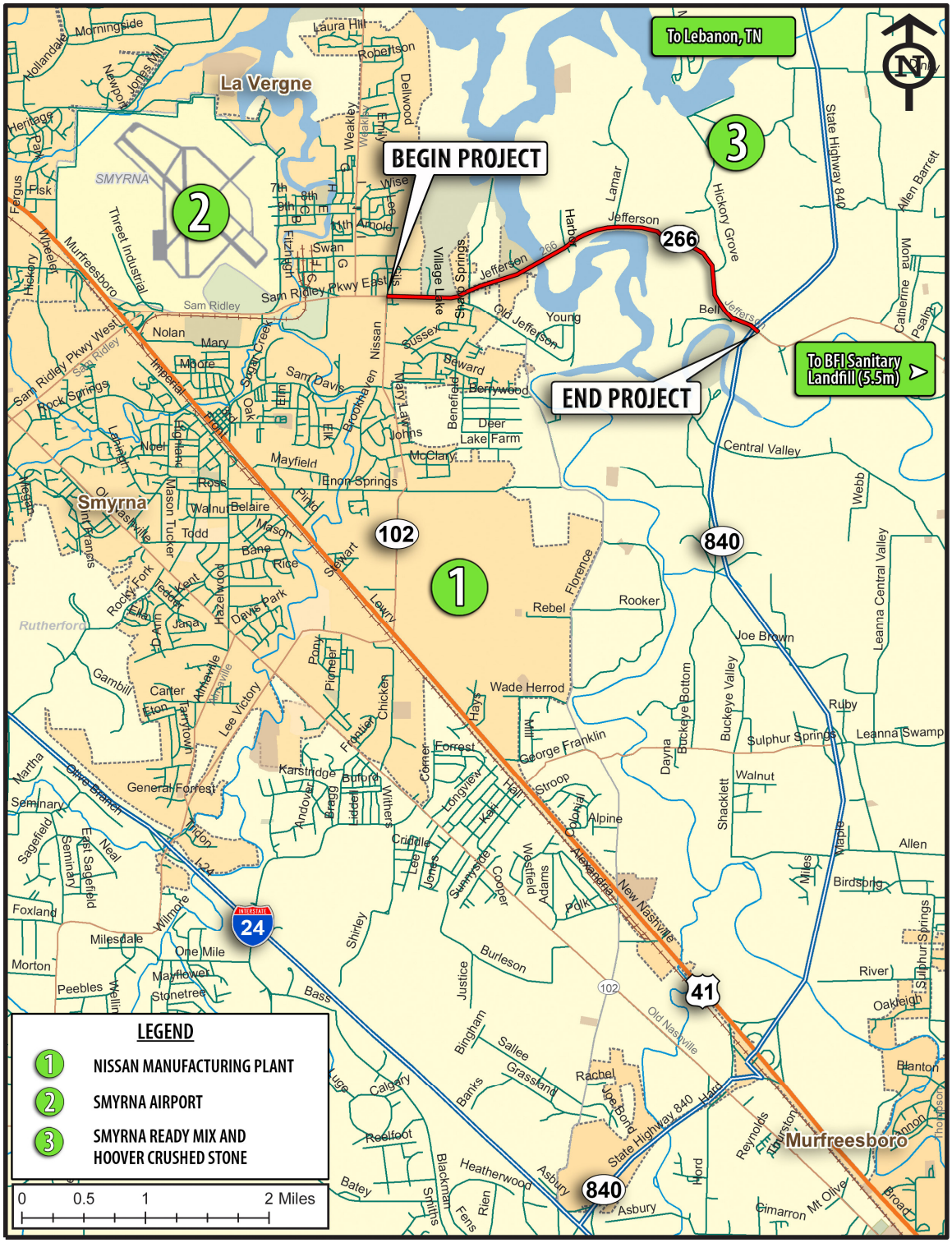


Figure 3: Map of Major Traffic Generators in the Project Area

This segment of State Route 266 is also an important connection between the high concentration of parks and recreation facilities in the area, as shown in Figure 4. These recreational facilities contribute to the quality of life in the area, but they also generate vehicular, bicycle and pedestrian traffic along State Route 266 (including vehicles pulling boats). The Sharp Springs Recreation Area, which is a city park on USACOE land, and the Jefferson Springs Recreation Area and boat ramp, which is a USACOE recreation area, are located on State Route 266 immediately west of Stones River. The Smyrna Municipal Golf Course and Lee Victory Recreation Park are located on Sam Ridley Parkway, west of the project area. The Sam Davis Historical Home is south of the project area off of Nissan Drive. The West Fork Recreation Area and boat ramp is located south of the project area off of Old Jefferson Pike. The Town of Smyrna Master Plan for Parks and Recreation also notes the potential for two additional parks south of the project on Florence Road (near Enon Springs Road and Wade Herod Road).

4.0 EXISTING TRANSPORTATION CONDITIONS

Land Use

The land along the subject roadway is mostly wooded terrain with a dispersion of low-density, single-family residences. A number of subdivisions are located south of the project area between Old Jefferson Pike and Nissan Drive. Figure 5, which illustrates important existing conditions along the project corridor, highlights 40 additional single family homes that are planned for that area. The Smyrna Parks and Recreation Department has indicated that these residences generate pedestrian and bicycle traffic crossing the project corridor. A cluster of single family homes is located immediately east of Stones River on Harbor Drive north of State Route 266.

Some multi-family residences are situated near the western terminus of the project area. The Village Lake Apartments and a Mobile Home Park are both located on State Route 266 west of Sharp Springs Recreation Area. The Charleston Hall Apartments are located just west of the project area on the north side of State Route 266. Many of the children living in these developments utilize the school bus stop on State Route 266 (see Figure 5).

A 33-acre mixed-use development is planned for the southwest quadrant of the Sam Ridley Parkway and Nissan Drive intersection. This development will include multi-family housing, commercial lots and a convenience store. An additional convenience store is planned on the northern side of State Route 266, east of Hickory Grove Road. Adjacent to that, an office building is planned for development. Figure 5 shows these developments.

The project area is home to several industrial sites located off State Route 266 on Hickory Grove Road, including the Smyrna Ready Mix concrete company and Hoover Crushed Stone (see Figure 3). State Route 266 is the primary access route for these two industries, resulting in added truck traffic on the two-lane roadway. These companies have dump trucks and concrete trucks that travel through the intersection of State Route 266 and Hickory Grove Road throughout the day. Because there is no left turn lane onto Hickory Grove Road, the trucks traveling eastbound on State Route 266 often stop traffic while waiting to turn left.

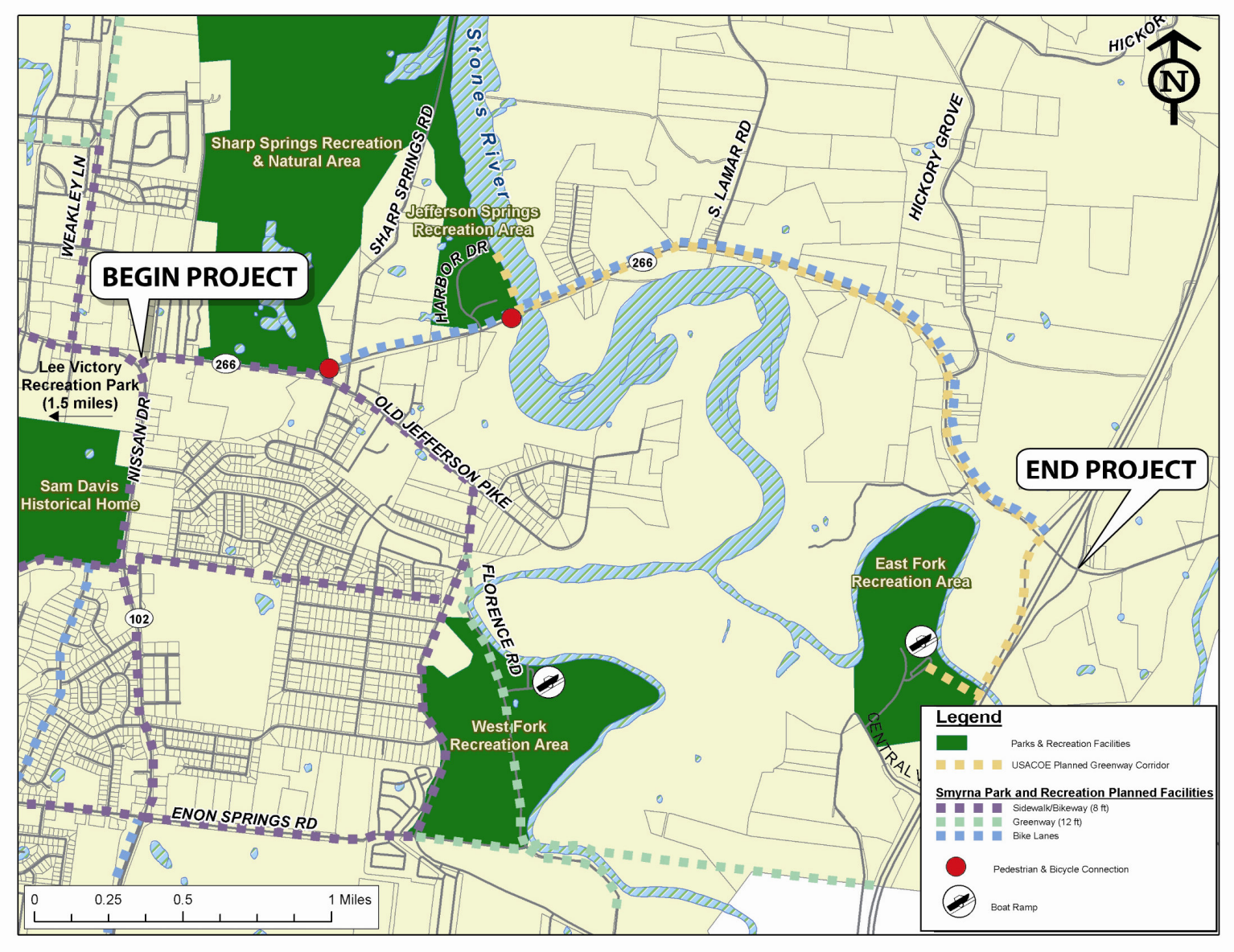


Figure 4: Parks and Recreation Map

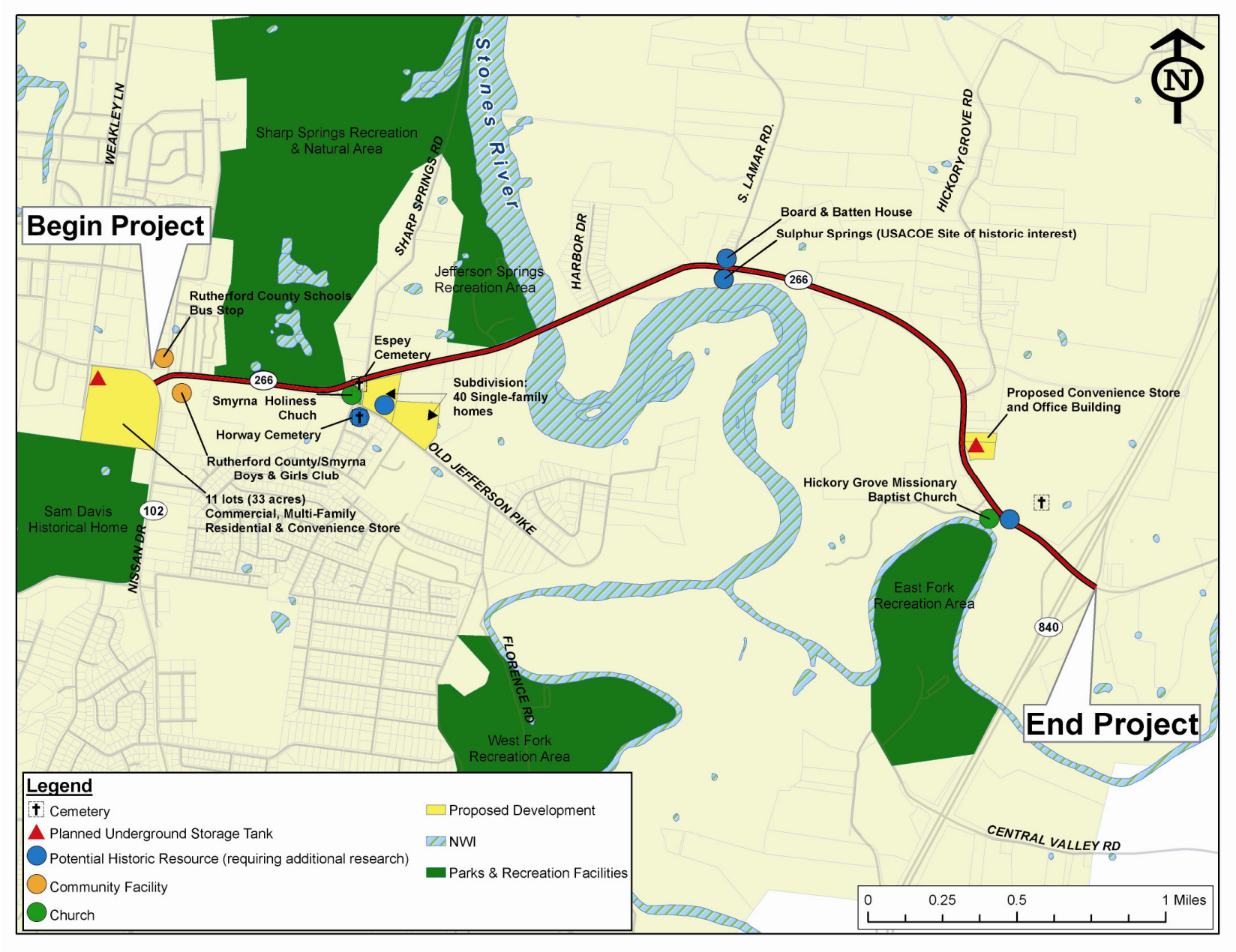


Figure 5: Environmental Constraints Map

This portion of State Route 266 is also home to a variety of recreational opportunities (as described in Section 3.0). These facilities provide residents with access to Smyrna's growing greenway system, a boat ramp and sports fields that draw in citizens from across the county. The only way to access these facilities is by traveling on State Route 266. Currently, the subject roadway does not have sidewalks or bike lanes. Despite the lack of bicycle and pedestrian facilities, bicyclists and pedestrians use the corridor indicating the need for improved bicycle and pedestrian facilities along the roadway.

Much of the property along the project corridor is managed by the USACOE (see map in Appendix A). As previously stated in Section 2.0, the proposed roadway project is consistent with the USACOE Master Plan update that is underway. The agency supports the necessary improvements to existing river crossings because those impacts on their property are less than those of a new crossing (see Appendix A).

Traffic Volumes

Using traffic counts and growth factors derived from the MPO's Travel Demand Model, TDOT developed traffic volume data for the project area for the years 2011 and 2031. The 2011 and 2031 (Design Year) Annual Average Daily Traffic (AADT) volumes along State Route 266 in the project area are shown in Figure 6. Traffic volumes that can be carried without congestion issues for roadway sections similar to Segments 1 and 2 of the project range from 6,500 to 14,000 AADT. State Route 266 traffic volumes will increase to as high as 18,280 AADT by the year 2011, resulting in as many as 11,780 additional vehicles that the roadway will be unable to accommodate at an acceptable level of service. Volumes will rise to as high as 23,210 AADT in the year 2031, resulting in more than 16,000 added vehicles. Additionally, truck volumes make up as high as 10 percent of traffic volumes along State Route 266. Segment 2 carries much of the truck traffic, with an average of 1,392 trucks traveling along the segment a day. This number will increase to 1,784 trucks by the year 2031.

Crash Rates

The statewide average crash rate for a similar roadway is 1.7, while the actual rate for this section of State Route 266 is 2.57. The actual rate is derived from a formula that takes into account factors such as total number of crashes, length of roadway and the time period over which the crashes occurred. The critical rate defines statistically how the actual rate differs from the statewide rate. The critical rate for this segment of roadway is 2.12. The ratio of the actual rate (2.57) to the critical rate (2.12), known as the A/C ratio, indicates the severity of the accident problem. An A/C ratio in excess of 1.0 suggests that a safety deficiency may exist. This segment of roadway has an A/C ratio of 1.21, indicating that a safety deficiency may exist.

Not only does the traffic and crash data indicate a safety issue, but the anecdotal evidence reinforces the existence of a problem. The roadway is perceived as unsafe by residents and local government officials. The public is concerned about the type of vehicular traffic on State Route 266. Due to the presence of industrial development in the area, a large number of dump trucks carrying concrete, gravel and landfill materials are present in the project area, particularly at the intersection of State Route 266 and Hickory Grove. The residents are concerned that these larger industrial vehicles are a safety hazard. An interview with the Smyrna town planner indicated that this was a widespread concern and that serious crashes and fatalities have occurred because of the presence of these large industrial vehicles. A large part of Smyrna's eagerness for the implementation of the proposed improvements is due to their safety concerns.

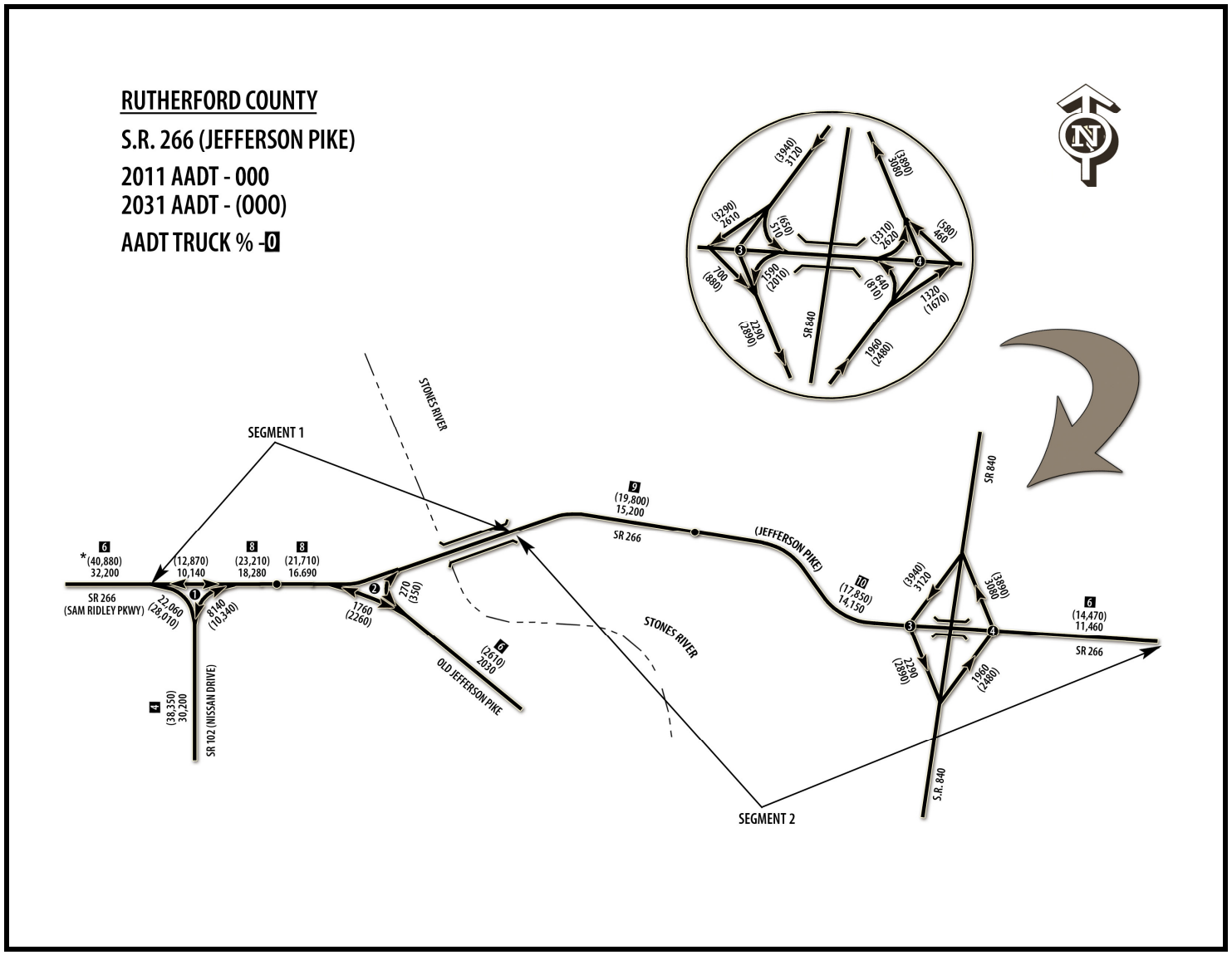


Figure 6: 2011 and 2031 AADT Volumes. State Route 266, between State Route 102 and State Route 840, Smyrna and Rutherford County, Tennessee

5.0 PRELIMINARY PURPOSE AND NEED

The section of State Route 266 that is proposed for improvement is a two-lane roadway that has geometric and operational deficiencies. The roadway is substandard for its roadway functional classification and cannot safely and efficiently serve existing and projected traffic in this growing area. The project needs are described in more detail below.

