

EXECUTIVE SUMMARY—TRANSPORTATION PLANNING REPORT
State Route 80 from SR 85 to SR 56/262
Macon and Smith Counties
PIN 112964.00

Project Initiation and Purpose of Study

The Tennessee Department of Transportation's (TDOT) Long Range Planning Division completed a Preliminary Purpose and Needs Statement in March of 2009 for improvements to an 11.44-mile segment of State Route (SR) 80 from SR 85 to SR 56/SR 262 in Macon and Smith Counties.

This document was prepared at the request of the Dale Hollow Rural Planning Organization (RPO), which considers the corridor a primary north-south connector between Macon and Smith Counties. The entire corridor is classified as a Rural Minor Arterial. The Preliminary Purpose and Needs Statement recommended the preparation of a Transportation Planning Report (TPR). The purpose of this study is to develop the potential improvement options that meet the purpose and need.

Purpose and Need

The purpose of the proposed improvements is to provide a transportation facility that promotes safer operations and improves geometric deficiencies.

The primary needs for the improvement include:

- *Safety* – The crash rate along the corridor is greater than the statewide average of 1.6519. The actual rates for the three (3) segments of SR 80 starting at SR 85 and ending at SR 56/262 are 2.343, 1.132, and 3.246, respectively. In addition, correcting geometric deficiencies will upgrade the overall safety of this section of SR 80.
- *Geometric Deficiencies* – The roadway cross-section is substandard for a large portion of the study area. Lane widths range from ten (10) to eleven (11) feet and shoulder widths range from less than one (1) foot to eight (8) feet. In addition, there are substandard horizontal and vertical curves with limited sight distance at multiple locations. Substandard clear zones exist in areas including from Kemp Hollow Lane to Nixon Hollow Lane which has a rock cut on one side and a steep slope down to Peyton Creek on the other.

Improvement Options and Cost

The corridor begins at the intersection of SR 80 and SR 85 and continues north/northeast for 11.44 miles to the intersection of SR 80 with SR 56/SR 252. The proposed typical section for the improvements consists of two (2) twelve (12) foot travel lanes, two (2) ten (10) foot shoulders [eight (8) foot stabilized] from the start of the study area to Little Creek Road, and two (2) eleven (11) foot travel lanes, two (2) eight (8) foot shoulders [six (6) foot stabilized] from the Little Creek Road to the end of the study area. There are four (4) options being developed for the corridor: a no build option, a two (2) lane reconstruction option for the entire corridor, one (1) new alignment option for a 0.74-mile section, and twelve (12) spot improvements.

Option A: No Build – This option assumes no modifications or improvements will be made over the planning horizon to address safety and geometric deficiencies. Routine maintenance related activities, as well as scheduled resurfacing, signing, and possible safety projects may occur.

Option B: Two (2) Lane Reconstruction for Entire Corridor - This option proposes to improve the entire SR 80 corridor from SR 85 to SR 56/262 in Smith and Macon Counties. This option will improve existing substandard lane and shoulder widths along with horizontal and vertical geometry deficiencies for the entire corridor. A truck climbing lane for northbound SR 80 from LM 0.06 to LM 1.22 in Macon County is also included in Option B.

Approximately 11.44 miles

Estimated Cost: \$37,453,607

Option C: New Alignment Option - This option considers a 0.74-mile section of relocated SR 80. This option bypasses a substandard clear zone with constructability issues due to the creek and rock embankment in close proximity to the travel lane on each side of SR 80. The new location begins north of the Hubbard Lane intersection and ends south of the Nixon Hollow Lane intersection. This option can be combined with Option B for a total estimated cost of \$41,885,607.