Improved Level of Service and Travel Times

The Level of Service (LOS) of a highway is an indicator of the general operating condition of the traffic flow and is based on factors such as speed, travel time, freedom to maneuver, traffic interruptions, comfort, convenience and safety. A general description of the operating conditions for each level of service (A through F) is shown in Table 1.

Table 1: Level of Service Description

Level of Service	Description
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 the driver is 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 high.
C	Flow with speeds at or near free flow. 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 additional vigilance required for safe operation.
D	Speeds decline with increasing traffic. Freedom to maneuver within the traffic stream is noticeably limited. The driver experiences reduced physical and psychological comfort levels.
E	At the lower boundary, the facility is at capacity. Operations are volatile because there are virtually no gaps in the traffic stream. There is little or no 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 exceeded 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: Highway Capacity Manual (2000), Transportation Research Board

Table 2 illustrates the peak hour LOS in three analysis segments of the roadway. As illustrated by the LOS ratings, the roadway will reach its capacity by 2011 and exceed its capacity by the year 2031.

Table 2: Peak Hour LOS, 2011 and 2031

SEGMENT	2011	2031
	2-Lane LOS	2-Lane LOS
From Nissan Dr. to Old Jefferson Pike	E	F
From Old Jefferson Pike to S. Lamar Rd.	E	F
From S. Lamar Rd. to State Route 840	E	E

Accommodate Area Growth and Increased Traffic

State Route 266 is the major east-west route for northern Rutherford County and it connects the County residents to the Town of Smyrna and points westward to I-24. As previously stated, both the Town of Smyrna and Rutherford County are experiencing population growth that far exceeds the statewide average. According to the U.S. Census, Rutherford County grew by 53.5 percent between 1990 and 2000 compared to a statewide growth rate of 16.7 percent. The Town of Smyrna grew by 56 percent during the same time period. The population in the area continues to increase and estimates show the area growth at almost 20 percent between 2000 and 2005.

There are several catalysts for the area growth and increased traffic, including the 24-year old Nissan Plant on State Route 102 (one and one-half miles south of the project area). The subject roadway is a primary access route from northern Rutherford County and State Route 840 to the Nissan Plant. The addition of the Nissan Plant has also made this corridor a desirable place to live for the Nissan workforce. This leads to an increase in residential development, which results in increased traffic due to the Nissan workforce commuting to work.

As Murfreesboro, Nashville and Smyrna grow as regional employment centers, housing in the Town of Smyrna and Rutherford County has become well-located, while still affordable relative to the surrounding localities. As a result, travel demand has increased considerably along the roadway. Along the approximately four-mile project corridor, 40 single-family homes, a 33-acre mixed-use development, two convenience stores and an office building are currently planned for development (see Figure 5). Growth is slower to occur at the eastern end of the project area due to soil that is poor for septic systems, but there is rapid population growth and development further east on State Route 266 towards Lascassas.

Correct Roadway Deficiencies

The roadway currently has geometric and operational deficiencies, which include an inadequate number of travel lanes to accommodate the existing and projected traffic, lack of a center-turn lane, lack of accommodations for pedestrians and bicycles and substandard vertical and horizontal alignment. The horizontal and vertical alignment deficiencies result in substandard sight distances at some locations along the roadway.

Improve Safety

Section 4.0 of this report described the community's concerns about safety on State Route 266. A large number of trucks carrying concrete, gravel and landfill materials are present in the project area, particularly at the intersection of State Route 266 and Hickory Grove. Residents are concerned that these large industrial vehicles are a safety hazard. A large part of Smyrna's eagerness for the implementation of the proposed improvements is due to their safety concerns.

In addition, the *Smyrna Land Use and Community Facilities Plan* designates the project area as the site of a future Fire Protection Response Area. The majority of vehicles in this response area must utilize State Route 266 to access their destinations. As more development occurs in the area, locating emergency facilities and providing direct access to all of the developed areas will become even more important.

6.0 FIELD REVIEW

A Field Review of the project corridor was conducted on January 25, 2006. The following groups were invited (those who attended are in italics):

- Nashville Area Metropolitan Planning Organization
- *Rutherford County Engineering Department (Del Corbitt and Bob Reed)*
- *Town of Smyrna-Codes and Planning (Kevin Rigsby)*
- *Town of Smyrna-Parks and Recreation (Mike Moss)*
- *Smyrna Utilities (Mark Parker)*
- *Federal Highway Administration (Gary Fottrell)*
- *TDOT Environmental Division (Bob Allen and David Thompson)*
- *TDOT Project Planning Division (Charles Graves and Gary Webber)*
- *TDOT Project Management Division (Ralph Barnes and Kelley Garrett)*

This review provided a valuable venue for identifying issues, gathering information and recognizing opportunities for collaboration.

Mike Moss expressed his desire for the new roadway to provide a connection between the Smyrna Greenway System and the Murfreesboro Greenway System. Kevin Rigsby noted that the Smyrna Water Treatment Plant was located in the project study area and is the sole supplier of water to Smyrna residents. He also shared with the group information about the new residential developments discussed in Section 5.0. Charles Graves identified potential wetlands in the project area as well as requested signal warrant analysis for four intersections along the subject roadway.

7.0 ENVIRONMENTAL SCREENING

Preliminary environmental screening was conducted for the project corridor and the results are illustrated on Figure 5 and outlined below. Additional environmental studies will be conducted in future project phases during the National Environmental Policy Act (NEPA) process.

An environmental checklist was completed for the subject project and results are specified below. As indicated by the checklist, a number of environmental facilities will be affected by the proposed improvements.

CHECKLIST OF DETERMINANTS FOR LOCATION STUDY

If preliminary field reviews indicate the presence of any of the following facilities or ESE categories, place an "X" in the blank opposite the item. Where more than one alternate is to be considered, place its letter designation in the blank.

1. Agricultural land usage..... _____
2. Airport (existing or proposed)..... _____
3. Commercial area, shopping center..... X
4. Floodplains..... X
5. Forested land..... X
6. Historical, archaeological, cultural, or natural landmark, or cemeteries..... X
7. Industrial park, factory..... _____
8. Institutional usages:
   - a. School or other educational institution..... _____
   - b. Church or other religious institution..... X
   - c. Hospital or other medical facility..... _____
   - d. Public Building, e.g., fire station..... _____
   - e. Defense installation..... _____
9. Recreational usages:
   - a. Park or recreational area, State Natural Area.... X
   - b. Wildlife refuge or wildlife management area..... _____
10. Residential establishment..... X
11. Urban area, city, town, or community..... X
    (Smyrna, Pop. 25,569)
12. Waterway, lake, pond, river, stream, spring, wetland..... X

    Permit Required:

Coast Guard....	_____	Section 404.....	X
Section 10.....	_____	TVA Section 26a Review.....	_____
NPDES.....	X	Aquatic Resource Alteration...	X
		Class V Injection Wells.....	_____

13. Location coordinated with local officials..... X
14. Railroad Crossings..... _____
15. Hazardous Material Site or Underground Storage Tanks _____
16. Other..... _____

Ecological Resources

The project corridor follows the Stones River for most of the study area and it crosses Stones River just west of Harbor Drive. According to the Federal Emergency Management Agency (FEMA) report, the 100-year flood elevation on Percy Priest Lake is approximately 506.5-feet for a 100-year flood and 510-feet for a 500-year flood. The subject project falls within the 100-year flood zone (as identified by FEMA) in two locations. The first flood zone is at Sharp Springs Recreation and Natural Area. The second flood zone is just east of the bridge where the river bend passes near the roadway. Although the subject roadway falls within the 100-year flood zone, it has been designed to accommodate a 10-year flood without overtopping.

The United States Fish and Wildlife Service National Wetland Inventory (NWI) map, which is shown in Appendix B, was reviewed to identify known wetlands in the project area. Near the entrance to Sharp Springs Recreation and Natural Area are several potential wetlands that could potentially be affected by the proposed improvements. In addition, there is a freshwater emergent wetland identified on the NWI between Sharp Springs Road and the entrance to Jefferson Springs Recreation Area which could potentially be affected by the proposed improvements.

A small portion of the roadway (between Harbor Drive and Hickory Grove Drive), is located in the Gladeville USGS Quadrangle Map, for which wetland data is not digitized. Consequently, it is not shown on the NWI map in Appendix B.

Historic Resources

There are currently no properties listed in the National Register of Historic Places (NRHP) within the general project area. TDOT historians conducted a field review on November 29, 2006 to determine if there are any properties eligible for inclusion in the NRHP that might be affected by this project. The report documenting this field review noted four potential historic properties, which are shown in Figure 5 and Appendix B:

1. Hickory Grove Missionary Baptist Church: This is the only remaining older building in the Hickory Grove Community.
2. Johns-King-Johns Farm: This is a mid-nineteenth-century farmstead, but 40 single family homes are currently planned in this area (Parcels 017.02 and 017.00). If this development proceeds as planned, it is unlikely that this farmstead will be NRHP eligible because the land will be re-developed.
3. Cemetery: It is unlikely that this is NRHP eligible.
4. Board and Batten Twentieth Century Farmhouse: It is unlikely that this is NRHP eligible.

Additional survey work is needed in future project phases to determine NRHP eligibility.

A USACOE site of historic interest exists on USACOE property on the south side of State Route 266 near Lamar Road (see Figure 5). The USGS Topographic Map labels this area as “Jefferson Springs.” Also known as "Sulphur Springs," the Jefferson Springs area was historically, a well-known social hub and home to dance halls, private homes, rented cottages, a bowling alley and a fine hotel. The popularity of the resort declined following World War II, and in 1967 the buildings were demolished before the

area was dynamited for the Percy Priest Reservoir. The only remaining structures appear to be an old bridge pier and approach structures at the river side.

Community Resources

The project area is home to a number of community resources, which are illustrated in Figure 5 and listed below.

- The Rutherford County/Smyrna branch of the Boys & Girls Club is located in an interim facility near the western terminus of the project corridor (413 Nissan Drive).
- The Smyrna Holiness Church and the Espey Cemetery are located on State Route 266 on the southwest quadrant of the Sharp Springs Road intersection.
- The Hickory Grove Missionary Baptist Church is located on State Route 266 between Hickory Grove Road and Bell Road.

Elementary, middle and high school buses travel State Route 266 in the morning and afternoon. There is a school bus stop by the Village Lake Apartments near the western terminus of the project area. Buses stop to pick up/drop off children at this location between 6:30 and 7:30 AM and 2:45 to 3:45 PM.

As stated in Section 3.0, the project corridor contains a high concentration of parks and recreation facilities. The Sharp Springs Recreation and Natural Area, which is located on State Route 266 west of Stones River, contains general use open space, serves as a trailhead for the local greenway system and contains a frisbee golf course. This park is located on USACOE land, which is leased to the Town of Smyrna's Parks and Recreation Department.

The Jefferson Springs Recreation Area is a USACOE multi-use recreation area with picnic shelters, fishing areas and boat launching facilities. In their updated Master Plan, the USACOE is planning to develop a "greenway trail corridor" that would access the existing recreational facilities along State Route 266 (see Figure 4). The greenway trail corridor would essentially be the preferred location for any planned greenway trails that are on USACOE property.

The Smyrna Greenway-Bikeway Plan includes two important bicycle and pedestrian crossings west of Stones River. These crossings are shown on Figure 4. One crossing connects residents living south of State Route 266 to Sharp Springs Recreation and Natural Area. Pedestrians and bicyclists often cross at this point of State Route 266 and the Town of Smyrna is concerned about the safety of these uncontrolled crossings. The second crossing, just west of Stones River, provides a crossing for the planned connection between the Smyrna Greenway System and the Murfreesboro Greenway System.

Environmental Justice

U.S. Census Data was reviewed for the project area to determine whether the proposed project will have disproportionately high and adverse human health or environmental effects on minority populations and low-income populations.

A map in Appendix B illustrates the minority population in the project area by Census Block. The highest percentage of minority populations along the project corridor appears to be immediately east and west of State Route 840. The statewide minority

population is 20 percent of the total population. The two Census Blocks near State Route 840 are 29 and 56 percent minority. Although it is unlikely that the proposed project will have disproportionately high or adverse effects on these populations, future phases of project development will need to be sensitive to these populations. It is likely that the proposed project would enhance those residents' access to the Town of Smyrna.

A map in Appendix B shows the percentage of the population living below poverty in the project area. The map shows that none of the Census Block Groups in the project area contain greater than ten percent low-income populations.

8.0 OPTIONS

Five separate improvement options are discussed in this section. This includes a No Build Option, which, as the name implies, denotes that only minor improvements (such as safety improvements and normal maintenance) would be made to the existing road and/or intersection areas. The four build options (Options A, B, C and D) follow the existing alignment of State Route 266. The 500' study corridor for these build options is shown on the aerial mapping in Appendix D. What differentiates the four options are their typical sections. Options A and B are proposed improvements to Segment 1 of the roadway and consider four-lane and five-lane sections. Options C and D are proposed improvements to Segment 2 of State Route 266 and also consider four-lane and five-lane sections. These improvements are explained in more detail below.

Segment 1 – Urban

Segment 1 (approximately 1.6 miles) of the proposed improvements commences at the intersection of Sam Ridley Parkway and Nissan Drive. It follows the existing alignment, passing the frequently used Sharp Springs Recreational Area mentioned earlier in the report as well as an apartment complex and mobile home park. The roadway curves slightly to the north passing Old Jefferson Pike and the Smyrna Holiness Church. The segment passes several detached single family homes before reaching the main entrance of the Jefferson Springs Recreation Area and Boat Ramp. The urban segment then crosses the Stones River Bridge, which will likely be replaced due to width deficiencies and age, and terminates on the east end of the bridge. The new bridge will match the proposed improvements. Two build options under consideration for this segment are presented below.

Option A – Five Lane with Continuous Center Turn Lane

Option A consists of a five-lane roadway segment with a continuous center turn lane (12 feet), all within a 108-foot ROW. The four travel lanes will be 12 feet and the typical section will consist of 10-foot shoulders with curb and gutters on both sides of the roadway. Five-foot concrete sidewalks are separated from the travel lanes by 2.5-foot grass strips. A detailed typical section of Option A is included in Appendix D. The estimated cost associated with this improvement is $16,010,000.

An LOS analysis was conducted for this option and the results revealed that with the above improvement, the LOS rating for 2011 would rise from an E (two-lane LOS) to a B. In 2031, the LOS rating would rise from an F (two-lane LOS) to a C.

Option B – Four Lane with Raised Median

Option B consists of a four-lane roadway segment with a 16-foot raised median, all within a 120-foot ROW. The four travel lanes will be 12 feet each and the typical section will consist of 10-foot shoulders with curb and gutters on the outer extremes of the roadway and four-foot shoulders with curbs in the median of each approach along the roadway. Five-foot concrete sidewalks are separated from the roadway section by 2.5-foot grass strips. A detailed typical section of Option B is included in Appendix D. The estimated cost associated with this improvement is $16,565,000.

An LOS analysis was conducted for this option, and the results revealed that with the above improvement, the LOS rating for 2011 would rise from an E (two-lane LOS) to a B. In 2031, the LOS rating would rise from an F (two-lane LOS) to a C.

Segment 2 – Rural

Segment 2 of the proposed improvement, which is approximately two and one-half miles long, begins at the eastern terminus of the Stones River Bridge. It follows the existing alignment, passing one subdivision and South Lamar Road. The roadway curves southward, where it passes Aleet Transmission & Auto and Hickory Grove Road. The road then curves north passing Hickory Grove Baptist Church. This segment ends just east of the northbound exit ramp of State Route 840. The bridge over State Route 840 will be modified to include an additional 12-foot lane to each side in a symmetric widening. The overall widening will allow four 12-foot through lanes with a center turn lane or median and shoulders between the bridge rails. More details on the two build options considered for this study segment are outlined below.

Option C – Five Lane with Continuous Center Turn Lane

Option C consists of a five-lane roadway segment with a continuous center turn lane (12 feet), all within a 200-foot ROW. The four travel lanes will be 12 feet each and the typical section will consist of 12-foot shoulders on both sides of the roadway. The shoulders could be utilized as bike lanes, which support the Smyrna Parks and Recreation Department's plans to make this roadway segment a bikeway. A detailed typical section of Option C is included in Appendix D. The cost associated with this improvement is $19,300,000.

An LOS analysis was conducted for this option, and the results revealed that with the above improvement, the LOS rating for 2011 would rise from an E (two-lane LOS) to a B. In 2031, the LOS rating would rise from an F (two-lane LOS) to a C.

Option D – Four Lane with Raised Median

Option D consists of a four-lane roadway segment with a 16-foot raised median, all within a 200-foot ROW. The four travel lanes will be 12 feet each and the typical section will consist of 12-foot shoulders on the outer extremes of the roadway and four-foot shoulders in the median of each approach along the roadway. The shoulders could be utilized as bike lanes, which would support the Smyrna Parks and Recreation Department's plans to make this roadway segment a bikeway. A detailed typical section of Option D is included in Appendix D. The cost associated with this improvement is $20,460,000.

An LOS analysis was conducted for this option, and the results revealed that with the above improvement, the LOS rating for 2011 would rise from an E (two-lane LOS) to a B. In 2031, the LOS rating would rise from an F (two-lane LOS) to a C.

Intersection Improvements

Four intersections along the project corridor were selected for evaluation. Figures 7 – 10 depict intersection layouts and Tables 3 through 6 provide recommended intersection improvements for the four intersections, AM and PM Peak LOS results for the year 2031, and costs estimates for the improvements. For support of cost estimates, see

Appendix C. Although intersection improvements, alone, will not improve the overall functionality of the roadway, it may provide some needed congestion relief for side streets at heavy volume intersections.

Intersection 1 (State Route 266 at State Route 102) is located at the start of the project and is signalized. It consists of three directions of traffic: northbound, southbound and westbound. The northbound approach consists of one thru lane and a shared thru-right. The southbound approach consists of two thru lanes and a left-turn lane. The westbound direction consists of a right- and left-turn lane. As shown in Table 3, a westbound second left and right along with a northbound separate right and southbound second left is necessary to achieve an LOS of C or better. A less costly measure would be to eliminate the westbound second right, but this would only provide an LOS rating of E.

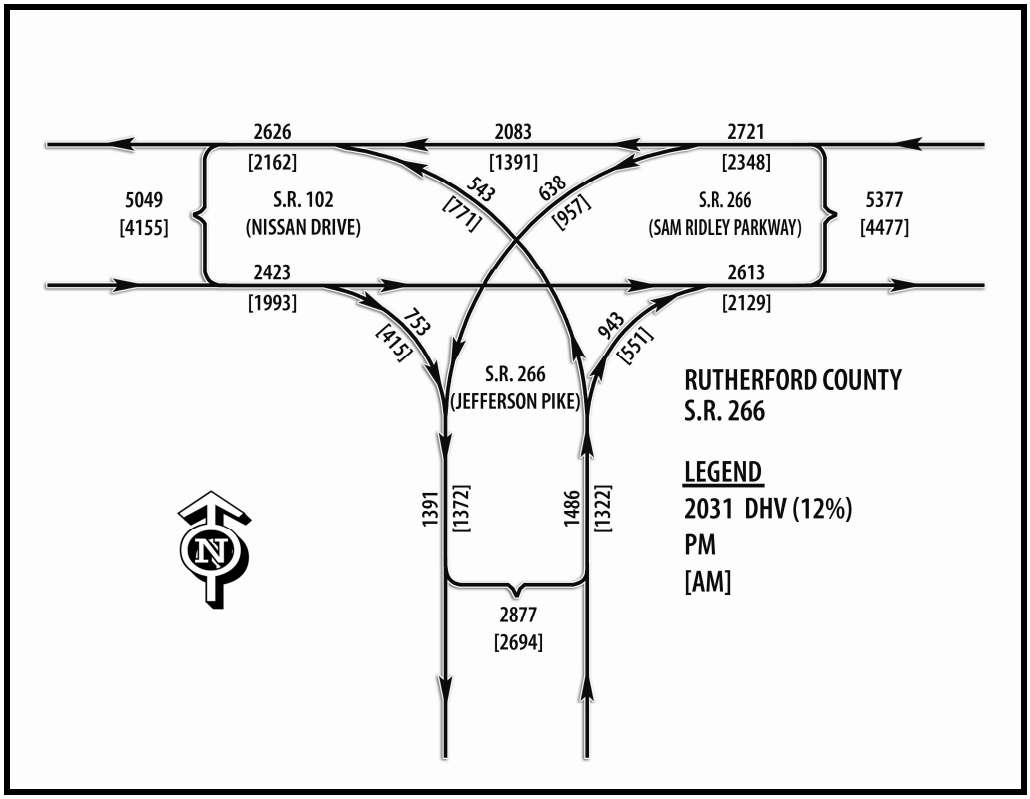


Figure 7: 2031 DHV, State Route 266 and Nissan

Table 3: Nissan Dr. and State Route 266 Improvements

Configuration	AM	PM	Estimated Cost
SB 2nd Left	F	F	$27,650.00
NB Separate Right	F	F	$19,750.00
SB 2nd Left & NB Separate Right	E	F	$45,425.00
WB 2nd Left	F	F	$27,650.00
WB 2nd Left and SB 2nd Left	D	F	$38,000.00
WB 2nd Left and NB Separate Right	F	F	$43,700.00
WB 2nd Left, NB Separate Right and SB 2nd Left	C	E	$49,400.00
WB 2nd Left, WB 2nd Right, NB Separate Right and SB 2nd Left	C	C	$68,400.00

Intersection 2 (State Route 266 at Old Jefferson Pike) is located approximately 0.6 miles east of the project start at Sam Ridley Parkway. It consists of three directions of traffic: northbound, eastbound and westbound. The northbound approach encompasses one lane of traffic that operates as a shared right and left turn lane. The eastbound approach consists of one lane of traffic that operates as a shared thru-right. The westbound approach is one lane of traffic that operates as a shared thru-left. A 2031 preliminary Traffic Signal Warrant Analysis was conducted for Intersection 2. The subject intersection does not meet the qualifications for Warrant 1: Eight-Hour Vehicular Volume (5.65 percent of eighth highest hour ADT) as outlined in Section 4C.01 of the *Manual on Uniform Traffic Control Devices* (*MUTCD*) Part 4 but does meet Warrant 2: Peak Hour for the year 2031. A detailed signal warrant analysis is necessary to confirm these findings. Table 4 illustrates that lane additions would not improve the LOS rating during the AM or PM Peak Period for Intersection 2 in 2031, as well. The estimated cost associated with providing signalization for the subject intersection is $130,000 for Option A and $110,000 for Option B. LOS results for lane additions are outlined in Table 4.

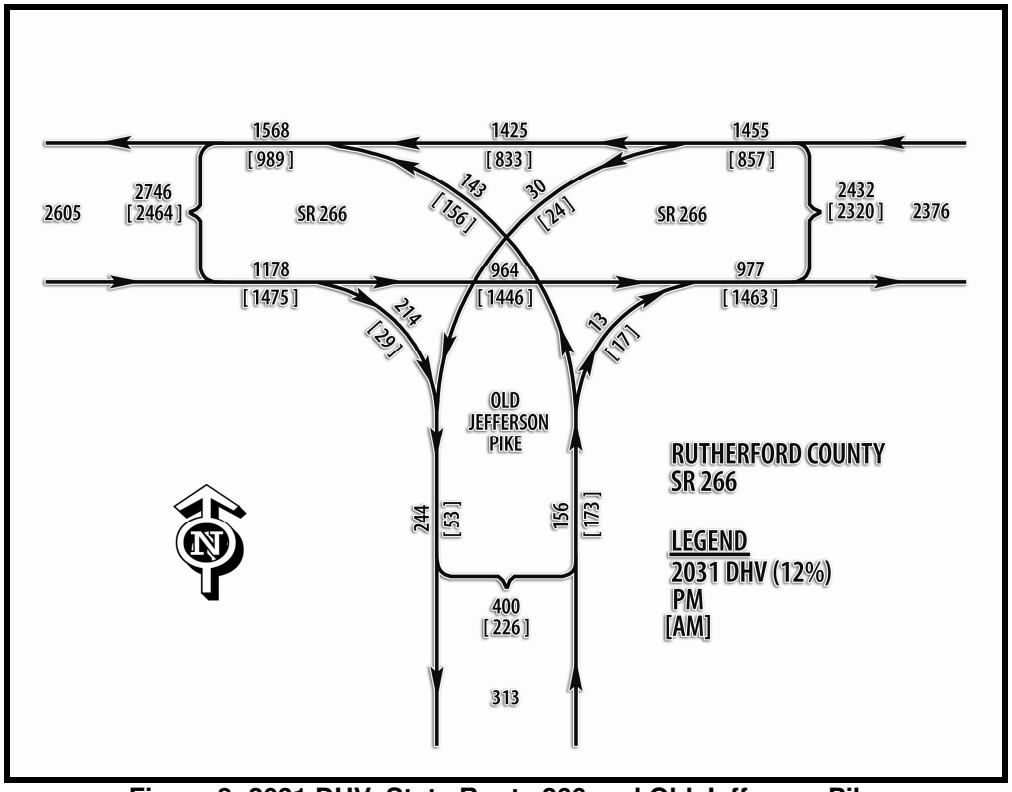


Figure 8: 2031 DHV, State Route 266 and Old Jefferson Pike

Table 4: Old Jefferson Pike and State Route 266 Improvements without signalization

Configuration	AM	PM
WB Left	F	F
NB Left	F	F
WB Left & NB Left	F	F
EB Separate Right	F	F
WB Left & EB Separate Right	F	F
NB Left & EB Separate Right	F	F
WB Left, NB Left & EB Separate Right	F	F

Intersection 3 (State Route 266 at State Route 840 SB Ramp) is an interchange intersection, located at the project end at State Route 840. It consists of three directions of traffic: southbound, eastbound and westbound. The southbound approach consists of one lane that operates as a right, left and thru lane. The eastbound approach consists of one lane that operates as a shared thru-right. The westbound approach consists of one thru lane and a separate left turn lane. A 2031 preliminary Traffic Signal Warrant Analysis was conducted for Intersection 3. The subject intersection does not meet the qualifications for Warrant 1: Eight-Hour Vehicular Volume (5.65 percent of eighth highest hour ADT) but does meet Warrant 2: Peak Hour for the year 2031. A detailed signal warrant analysis is necessary to confirm these findings. Table 5 illustrates that lane additions would not improve the LOS rating during the AM or PM Peak Period for Intersection 3 in 2031, as well. The estimated cost associated with providing signalization for the subject intersection is $130,000 for Option C and $110,000 for Option D. LOS results for lane additions are outlined in Table 5.

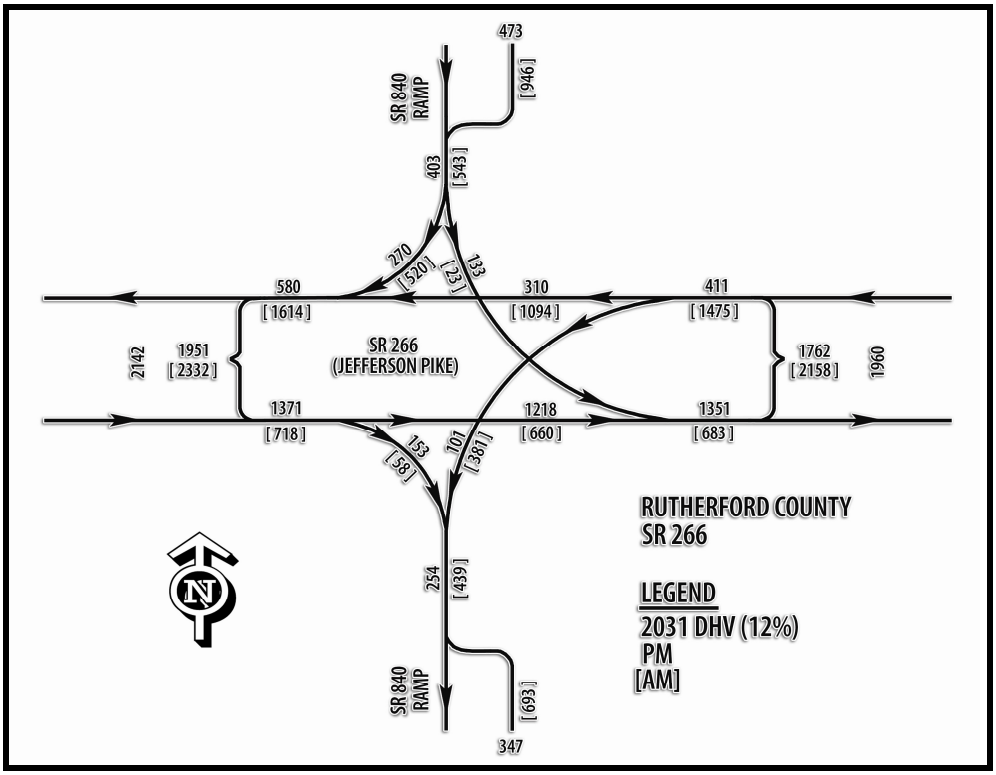


Figure 9: 2031 DHV, State Route 266 and State Route 840 Southbound Ramps

Table 5: State Route 840 SB Ramp and State Route 266 without signalization

Configuration	AM	PM
EB Right	F	F
SB Left & Right	F	F
SB Left, SB Right & EB Right	F	F
SB Left, SB Right & EB Right*	F	E

*Denotes two thru lanes in both direction, which supports the 4-Lane and 5-Lane Options

Intersection 4 (State Route 266 at State Route 840 NB Ramp) is also an interchange intersection, located at the project end at State Route 840. It consists of three directions of traffic: northbound, westbound and eastbound. The northbound approach consists of one lane that operates as a right, left and thru lane. The westbound approach consists of one lane that operates as a shared thru-right. The eastbound approach consists of one thru lane and a separate left turn lane. A 2031 preliminary Traffic Signal Warrant Analysis was conducted for Intersection 4. The subject intersection does not meet the qualifications for Warrant 1: Eight-Hour Vehicular Volume but does meet Warrant 2: Peak Hour for the year 2031. A detailed signal warrant analysis is necessary to confirm these findings. Table 6 illustrates that lane additions would not improve the LOS rating during the AM or PM Peak Period for Intersection 4 in 2031, as well. The estimated cost associated with providing signalization for the subject intersection is $130,000 for Option C and $110,000 for Option D. LOS results for lane additions are outlined in Table 6.

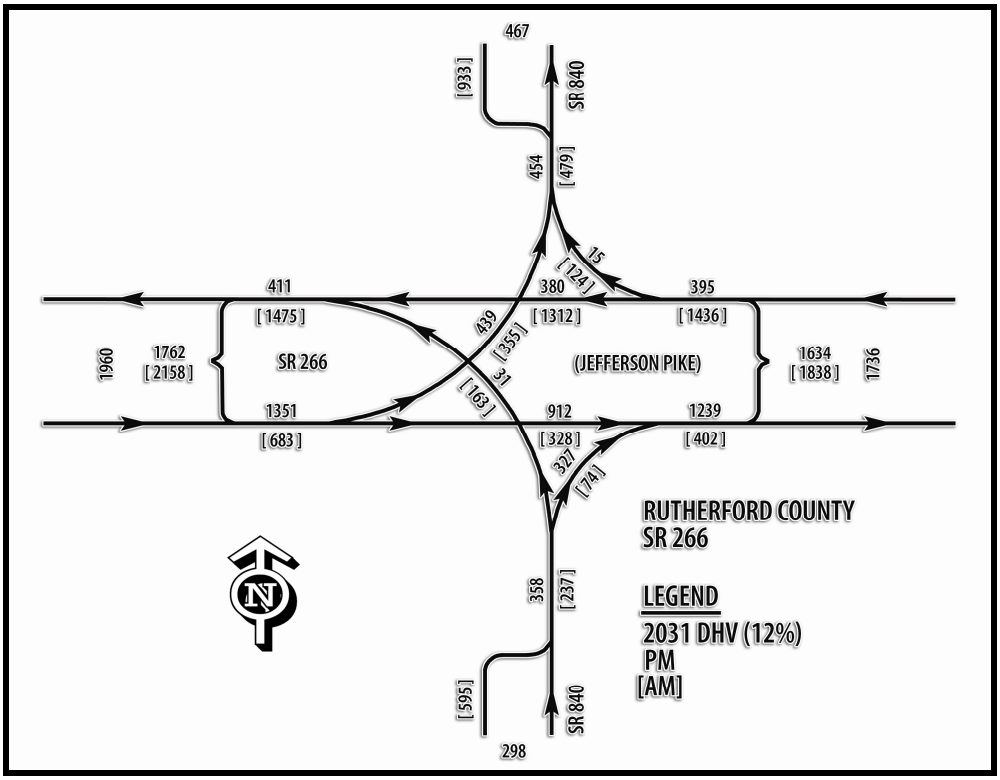


Figure 10: 2031 DHV, State Route 266 and State Route 840 Northbound Ramps

Table 6: State Route 840 NB Ramp and State Route 266 without signalization

Configuration	AM	PM
WB Right	F	F
NB Left & Right	F	F
WB Right, NB Left & Right	F	F

9.0 ASSESSMENT OF OPTIONS

TDOT has adopted seven guiding principles against which all transportation projects are to be evaluated. These guiding principles address concerns for system management, mobility, economic growth, safety, community, environmental stewardship, and fiscal responsibility. These guiding principles are discussed in the following paragraphs as they relate to the options for the proposed improvements to State Route 266.

Guiding Principle 1: Preserve and Manage the Existing Transportation System

When the State Route 266 Interchange on State Route 840 was constructed in 1996 it was seen as the most efficient southbound route for truckers to reach the Town of Smyrna from Lebanon. Eventually, State Route 266 became the major east-west route for northern Rutherford County, connecting county residents and businesses to Smyrna and I-24. The route's popularity can be attributed to five main traffic generators: Nissan Manufacturing Plant, Smyrna Airport, BFI-Middle Point Sanitary Landfill, Smyrna Ready Mix and Hoover Crushed Stone.

All of the options presented in this report are consistent with TDOT's goal of preserving the existing transportation system. If the proposed improvements are implemented, the route will operate as it did before, but more efficiently. The proposed improvements will provide additional capacity to service existing and future traffic volumes. The LOS ratings along the roadway are predicted to improve substantially for all options. As a result, it is likely that the roadway will attract more vehicles, pedestrians and bicyclists in the future.

Guiding Principle 2: Move a Growing, Diverse, and Active Population

Options A though D will provide additional capacity to support the area's growing population. Both Smyrna and Rutherford County have experienced substantial growth over the past six years and this growth is expected to continue in the future.

The proposed improvements will facilitate traffic movement through the project area. Traffic analyses indicate the proposed improvements will raise the 2011 LOS along the project corridor from an F to as high as a B.

The proposed improvements will not only support projected automobile traffic volumes along the project corridor; but they will also support the growing number of bicyclists and pedestrians who live near the project area or would like to access the parks and recreation facilities along State Route 266. By incorporating bike and pedestrian facilities into the project design, the proposed improvements support a diverse and active population by offering all citizens, regardless of how they choose to travel, a safe roadway. The proposed improvements consider all users and improve accessibility in the area.

Guiding Principle 3: Support the State's Economy

Due to the area's proximity to the Town of Smyrna, State Route 840 and the Nissan Plant, the project corridor is a critical link in the area's transportation network. The project corridor enhances the movement of Nissan products and staff to and from the Nissan Manufacturing Plant.

With the growing industrial influence in the project area, truck traffic along the corridor is also expected to increase. State Route 266 is projected to accommodate truck percentages that encompass as much as ten percent of 2031 AADT volumes that range from 17,850 to 23,210. The additional infrastructure provided by the proposed improvements will allow this sector to grow while still providing for the safe movement of regular traffic.

By addressing bicycle and pedestrian needs in the area, the proposed improvements contribute to the region's greenway system. Parks and recreation facilities, such as greenways, contribute to quality of life in the area. More and more businesses are considering quality of life issues for their employees when they relocate to a new area.

Guiding Principle 4: Maximize Safety and Security

The crash data for a three-year period shows that almost 50 percent of the total (140) crashes occurred at seven intersections:

Table 7: Intersection Crashes and Injuries

State Route 266 at:	# Crashes	#Injuries
Nissan Drive	11	4
Gils Street	10	8
Old Jefferson Pike	10	0
Sharp Springs Road	10	5
Harbor Drive	5	1
Hickory Grove Road	5	3
State Route 840	16	4

Eleven of the crashes recorded on two-lane State Route 266 during this period were head-on collisions. Three fatalities occurred and one pedestrian was injured. Options A and C provide two thru lanes in both directions as well as a continuous center turn lane, which will provide easy left turn movements onto the side streets listed in Table 7. The continuous center turn lane will also bring relief to motorists making left turns onto State Route 266 by serving as a storage lane. Although the benefits of Options A and C are evident, research has shown otherwise. A study conducted by the North Carolina Department of Transportation found that median-divided roadways (Options B and D) were found to be safer than five-lane roadways (Options A and C). While the median-divided cross-sections may lack the preferred direct left-turn access to side streets and drives, the study concluded that they are safer.

Guiding Principle 5: Build Partnerships for Livable Communities

Throughout the planning process, TDOT has coordinated with local leaders and interested agencies to identify their concerns and objectives for the proposed project. Meetings were held with the Town of Smyrna's planning department, the Town of Smyrna's Parks and Recreation Department and the Rutherford County Planning Department. Correspondence with the USACOE was conducted by phone and email.

The Town of Smyrna expressed their concerns about safety on the existing roadway (see Sections 4.0, 5.0 and 6.0 and Guiding Principle #4). Safe roadways are a critical component of a livable community. The proposed project improves safety conditions on the road.

Conversations with the Town of Smyrna and the USACOE identified opportunities to link parks and recreation facilities through future greenway crossings and the multi-use trail included in the proposed improvements. These facilities are critical connections in a planned greenway system that serves the Town of Smyrna, the City of Murfreesboro and the rest of Rutherford County. These types of connections contribute to the area's high quality of life and offer residents a choice in how they travel. Pedestrian and bicycle facilities not only offer residents recreational opportunities, they allow people of all ages to travel to nearby destinations without relying on an automobile.

In keeping with TDOT's Public Involvement Process, the provisions of the National Environmental Policy Act (NEPA) and the provisions of the Tennessee Environmental Streamlining Agreement (TESA), this public involvement process will continue as the project develops.

It should be noted that, due to the widening of the project corridor, all options will likely have potential impacts on residential communities.

Guiding Principle 6: Promote Stewardship of the Environment

A detailed environmental study is needed to fully address the impacts of each option considered in this report. Section 7.0 of this report outlines potential environmental impacts based on a preliminary environmental screening.

The proposed improvements would likely improve traffic flow along the corridor by allowing cars to pass left-turning vehicles (particularly trucks turning onto Hickory Grove Road). This, in turn, could positively impact air quality and fuel consumption.

In addition, the bicycle and pedestrian facilities included in the proposed options improves the area's pedestrian and bicycle connectivity, which encourages alternative modes of transportation by enhancing accessibility. This could also positively impact air quality and fuel consumption.

Guiding Principle 7: Promote Financial Responsibility

Preliminary construction cost estimates were prepared for each considered option using typical per mile costs. Itemized cost estimates can be found in Appendix C. Table 8 summarizes the total cost estimates for all options. The reduction of capacity problems, as well as decrease in safety-related crashes, supports the use of funds to address the needs in the project area.

Table 8: Comparison of Option Cost Estimates

SEGMENT/OPTION	NUMBER OF NEW LANES	TOTAL COST	LENGTH (MILES)	COST PER MILE
No Build	--	--	--	--
1/A	5	$16,010,000	1.6	$10,010,000
1/B	4	$16,565,000	1.6	$10,355,000
2/C	5	$19,300,000	2.5	$7,720,000
2/D	4	$20,460,000	2.5	$8,185,000

*Itemized costs are shown in Appendix C.

10.0 SUMMARY

State Route 266 is an urban minor arterial within the Town of Smyrna City Limits and a rural major collector in Rutherford County. It extends in an east/west orientation through Rutherford County, providing access to State Route 840 to the east and I-24 to the west. For most of the study area, State Route 266 is a two-lane roadway. However, a short portion of the roadway at the beginning of the project has a four-lane cross section with a center turn lane.
Increased population growth in Smyrna and Rutherford County has fueled a steady increase in traffic volumes along the subject roadway. Traffic volumes along State Route 266 between Nissan Drive and State Route 840 are expected to reach as high as 18,280 vehicles per day during the year 2011. By the year 2031, annual average daily traffic (AADT) is expected to increase to a peak of 23,210. This level of traffic will exceed the highway's carrying capacity. These high traffic volumes can be attributed to the major traffic generators in the study area, which include: Nissan manufacturing plant, Smyrna Airport, BFI-Middle Point Sanitary Landfill, Smyrna Ready Mix and Hoover Crushed Stone.

Traffic crash rates along State Route 266 were calculated from crash data during a three-year period. A total of 140 traffic crashes were reported during that period, of which 33 percent involved an injury or fatality. The subject roadway yielded a crash rate of 2.51 which is higher than the State's average rate of 1.7 for a similar roadway. The crash rate is negatively influenced by traffic congestion along the two-lane roadway.

Improvement of State Route 266 is needed to address the following needs:

- Improve the Level of Service and travel times along the roadway;
- Accommodate growth and increased traffic in the Smyrna and Rutherford County area;
- Correct roadway deficiencies along the route; and
- Improve the overall safety along the roadway.

Five options were considered in this evaluation. The first option considered was the No Build Option. This did not provide the needed capacity to address mobility concerns along State Route 266. Roadway deficiencies would remain and safety issues would continue and eventually escalate.

The proposed project was divided into two segments: an urban segment (Segment 1) and a rural segment (Segment 2). Options A and B comprise Segment 1 and Options C and D make up Segment 2. Options A and C propose to widen State Route 266 using a five-lane typical section (continuous center-turn lane). This will address capacity issues and correct any roadway deficiencies along the route; however, research has shown that five-lane sections may have some negative safety effects. Options B and D propose to widen State Route 266 using a four-lane typical section (raised median). These options will correct any roadway deficiencies along the route, and provide the safest alternative of all options presented; however, mobility along some side streets will be reduced due to the lack of preferred direct left-turn access to side streets and drives.

Although a detailed environmental study is needed to fully address the impacts of each option considered in this report, preliminary research was done to provide a basis for

future environmental work. The following summarizes the results from the environmental screening.

(1) **Ecological Resources.** The subject project falls within the 100-year flood zone in two locations along the project. There are several wetlands located around the entrance to Sharp Springs Recreation and Natural Area and there is a freshwater emergent wetland identified, all of which could potentially be affected by proposed improvements to the urban segment of the project.

(2) **Historical Resources.** There are currently no NRHP listed properties within the general project area. TDOT historians conducted a field review and determined that there may be historic properties in the project area.

(3) **Community Resources.** The project area is home to a number of community resources that range from school bus stops to churches and community centers. One of the most prominent resources within the project area is the unique concentration of parks and recreation facilities. This feature includes natural areas, Frisbee golf courses, fishing areas, boat launching facilities, and a frequently used greenway system. This system encourages the use of alternative modes of transportation by enhancing accessibility, which supports environmental stewardship and a healthy community.

(4) **Environmental Justice.** It is unlikely that the proposed project will have disproportionately high or adverse effects on minority or low income populations, but future phases of project development will need to be sensitive to these populations.

Because of the large amount of property owned by the USACOE and the recreational features operated by the Town of Smyrna's Parks and Recreation Department, it is important that close coordination is carried out with these interested parties. Continued coordination with local leaders and interested agencies in the next phases of the project is essential for the identification of concerns and objectives associated with the proposed project.

Appendix A

U.S. Army Corps or Engineers and U.S. Coast Guard Coordination

GRESHAM
SMITH AND
PARTNERS

MEMORANDUM

TO: File — 25206.01

FROM: Margaret Bass Tyler — Gresham, Smith and Partners

DATE: March 23, 2007

SUBJECT: U.S. ARMY CORPS OF ENGINEERS COODINATION
SR 266 TRANSPORTATION PLANNING REPORT
FROM SAM RIDLEY PARKWAYTO STATE ROUTE 840,
TOWN OF SMYNA AND RUTHERFORD COUNTY, TENNESSEE
GS&P Project No. 25206.01

The U.S. Army Corps of Engineers (USACOE) was contacted regarding the location of Corps property relative to the subject segment of SR 266 and to determine how that property is being used.

This preliminary coordination was conducted by phone and email between February 13 and March 1, 2007. The primary contact was Mark Vaughn, Conservation Biologist for J. Percy Priest Lake (615/889-1975, mark.k.vaughn@lrn02@usace.army.mil).

Mark Vaughn emailed a map showing the location of Corps property, a site of historical interest to the USACOE (Sulphur Springs) and existing utilities that currently exist along the roadway corridor (see attached Figure 1). The red line depicts the Corps property. Existing utilities include water (dark blue), electric (red), phone/cable (yellow), sewer (green) and miscellaneous utilities.

Sulphur Springs is a USACOE historic site located on Corps property, east of Stones River (see attached Figure1). Sulphur Springs was a spa area for the well-to-do in Rutherford County around the turn of the century (1900). It is likely that the only remaining structures are the old bridge pier and approach structures at the riverside, but this would require further investigation to confirm. The Corps would like it to be considered during planning stages of development and avoided during construction.

Jefferson Springs Recreation Area is a multi-use parks and recreation facility immediately west of Stones River. It includes a fishing area, picnic shelters and boat launching facilities.

The Corps is in the process of updating the area's master plan. They have incorporated the proposed improvements to SR 266 into their planning process. The Corps supports

the widening of SR 266, because it is preferable to additional Stones River crossings. In addition, water intake upstream limits opportunities for widening elsewhere,

The Corps is considering the development of a greenway trail corridor that would link existing greenway sections at Sharp Springs Recreation Area with greenways proposed along the East Fork of Stones River. It would essentially be the preferred location for any planned greenway trails that are placed on Corps property. A crossing would be needed along the East Fork of the Stones River and the Corps would propose one underneath SR 840 to carry traffic from the left to right bank of the River. In the future, Smyrna Parks and Recreation would hopefully be involved in the planning process.

Attached: Figure 1: USACOE Property Map
Figure 2: USACOE Proposed Greenway Trail Corridor

Copy File – 25206.01

Worthy, Roneisha

From: Wesley Peck [Wesley.Peck@state.tn.us]
Sent: Thursday, April 05, 2007 11:30 AM
To: Worthy, Roneisha
Subject: Fwd: Proposed Bridge Replacement Mile 37.2 Stones River

>>> "Sambor, Peter" <Peter.J.Sambor@uscg.mil> 04/05/07 11:22 AM >>>
Mr. Peck,

Please refer to your earlier email referencing the proposed bridge replacement at mile 37.2 on the Stones River near Walter Hill, Tennessee. Pursuant to the Coast Guard Authorization Act of 1982, it has been determined this is not a waterway over which the Coast Guard exercises jurisdiction for bridge administration purposes. A Coast Guard bridge permit is not required.

If you have any questions regarding this, or other bridge concerns please feel free to contact our office.

Peter J. Sambor
USCG Bridge Administration Specialist
1222 Spruce St. Suite 2.107F
Saint Louis, MO 63103
(314) 269-2380

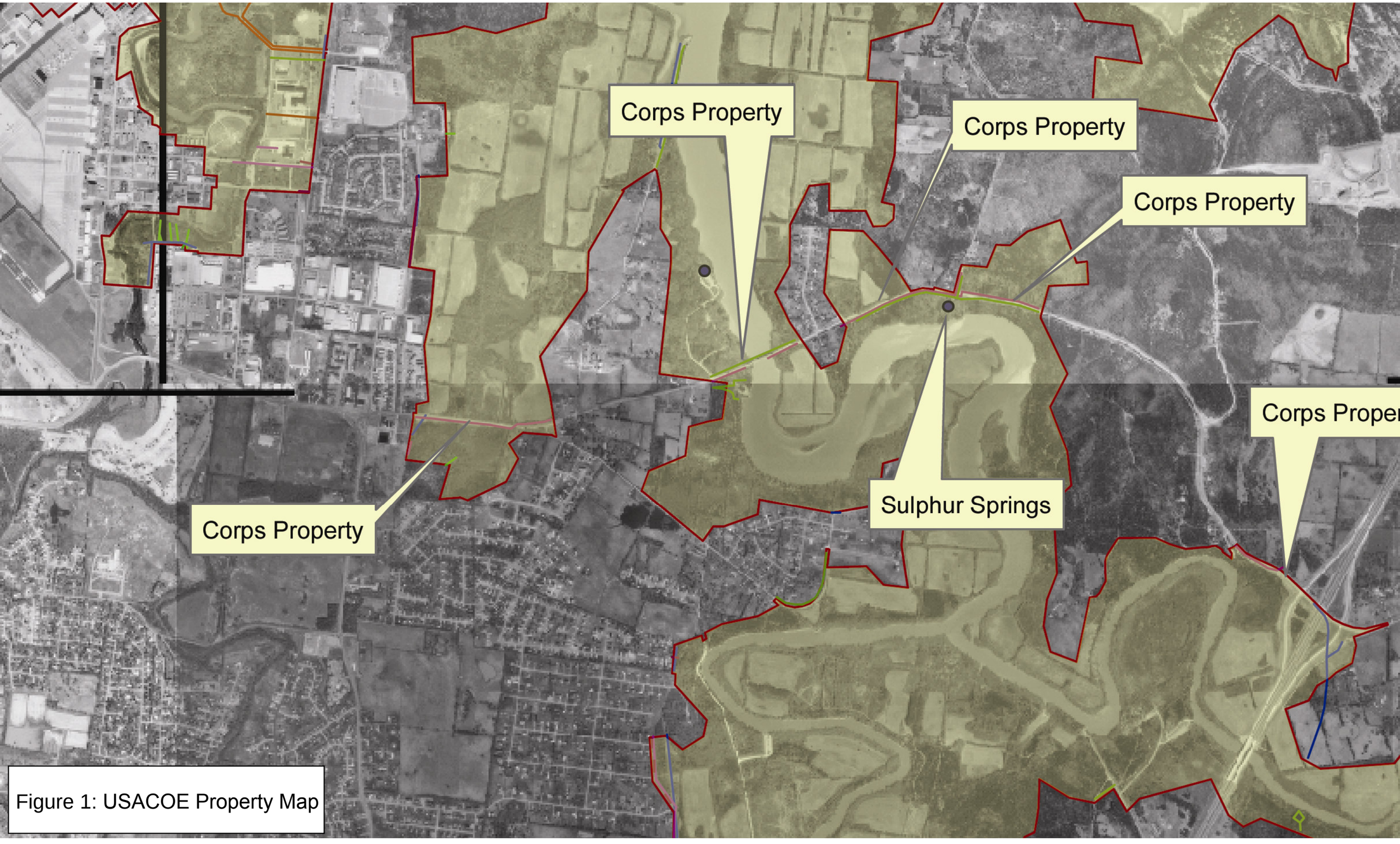


Figure 1: USACOE Property Map

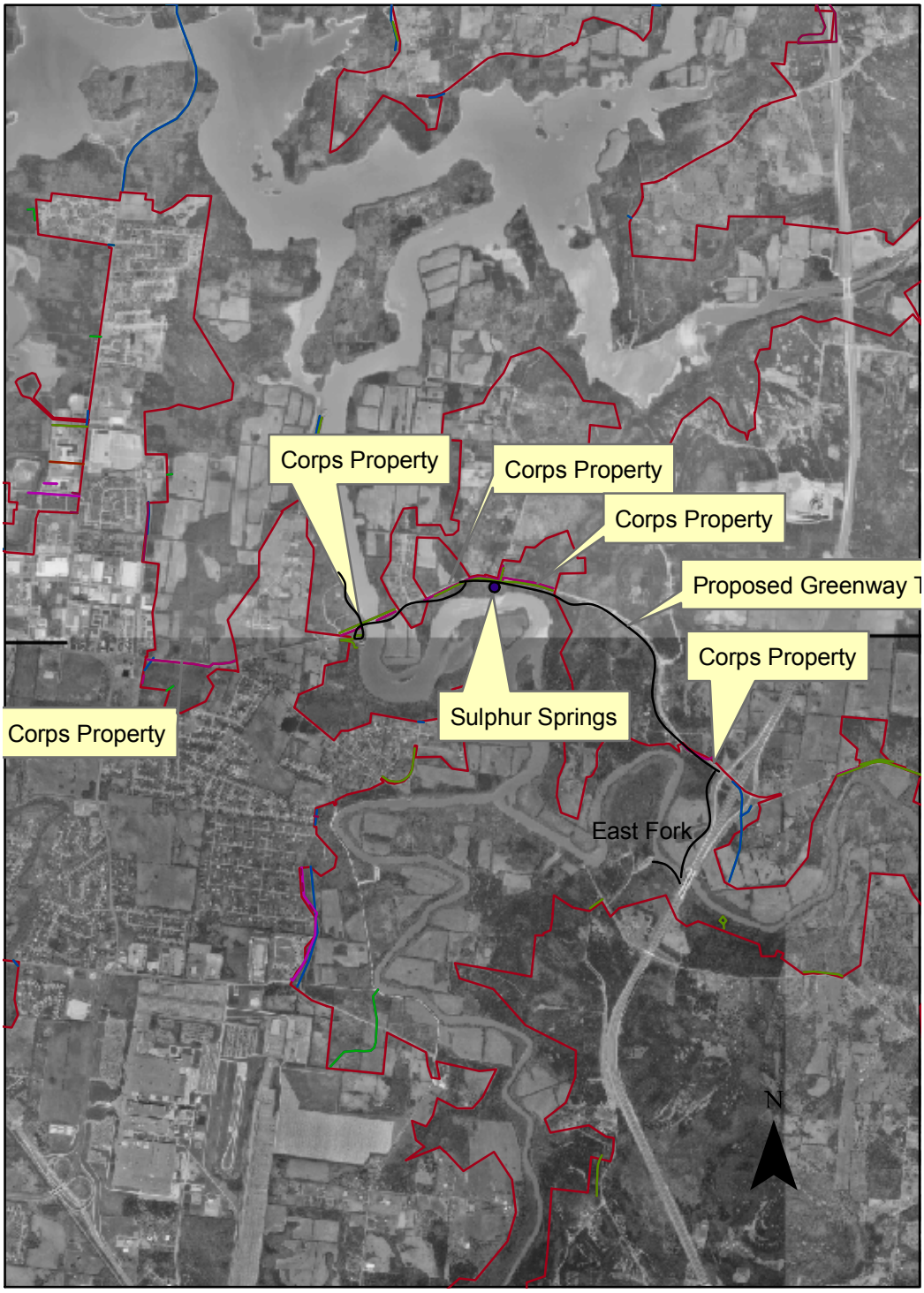


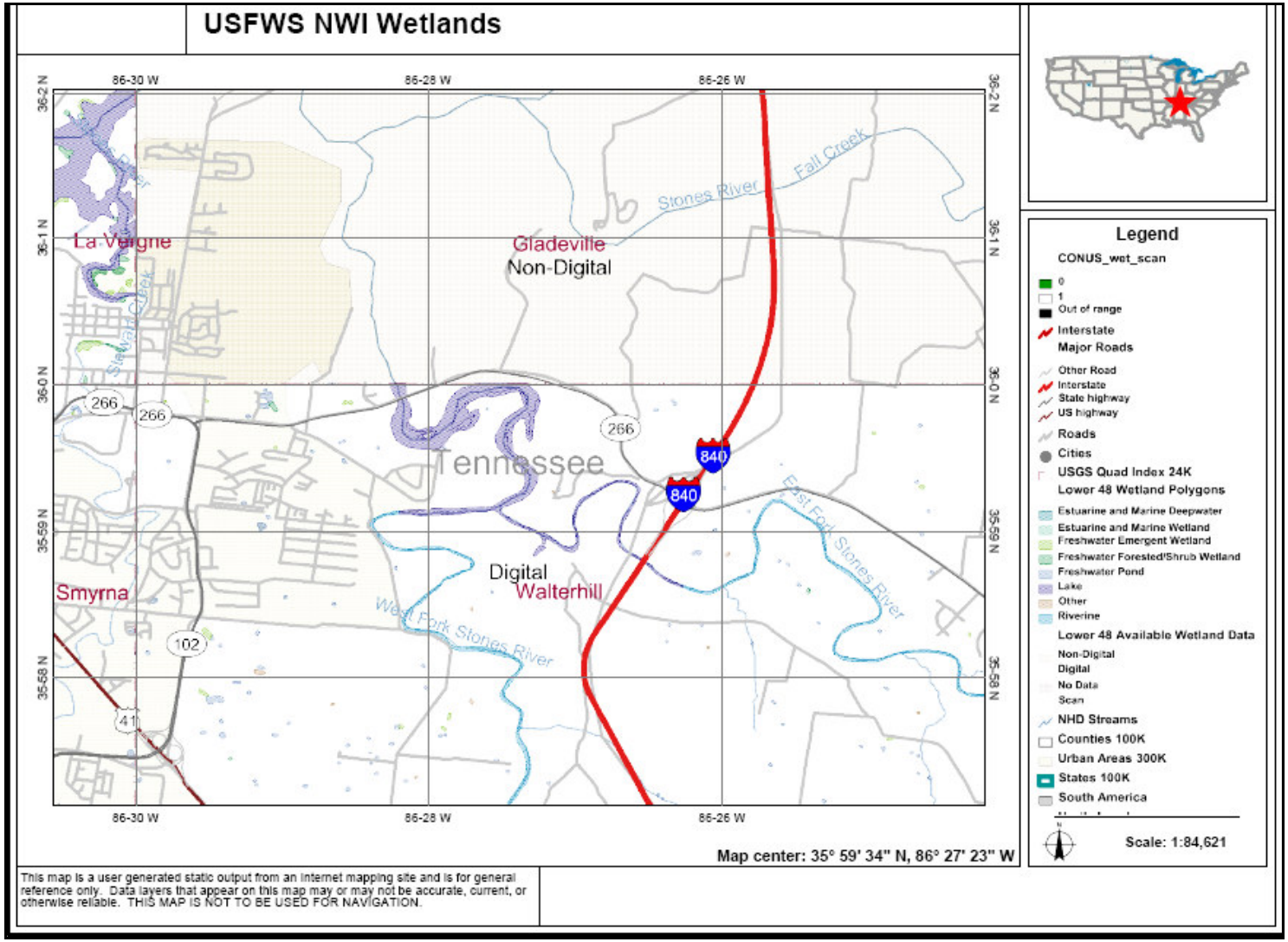
Figure 2: Proposed Greenway Trail Corridor
East Fork to Jefferson Springs

Property Boundary Line

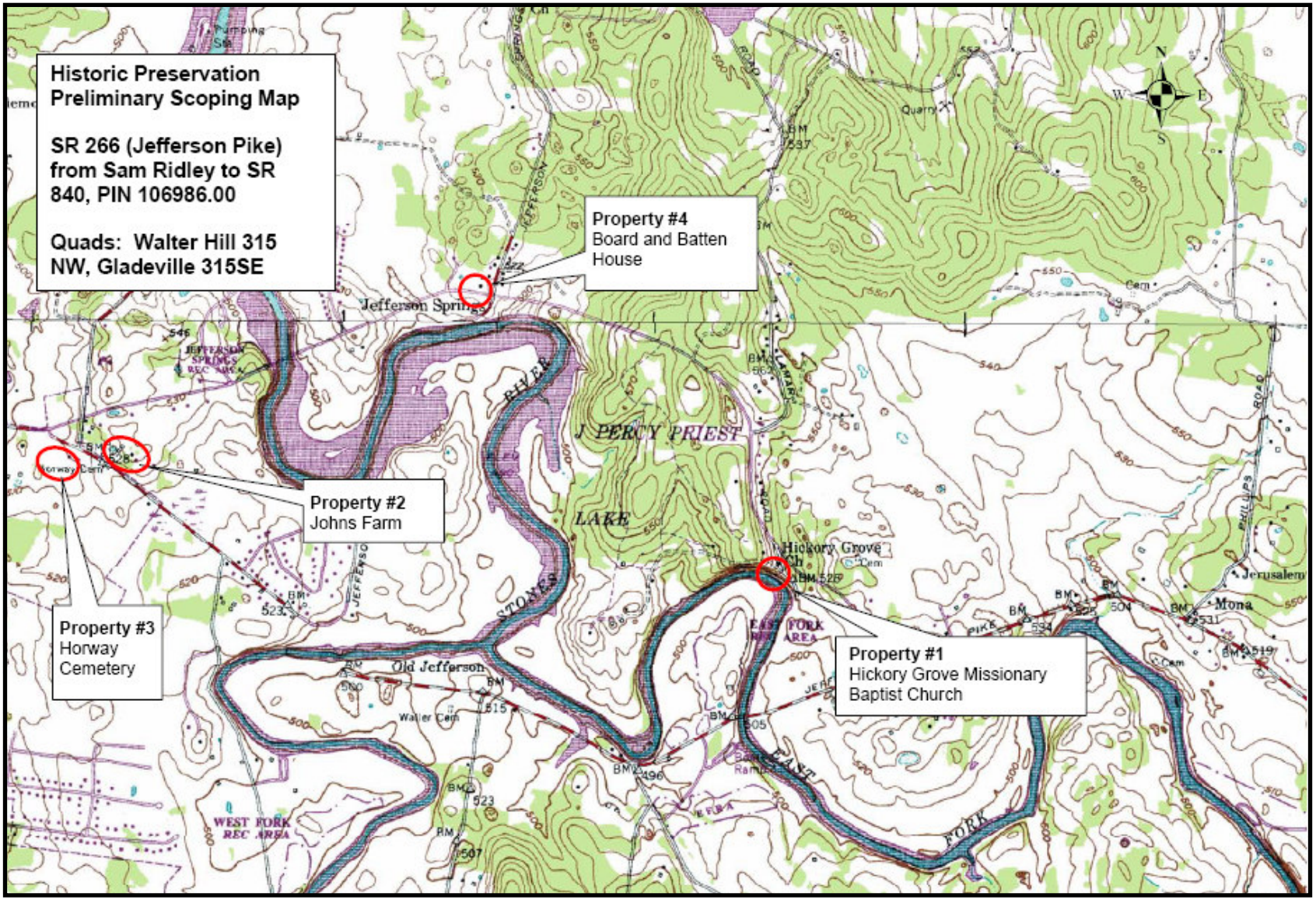
Cultural History

Appendix B

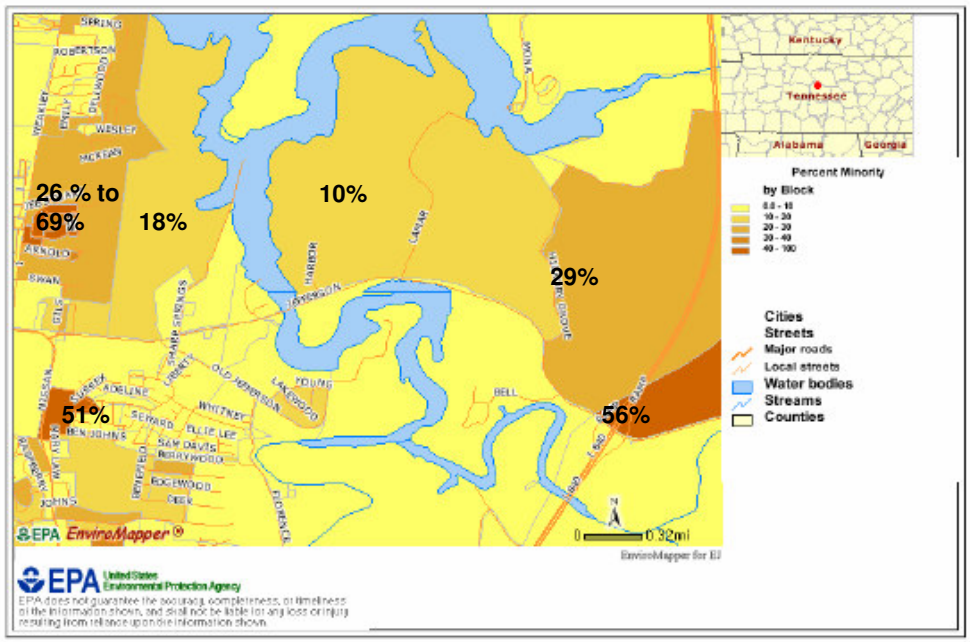
Environmental Screening Maps



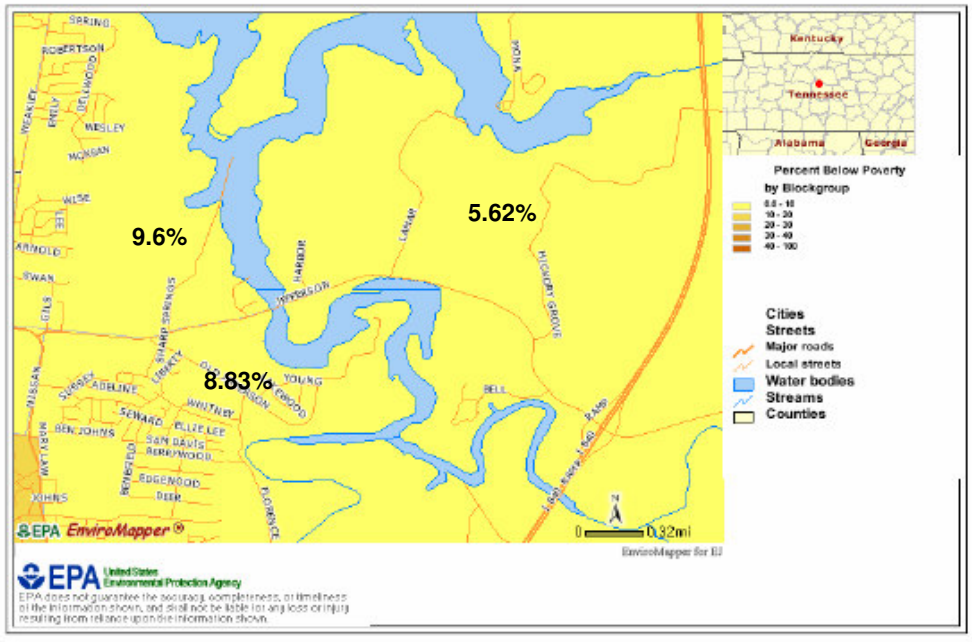
National Wetlands Inventory Map



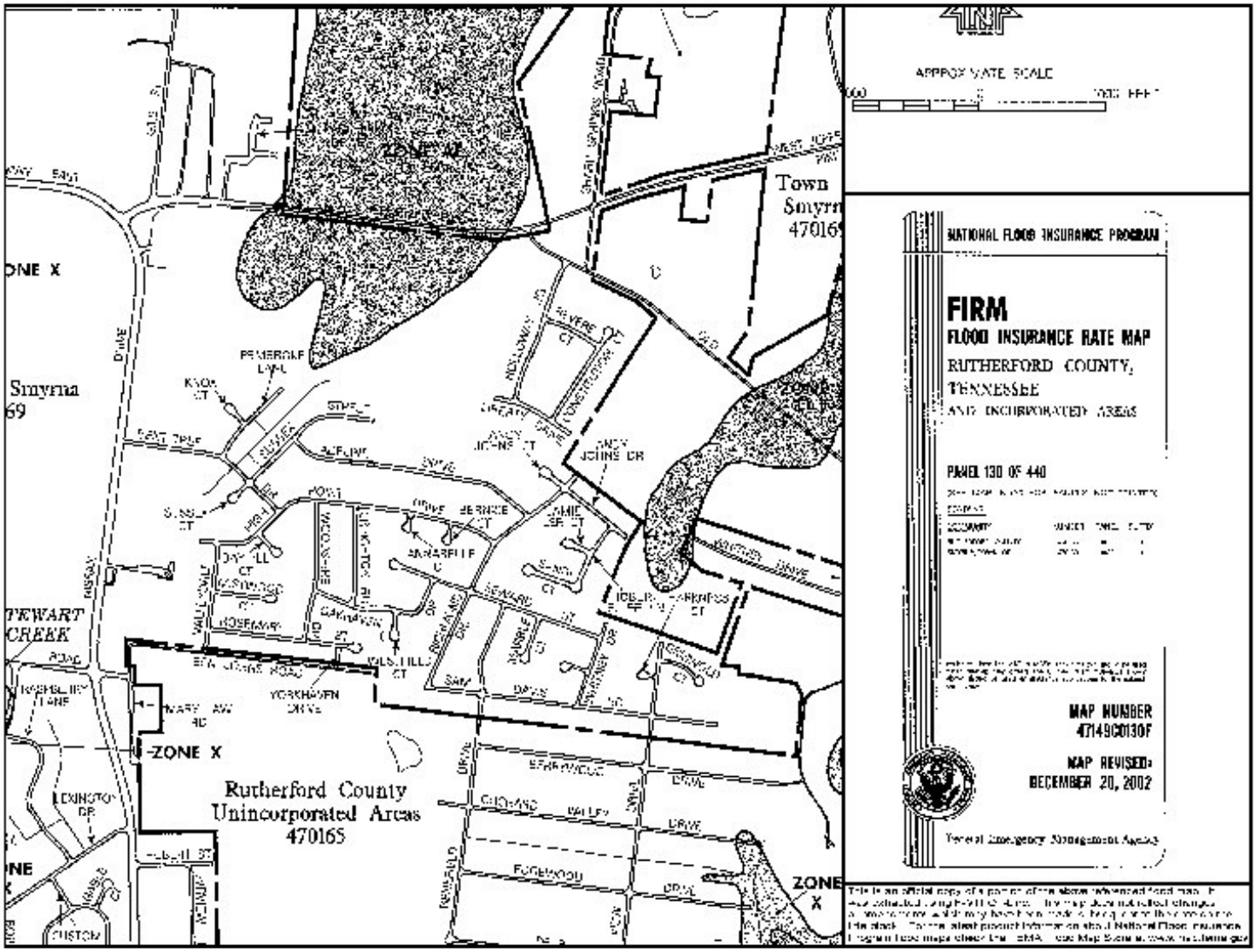
Map of Potential Historic Resources
Provided by TDOT Historic Preservation Section



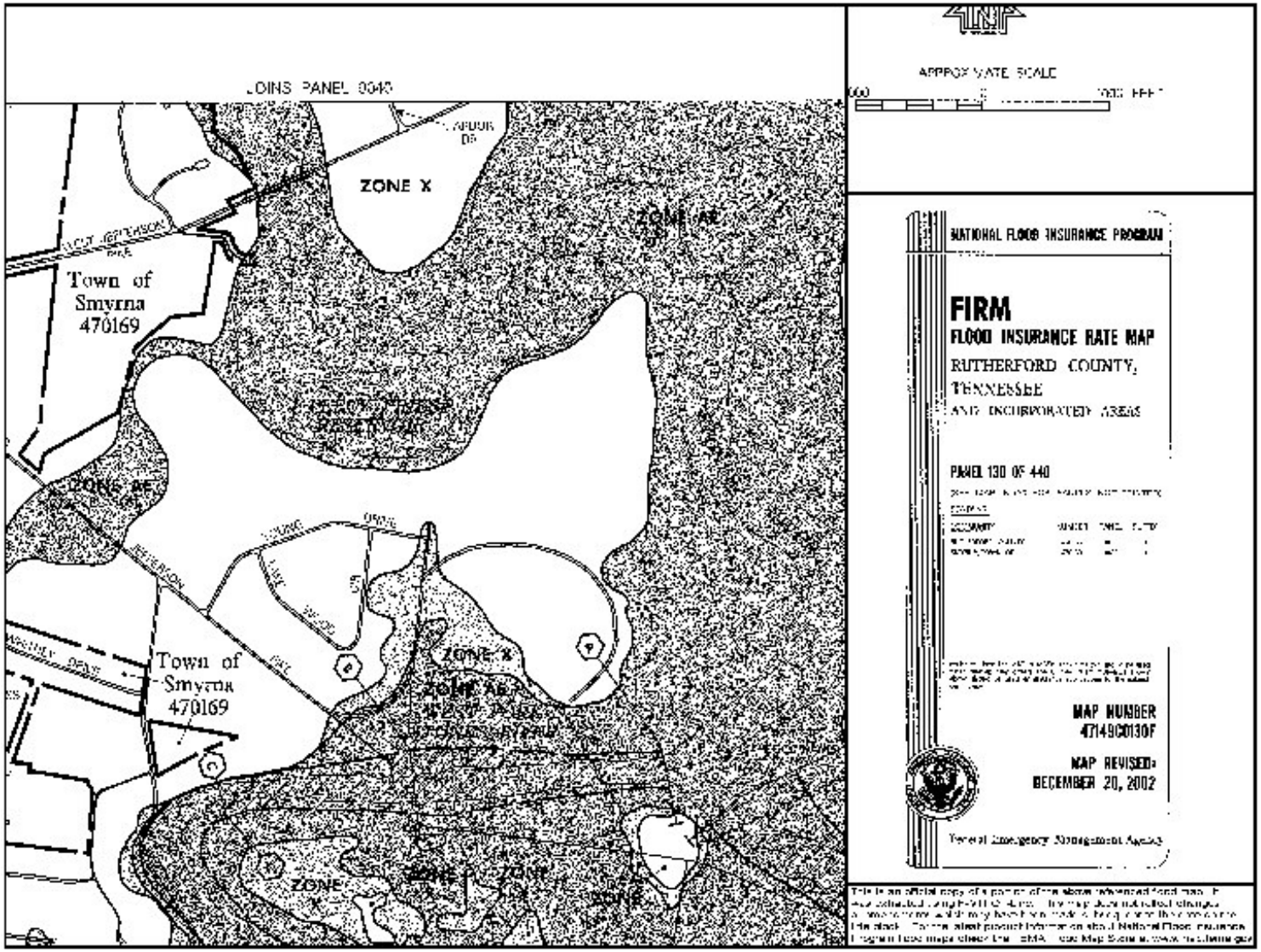
Percent Minority Population in the Project Area



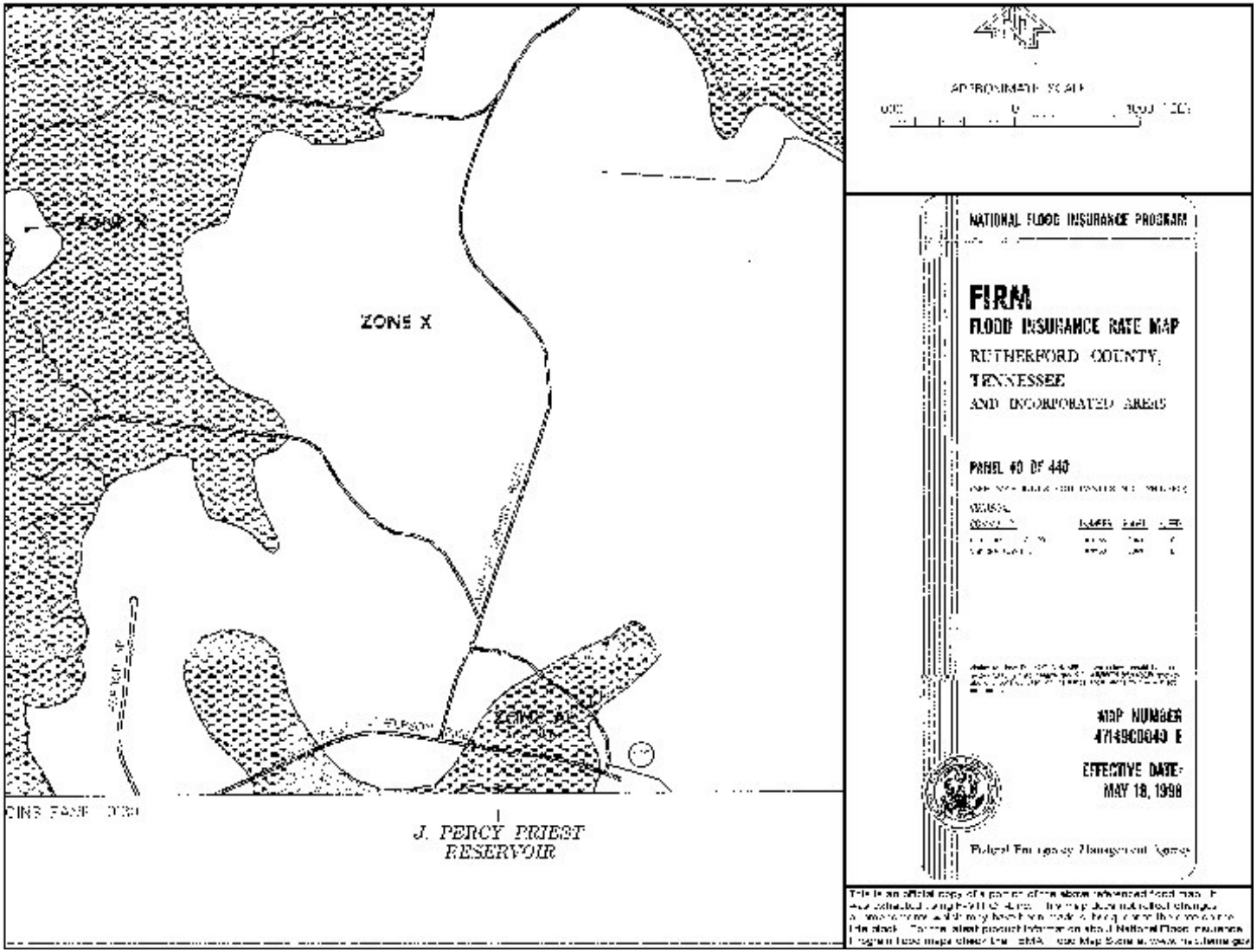
Percent Population Living Below Poverty in the Project Area



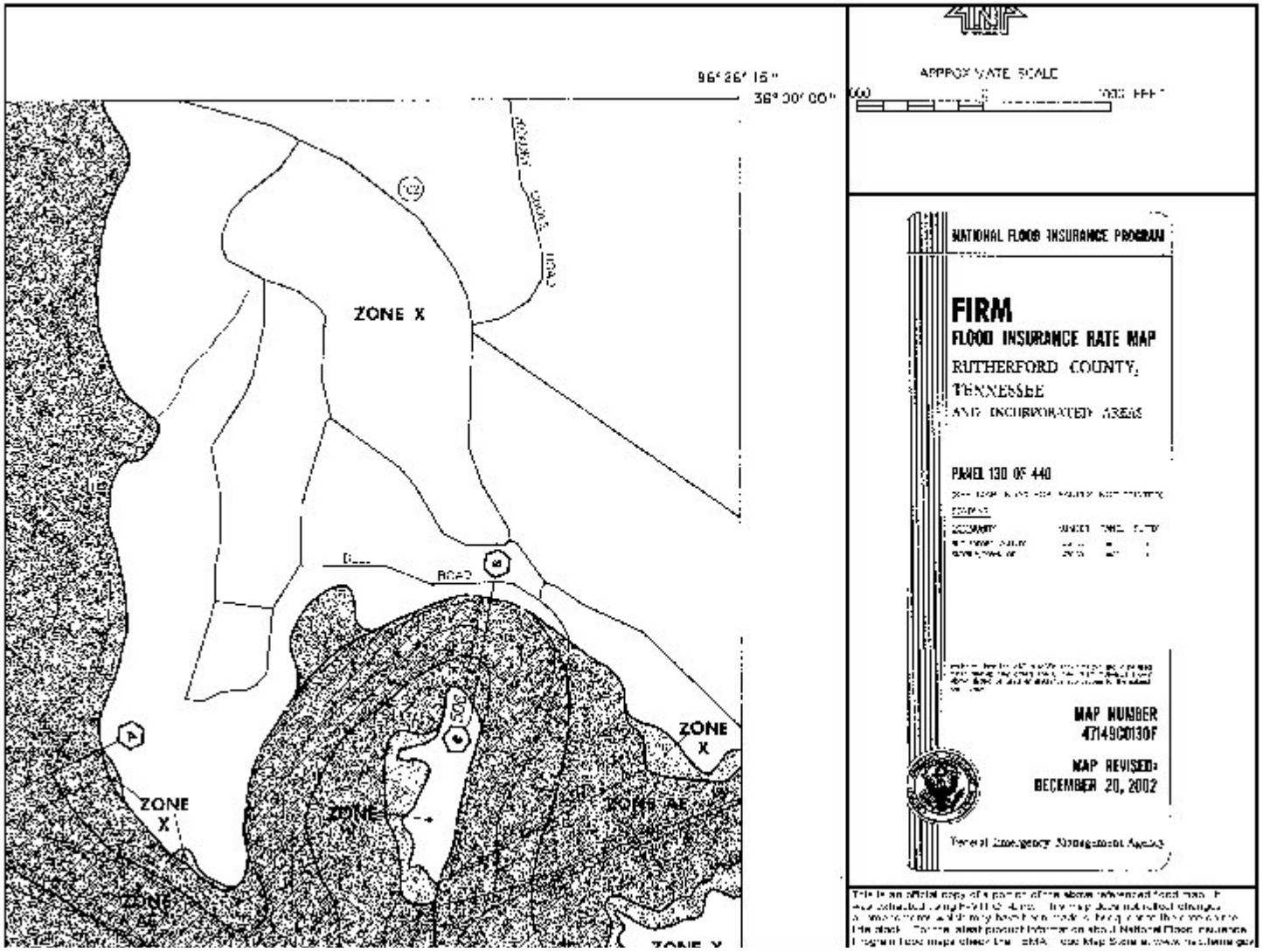
FEMA Map – Tile 1



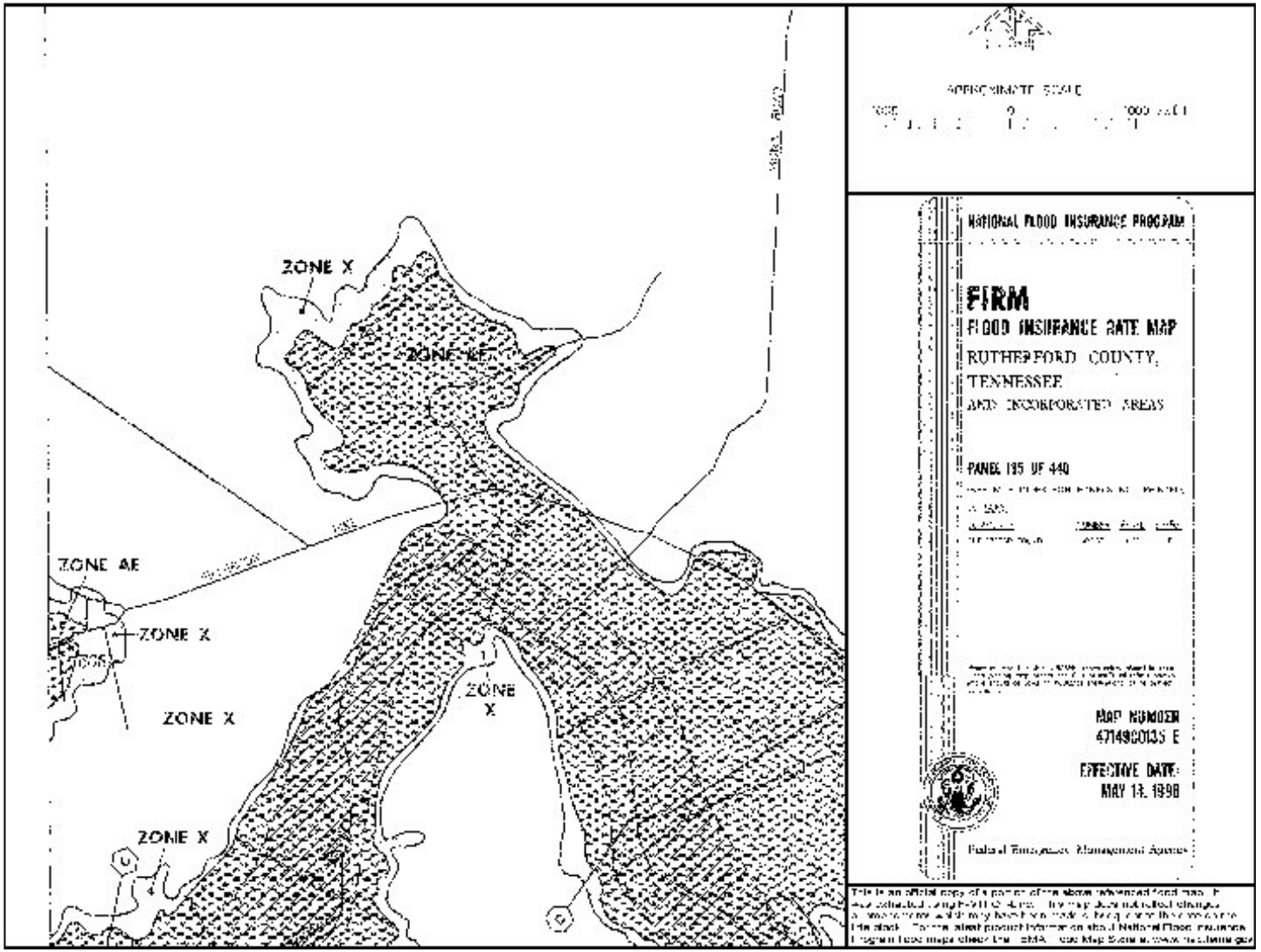
FEMA Map – Tile 2



FEMA Map – Tile 3



FEMA Map – Tile 4



FEMA Map – Tile 5

Appendix C

Itemized Cost Estimates

COST DATA SHEET (Itemized Cost Estimates)

9/20/2007

PROJECT: Rutherford County - SR 266
Option A - From SR 102 to Stones River Bridge (1.6 miles, 5 Lane)

			Number	Rate	Costs
Right-of-Way					
	Lands, Improvements, and Damages	Acres=	13		$ 1,615,000.00
	Incidentals	Tracts=	25		$ 100,000.00
		Total Right-of-Way Costs			$ 1,715,000.00
Utility Relocation					
	Reimbursable				
	Non-Reimbursable				
	Total Adjustment Cost				$ 1,080,000.00
Construction					
	Clear and Grubbing				$ 55,000.00
	Earthwork				$ 1,220,000.00
	Pavement Removal				$ 70,000.00
	Drainage (Includes Erosion Control)				$ 1,160,000.00
	Structures				$ 4,855,000.00
	Railroad Crossing or Separation				$ -
	Paving				$ 1,735,000.00
	Sidewalks				$ 205,000.00
	Curb and Gutter				$ 275,000.00
	Retaining Wall				$ -
	Maintenance of Traffic				$ 120,000.00
	Topsoil				$ 25,000.00
	Seeding				$ 20,000.00
	Sodding				$ 10,000.00
	Signing				$ 10,000.00
	Lighting				$ -
	Signalization				$ 260,000.00
	Fence				$ -
	Guardrail				$ 25,000.00
	Rip Rap of Slope Protection				$ 80,000.00
	Other Construction Items (15%)				$ 720,000.00
	Mobilization				$ 95,000.00
	10% Eng. And Contingencies				$ 1,075,000.00
	Total Construction Cost				$ 12,015,000.00
Preliminary Engineering (10%)					$ 1,200,000.00
TOTAL COST					$ 16,010,000.00

COST DATA SHEET (Itemized Cost Estimates)

9/20/2007

PROJECT: Rutherford County - SR 266
Option B - From SR 102 to Stones River Bridge (1.6 miles, 4 Lane)

			Number	Rate	Costs
Right-of-Way					
	Lands, Improvements, and Damages	Acres=	16		$ 1,910,000.00
	Incidentals	Tracts=	25		$ 100,000.00
		Total Right-of-Way Costs			$ 2,010,000.00
Utility Relocation					
	Reimbursable				
	Non-Reimbursable				
	Total Adjustment Cost				$ 1,080,000.00
Construction					
	Clear and Grubbing				$ 55,000.00
	Earthwork				$ 1,355,000.00
	Pavement Removal				$ 70,000.00
	Drainage (Includes Erosion Control)				$ 1,265,000.00
	Structures				$ 4,855,000.00
	Railroad Crossing or Separation				$ -
	Paving				$ 1,735,000.00
	Sidewalks				$ 205,000.00
	Curb and Gutter				$ 275,000.00
	Retaining Wall				$ -
	Maintenance of Traffic				$ 120,000.00
	Topsoil				$ 25,000.00
	Seeding				$ 20,000.00
	Sodding				$ 10,000.00
	Signing				$ 10,000.00
	Lighting				$ -
	Signalization				$ 220,000.00
	Fence				$ -
	Guardrail				$ 25,000.00
	Rip Rap of Slope Protection				$ 80,000.00
	Other Construction Items (15%)				$ 750,000.00
	Mobilization				$ 80,000.00
	10% Eng. And Contingencies				$ 1,095,000.00
	Total Construction Cost				$12,250,000.00
Preliminary Engineering (10%)					$ 1,225,000.00
TOTAL COST					$16,565,000.00

COST DATA SHEET (Itemized Cost Estimates)

9/20/2007

PROJECT: Rutherford County - SR 266
Option C - From Stones River Bridge to SR 840 (2.5 miles, 5 Lane)

			Number	Rate	Costs
Right-of-Way					
	Lands, Improvements, and Damages	Acres=	40		$ 2,635,000.00
	Incidentals	Tracts=	38		$ 150,000.00
		Total Right-of-Way Costs			$ 2,785,000.00
Utility Relocation					
	Reimbursable				
	Non-Reimbursable				
	Total Adjustment Cost				$ 1,690,000.00
Construction					
	Clear and Grubbing				$ 155,000.00
	Earthwork				$ 3,520,000.00
	Pavement Removal				$ 110,000.00
	Drainage (Includes Erosion Control)				$ 580,000.00
	Structures				$ 2,590,000.00
	Railroad Crossing or Separation				$ -
	Paving				$ 2,710,000.00
	Sidewalks				$ -
	Curb and Gutter				$ -
	Retaining Wall				$ -
	Maintenance of Traffic				$ 165,000.00
	Topsoil				$ 40,000.00
	Seeding				$ 20,000.00
	Sodding				$ 15,000.00
	Signing				$ 15,000.00
	Lighting				$ -
	Signalization				$ 260,000.00
	Fence				$ 215,000.00
	Guardrail				$ 135,000.00
	Rip Rap of Slope Protection				$ 80,000.00
	Other Construction Items (15%)				$ 1,595,000.00
	Mobilization				$ 45,000.00
	10% Eng. And Contingencies				$ 1,225,000.00
	Total Construction Cost				$ 13,475,000.00
Preliminary Engineering (10%)					$ 1,350,000.00
TOTAL COST					$ 19,300,000.00

COST DATA SHEET (Itemized Cost Estimates)

9/20/2007

PROJECT: Rutherford County - SR 266
Option D - From Stones River Bridge to SR 840 (2.5 miles,4 Lane)

			Number	Rate	Costs
Right-of-Way					
	Lands, Improvements, and Damages	Acres=	40		$ 2,635,000.00
	Incidentals	Tracts=	38		$ 150,000.00
		Total Right-of-Way Costs			$ 2,785,000.00
Utility Relocation					
	Reimbursable				
	Non-Reimbursable				
	Total Adjustment Cost				$ 1,690,000.00
Construction					
	Clear and Grubbing				$ 155,000.00
	Earthwork				$ 4,400,000.00
	Pavement Removal				$ 110,000.00
	Drainage (Includes Erosion Control)				$ 585,000.00
	Structures				$ 2,590,000.00
	Railroad Crossing or Separation				$ -
	Paving				$ 2,710,000.00
	Sidewalks				$ -
	Curb and Gutter				$ -
	Retaining Wall				$ -
	Maintenance of Traffic				$ 165,000.00
	Topsoil				$ 40,000.00
	Seeding				$ 20,000.00
	Sodding				$ 15,000.00
	Signing				$ 15,000.00
	Lighting				$ -
	Signalization				$ 220,000.00
	Fence				$ 215,000.00
	Guardrail				$ 135,000.00
	Rip Rap of Slope Protection				$ 80,000.00
	Other Construction Items (15%)				$ 1,720,000.00
	Mobilization				$ 30,000.00
	10% Eng. And Contingencies				$ 1,325,000.00
	Total Construction Cost				$ 14,530,000.00
Preliminary Engineering (10%)					$ 1,455,000.00
TOTAL COST					$ 20,460,000.00

Appendix D

Proposed Layouts

TENNESSEE D.O.T.

FILE NO.

Index Of Sheets

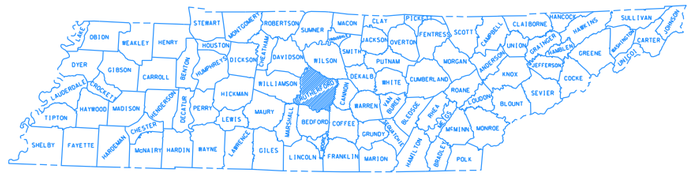
STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

TENN.	YEAR	SHEET NO.
	2007	1
FED. AID PROJ. NO.		
STATE PROJ. NO.		

STATE ROUTE 266
FROM STATE ROUTE 102
TO STATE ROUTE 840

RUTHERFORD COUNTY

STATE HIGHWAY NO. 266 F.A.H.S. NO.



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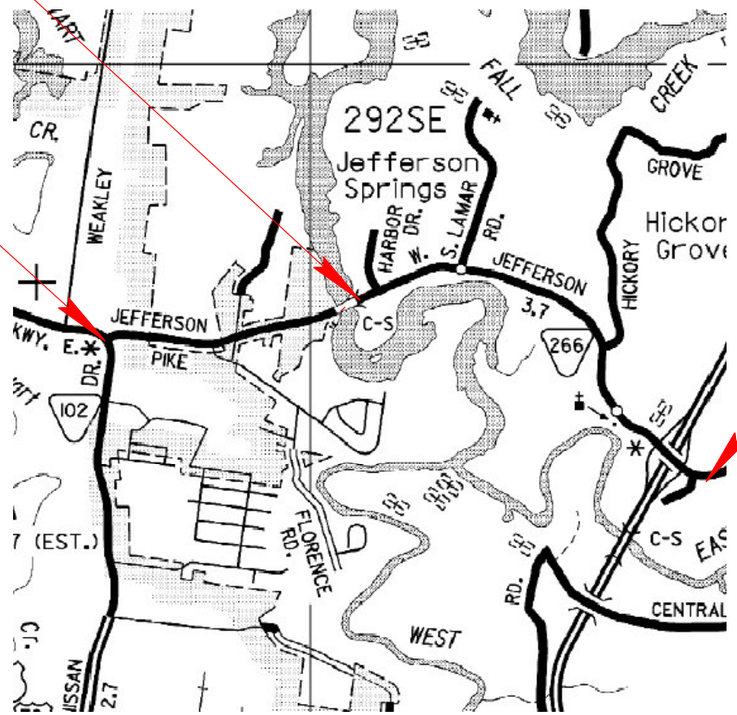
SEGMENT 1

BEGIN PROJECT
SEGMENT 2

BEGIN PROJECT
SEGMENT 1



SCALE: 1"= 100

END PROJECT
SEGMENT 2

SPECIAL NOTES

PROPOSALS MAY BE REJECTED BY THE COMMISSIONER IF ANY OF THE UNIT PRICES CONTAINED THEREIN ARE OBVIOUSLY UNBALANCED, EITHER EXCESSIVE OR BELOW THE REASONABLE COST ANALYSIS VALUE.

THIS PROJECT TO BE CONSTRUCTED UNDER THE STANDARD SPECIFICATIONS OF THE TENNESSEE DEPARTMENT OF TRANSPORTATION DATED MARCH 1, 2006 AND ADDITIONAL SPECIFICATIONS AND SPECIAL PROVISIONS CONTAINED IN THE PLANS AND IN THE PROPOSAL CONTRACT

TDOT ROAD SP. SV. 2 _____

DESIGNER _____ CHECKED BY _____

P.E. NO. _____

APPROVED: _____
CHIEF ENGINEER

DATE: _____

APPROVED: _____
COMMISSIONER

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED: _____ _____
DIVISION ADMINISTRATOR DATE

6/19/2007
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TENNESSEE D.O.T.

FILE NO.

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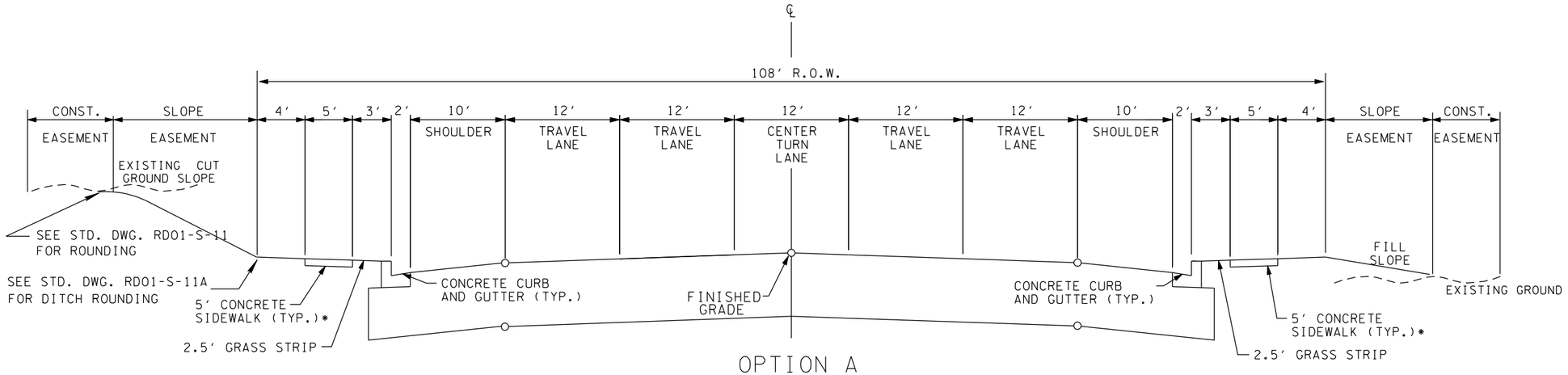
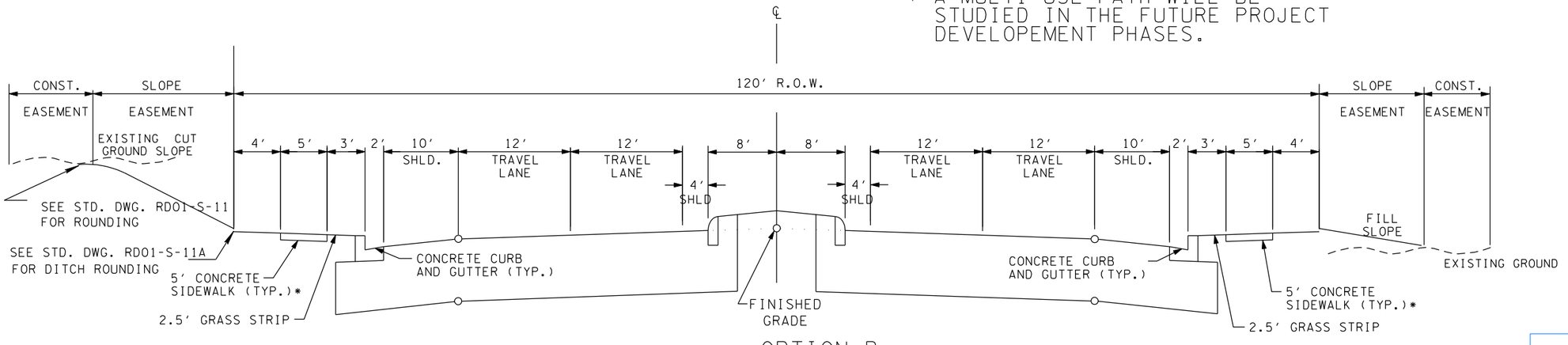


OPTION A
5 -12' LANES WITH SHOULDER AND CURB & GUTTER
SEGMENT 1

NOTE: FOR SUPPERELEVATION SECTION, SEE TDOT STANDARD DRAWINGS.

* A MULTI-USE PATH WILL BE STUDIED IN THE FUTURE PROJECT DEVELOPEMENT PHASES.



OPTION B
4 -12' LANES WITH 16' RAISED MEDIAN AND CURB & GUTTER
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STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

SEGMENT 1

6/9/2007
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TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.

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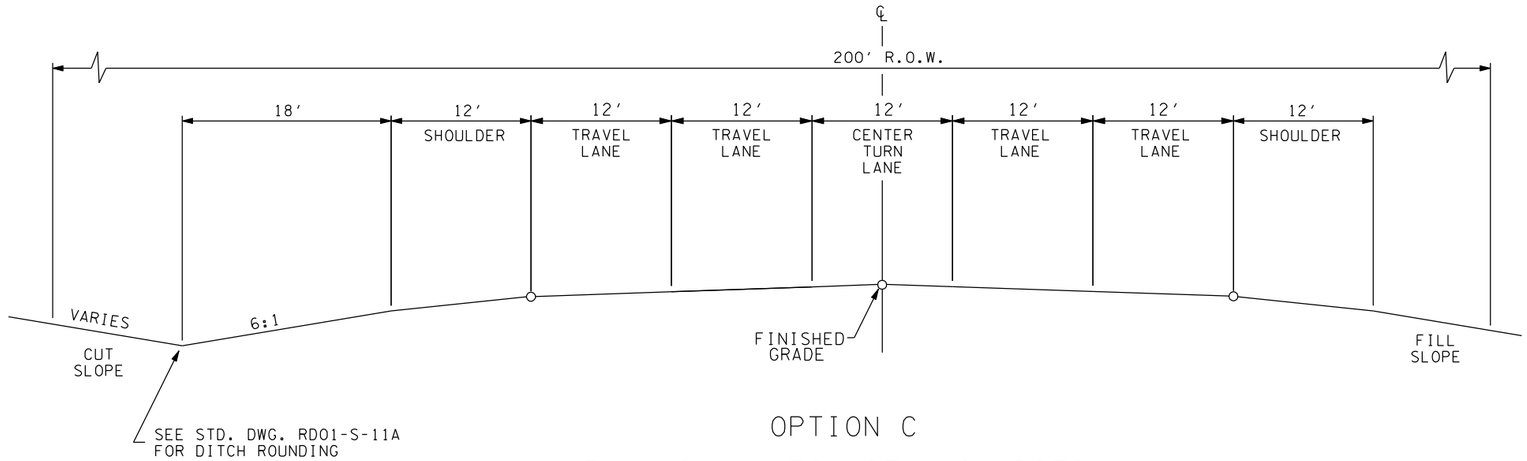
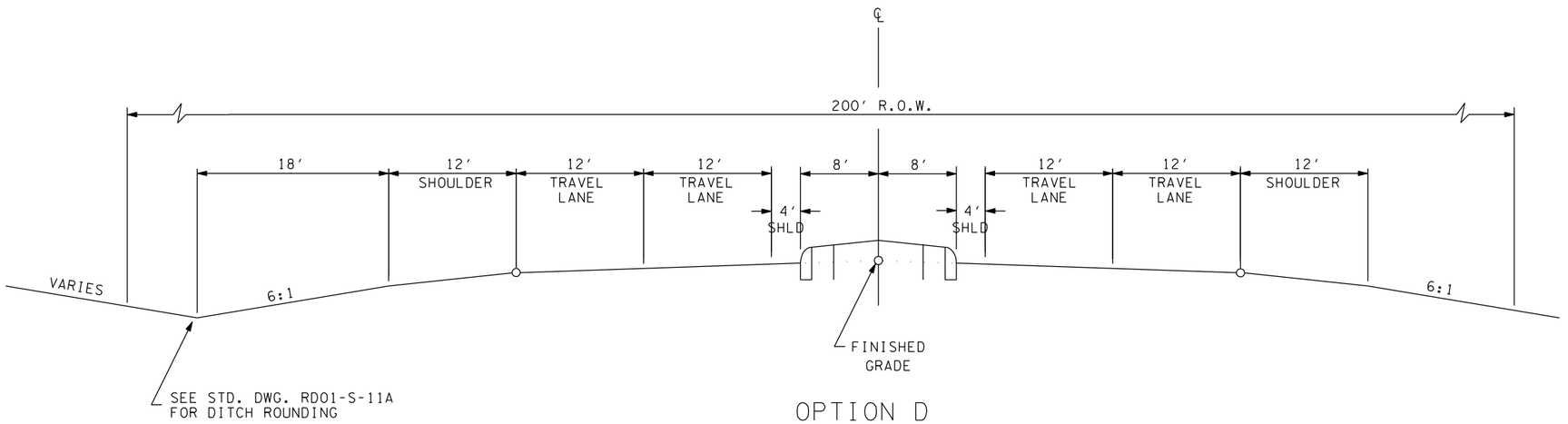


OPTION C

5 - 12' LANES WITH 18' DITCH

SEGMENT 2

NOTE: FOR SUPPERELEVATION SECTION, SEE TDOT STANDARD DRAWINGS.



OPTION D

4 - 12' LANES WITH 16' RAISED MEDIAN AND 18' DITCH

SEGMENT 2

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

SEGMENT 2

6/9/2007
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TENNESSEE D.O.T.

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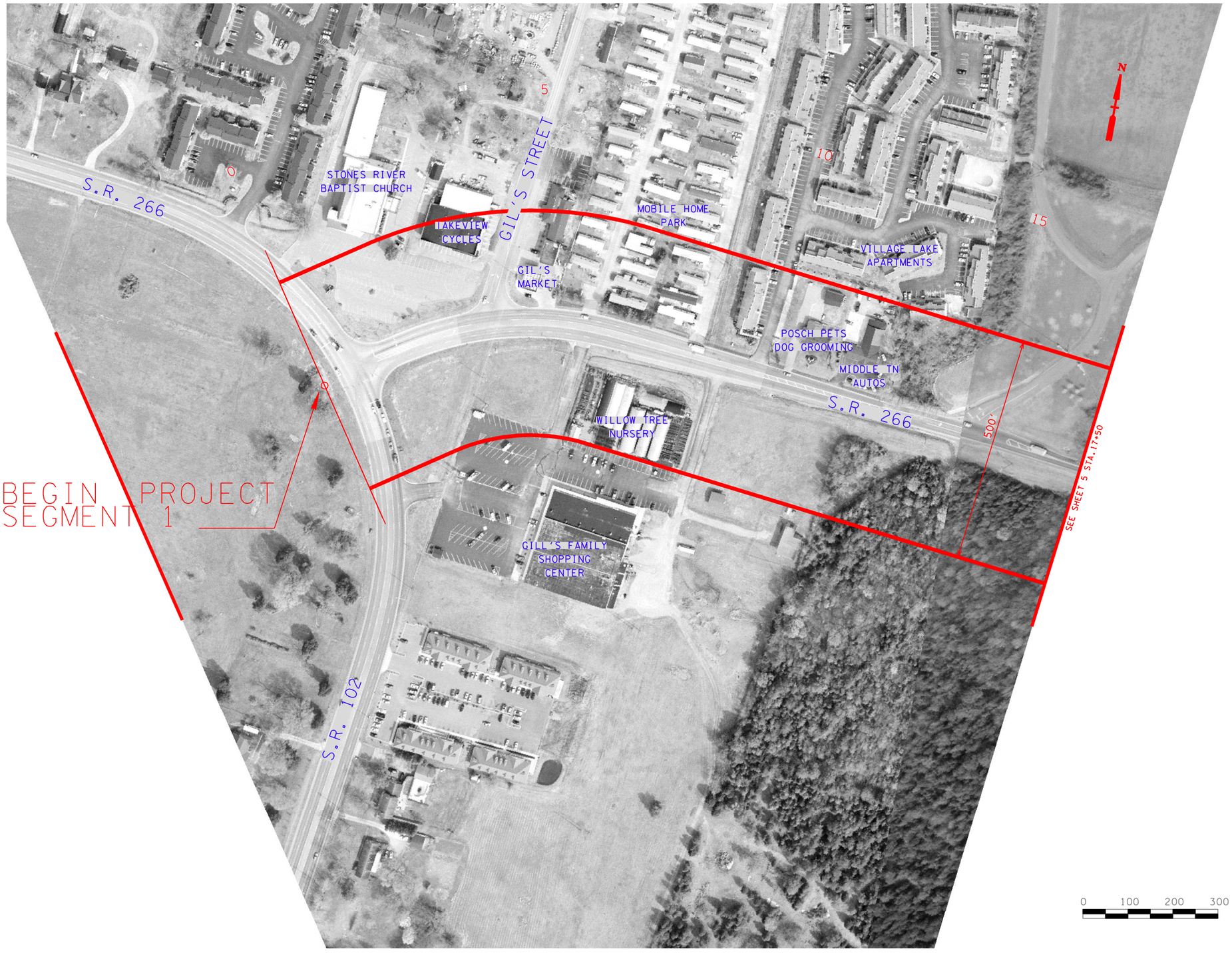

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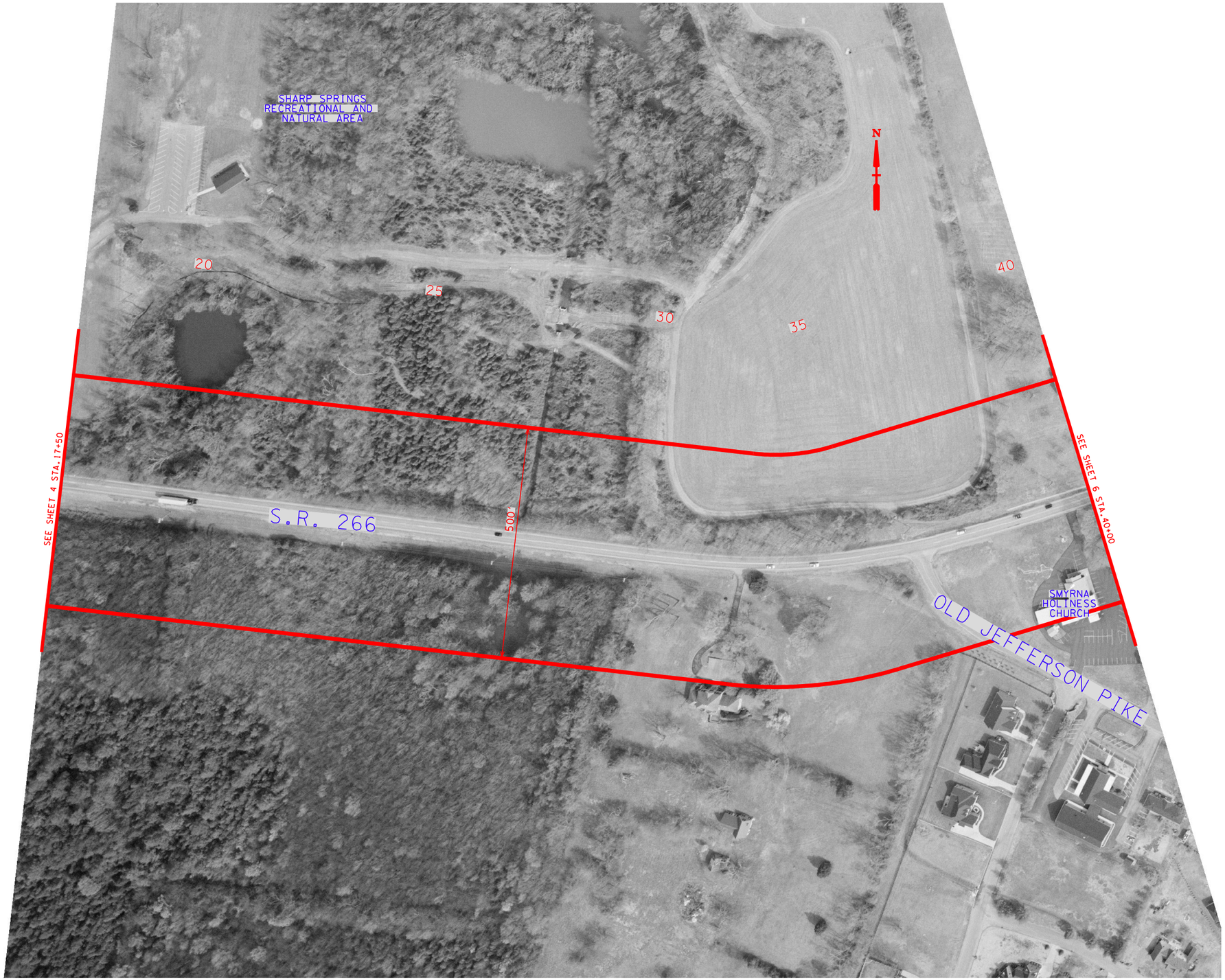

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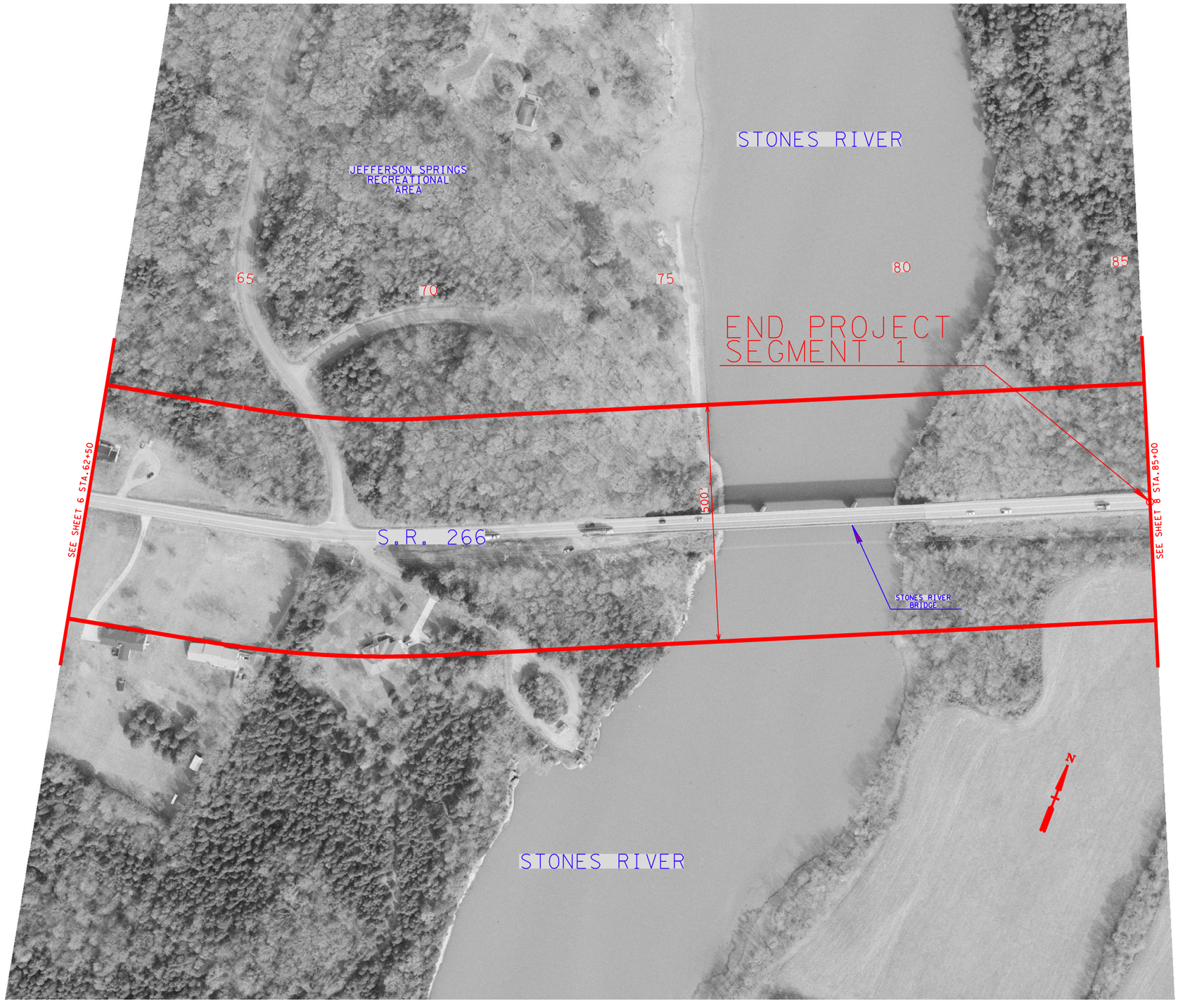

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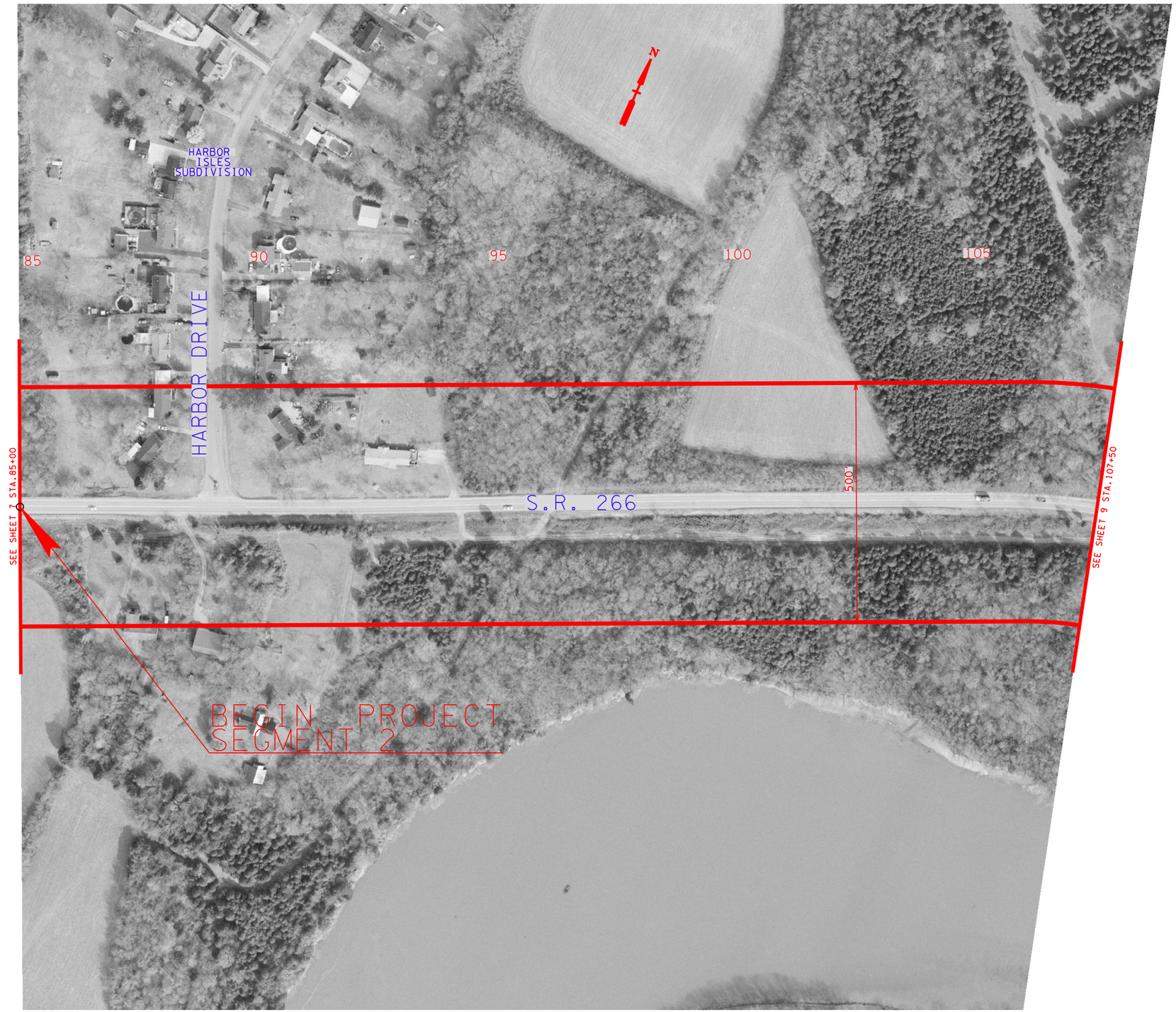

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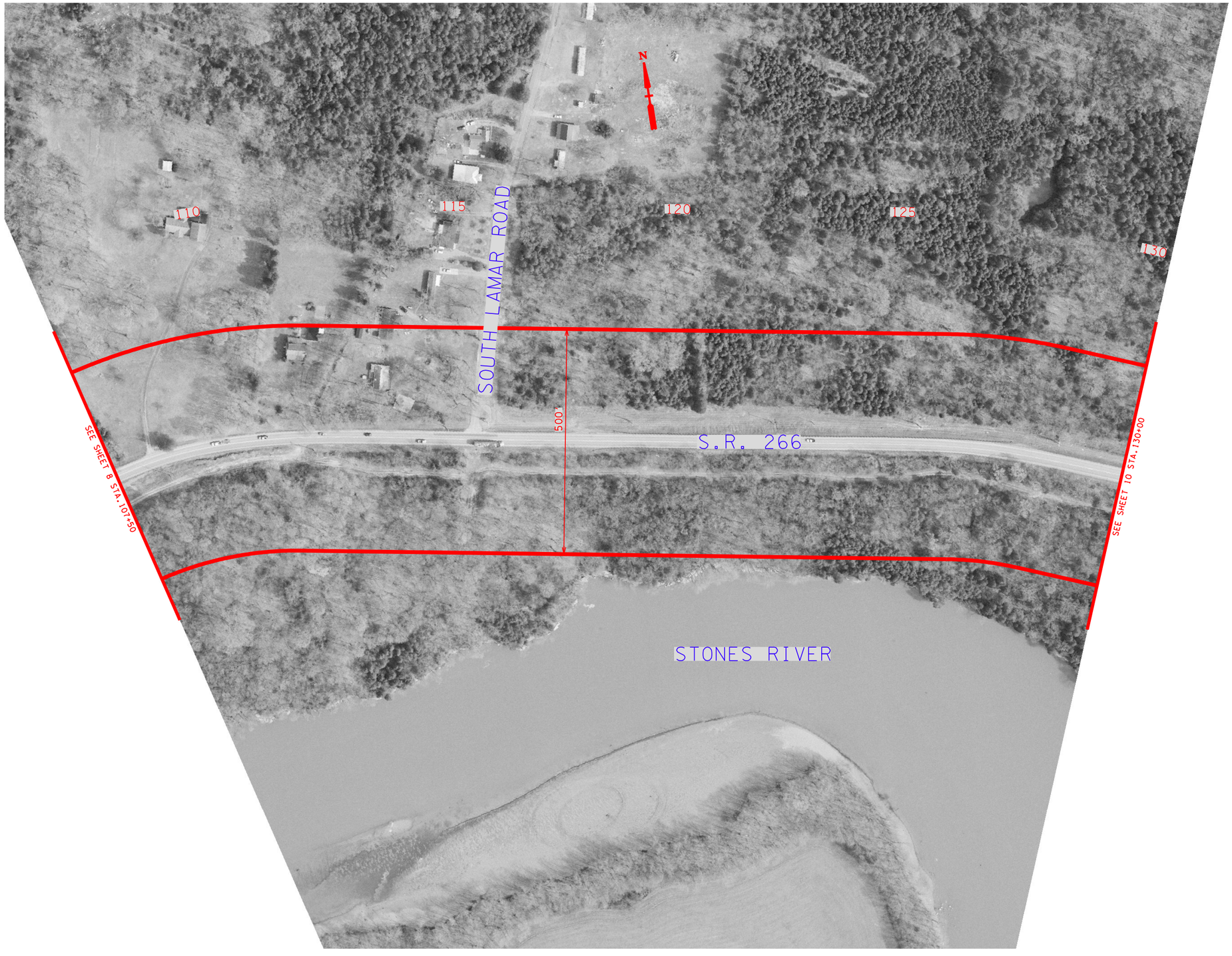

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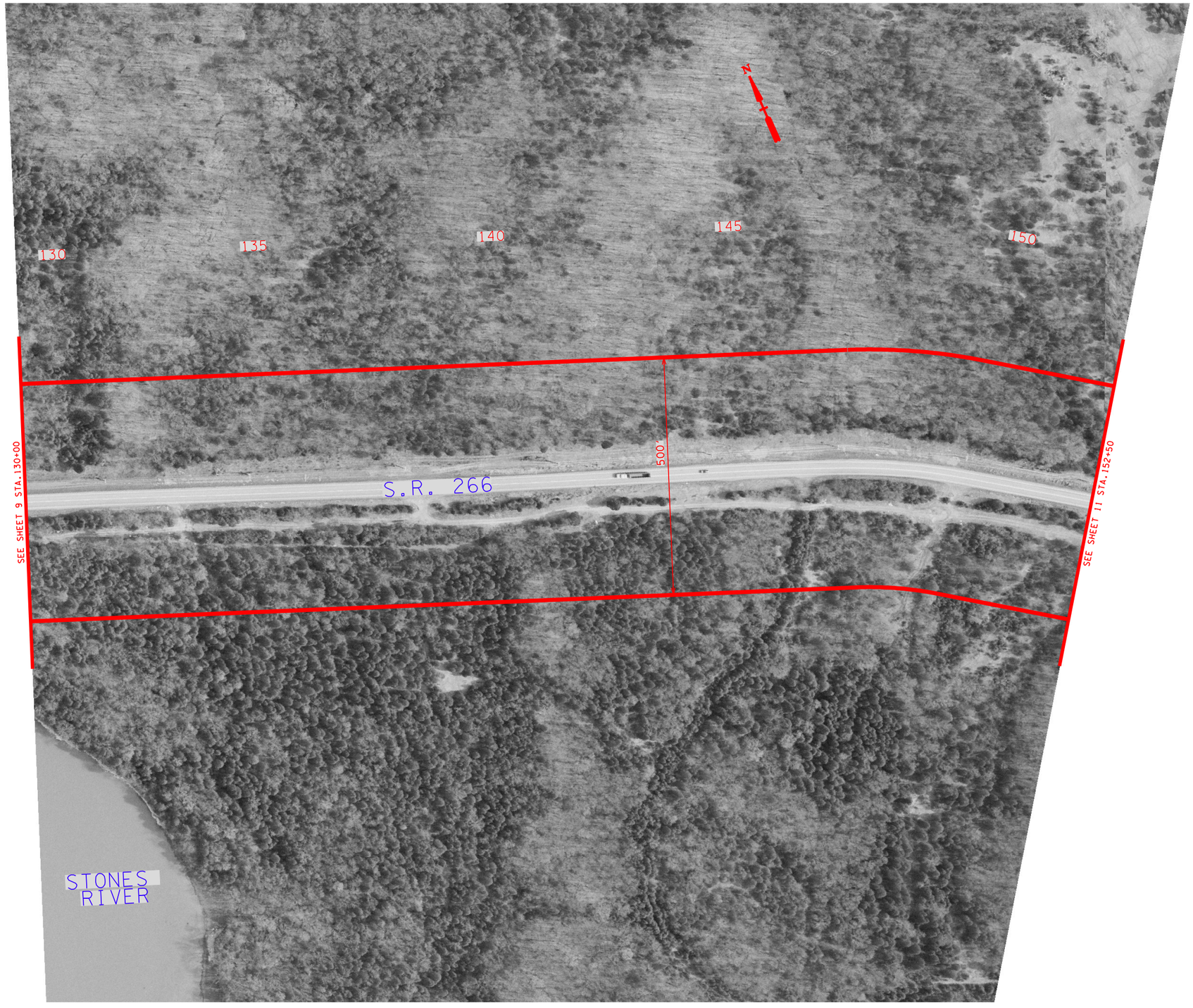

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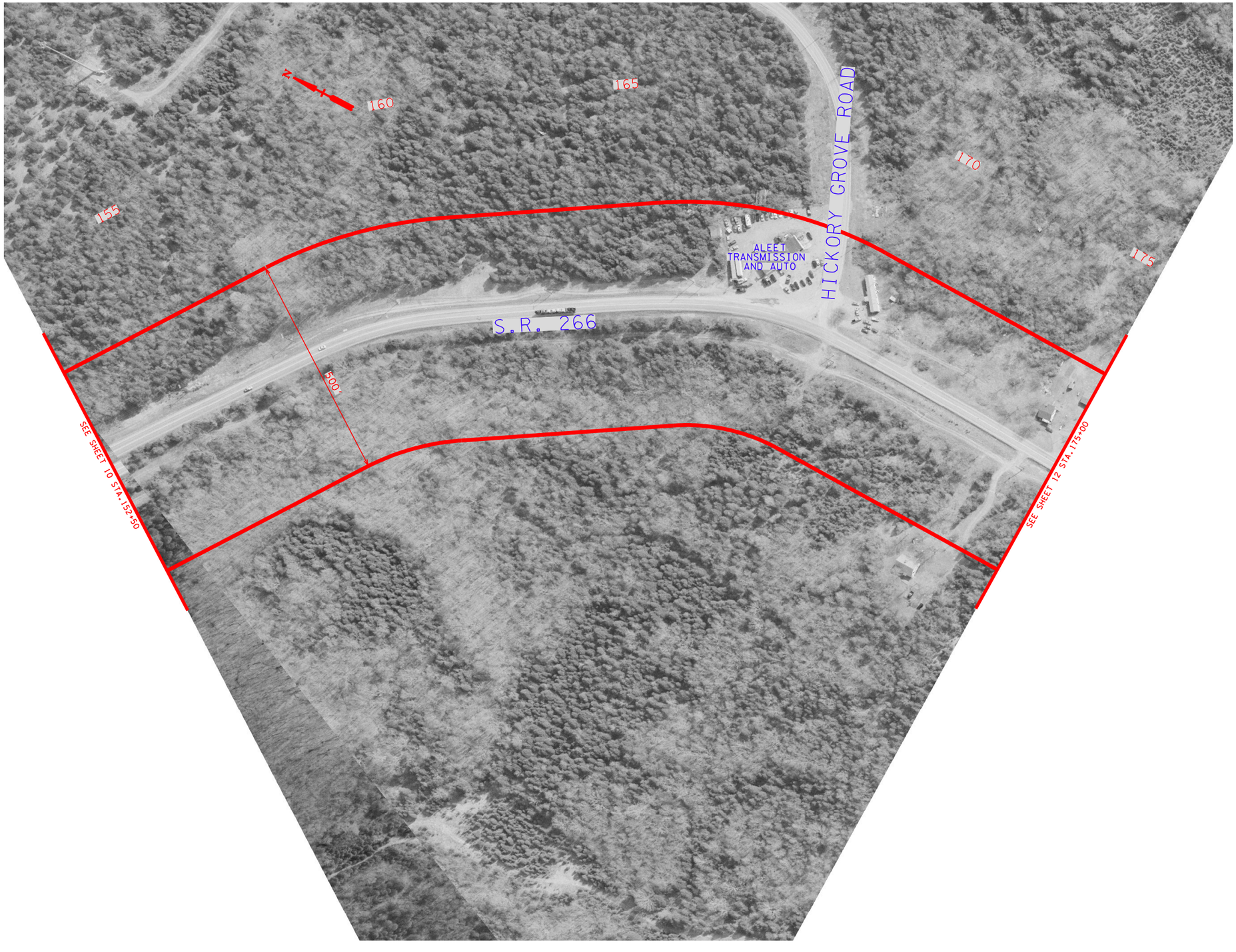

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STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

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TENNESSEE D.O.T.

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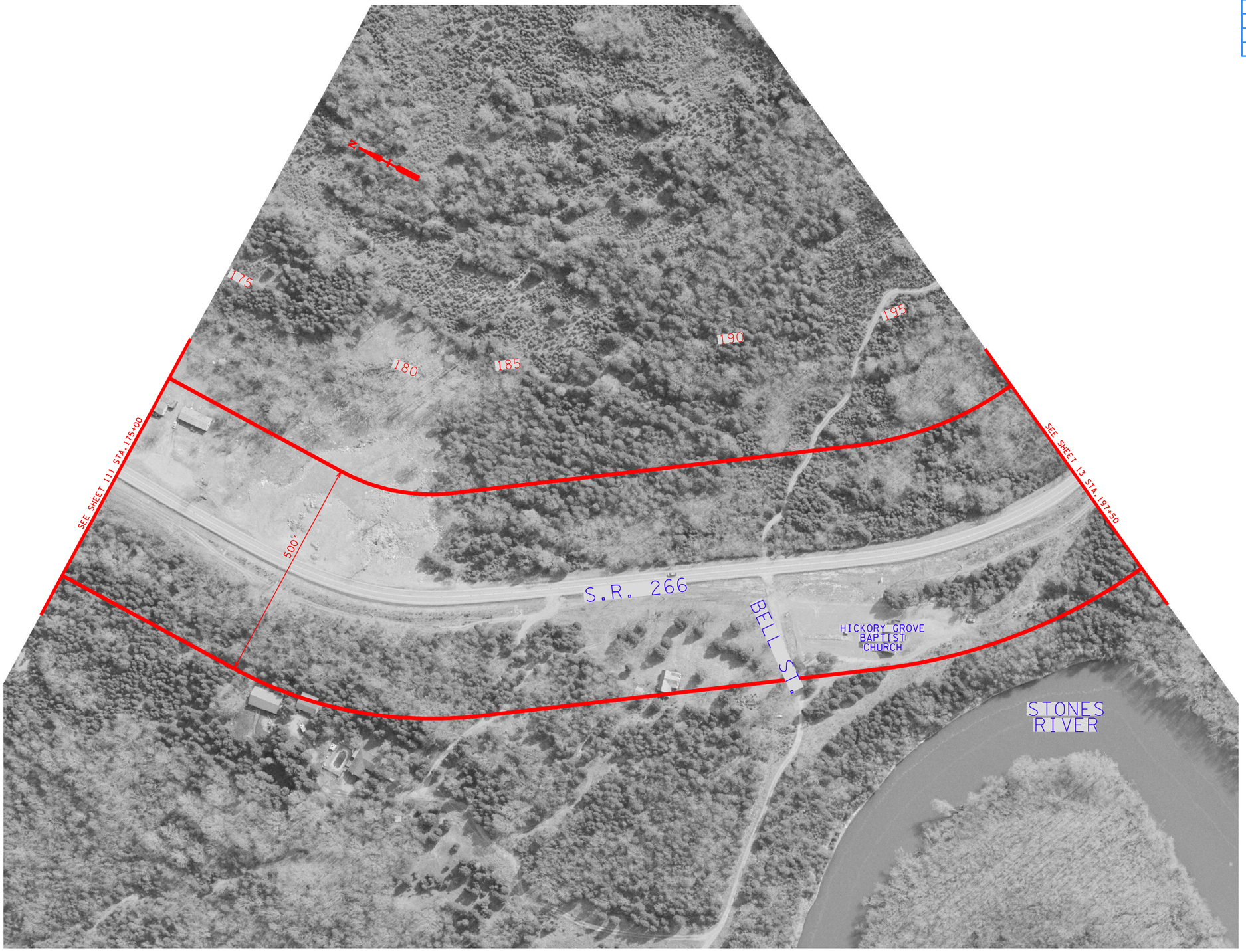

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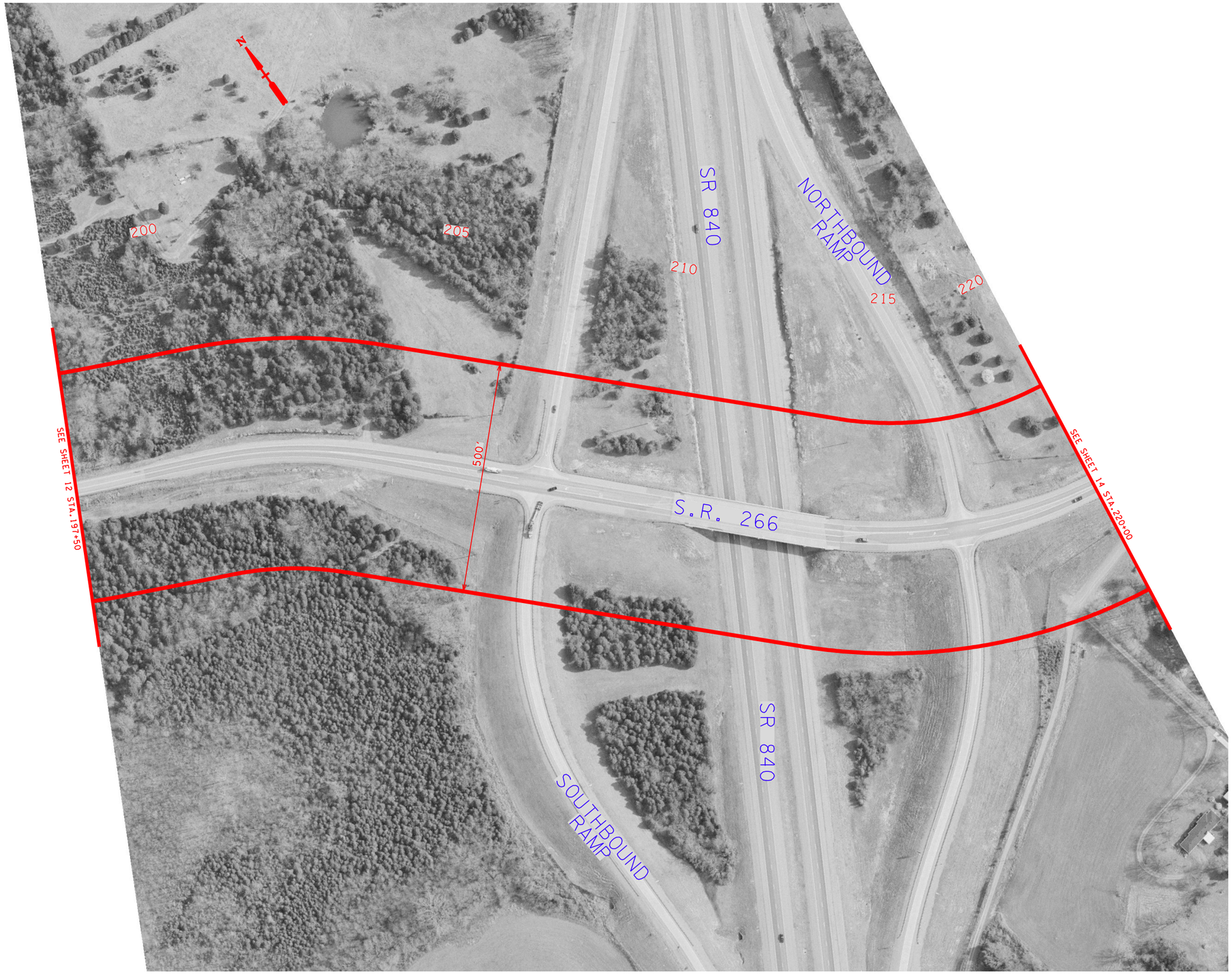

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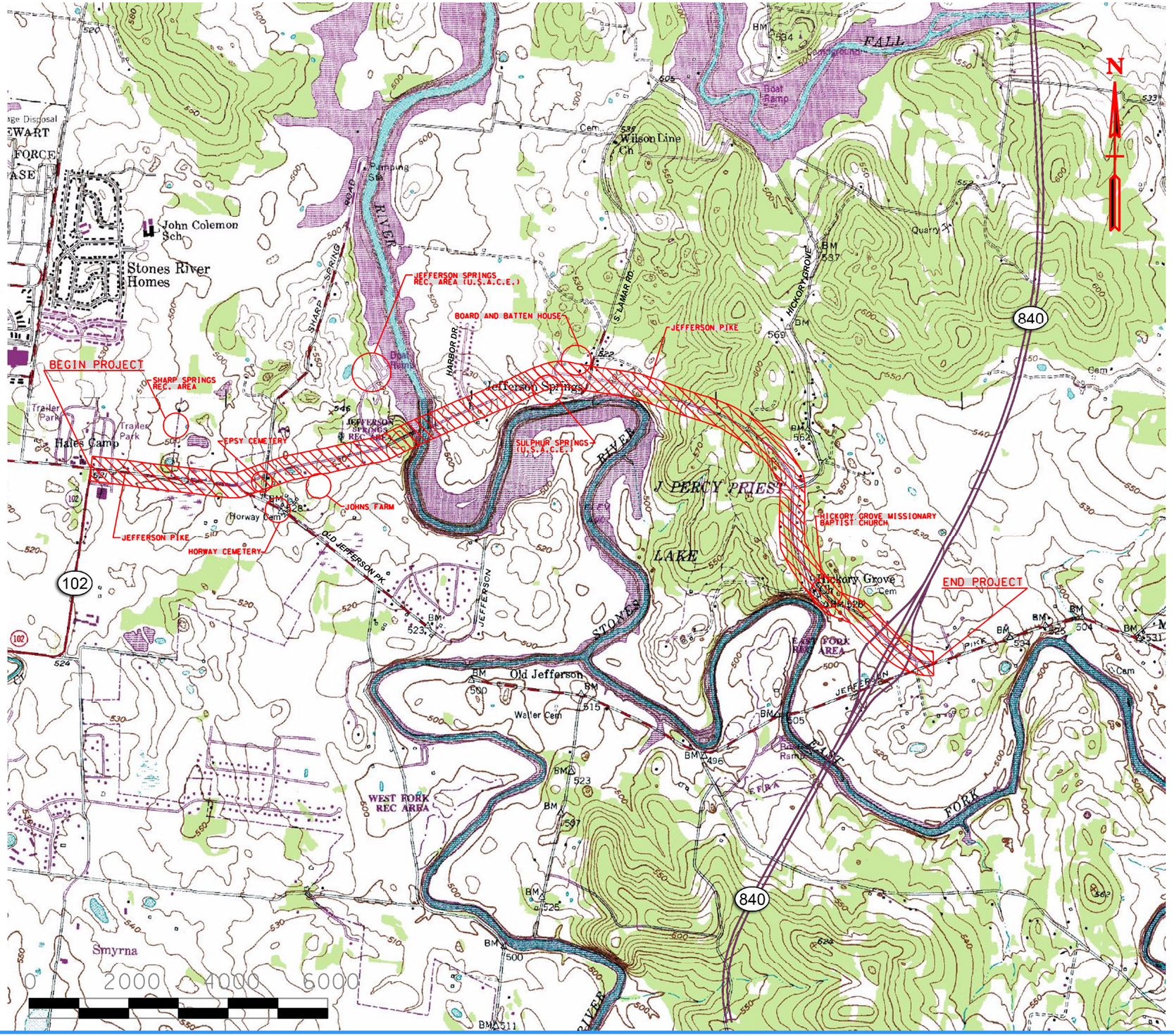

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STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

GENERAL LOCATION MAP