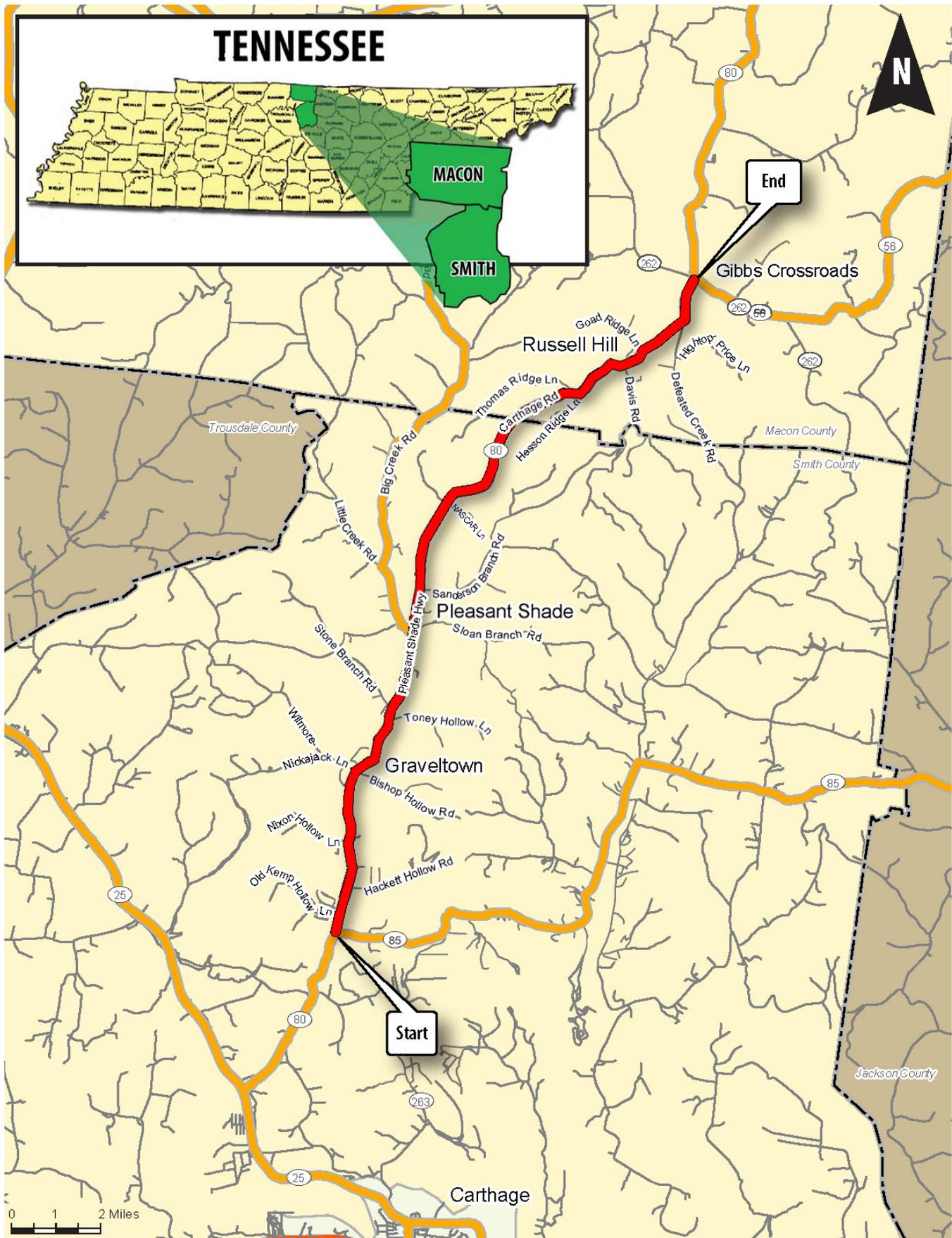
Approximately 0.74-mile

Estimated Cost: \$6,932,365

Option D: Spot Improvement - These safety improvements include increasing lane and shoulder widths, improvement of the horizontal and vertical sight distance, and adjusting intersection alignments. These twelve (12) spot improvements can be implemented as prioritized stand alone projects and are compatible with the lane and shoulder widening for the entire corridor.

Estimated Total Spot Improvement Cost: \$14,874,608

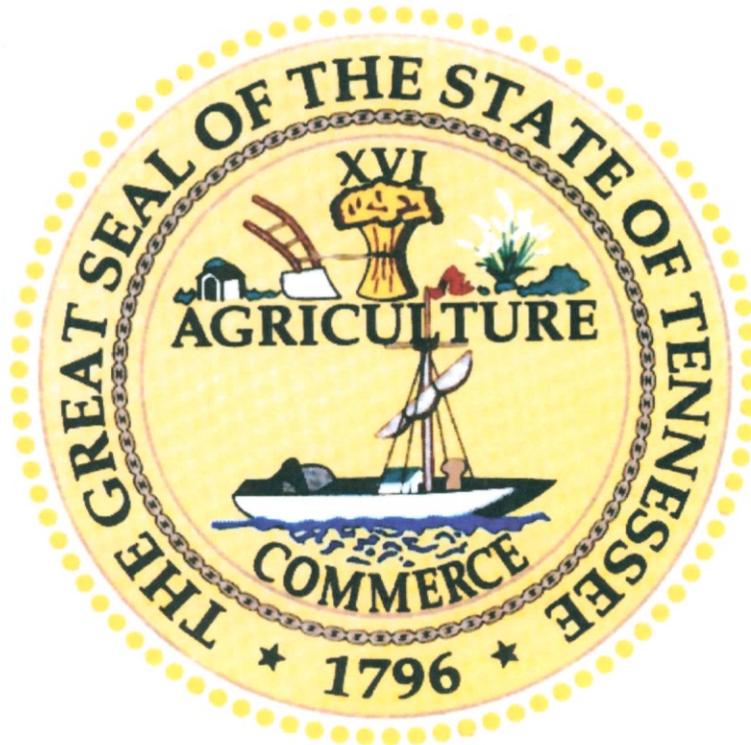
One spot improvement, D.2, was implemented in late 2011. This improvement included widening to consist of two (2) twelve (12) foot travel lanes through the section, two (2) ten foot shoulders (eight (8) feet stabilized) and 0.25:1 rock cut slopes with a ten (10) foot bench and variable right-of-way as determined by the slopes. Design speed for the section is 35 MPH. The new total cost for spot improvements is \$11,435,766.



Location Map

TRANSPORTATION PLANNING REPORT

*State Route 80
from State Route 85 to State Route 56/262
Macon and Smith Counties
PIN 112964.00*



*Prepared by:
Gresham Smith and Partners
for the
Dale Hollow Rural Planning Organization
and the
Tennessee Department of Transportation, Project Planning Division*

Approved by:	Signature	DATE
CHIEF OF ENVIRONMENT AND PLANNING		6/28/11
TRANSPORTATION DIRECTOR PROJECT PLANNING DIVISION		6-22-11
TRANSPORTATION MANAGER 2 PROJECT PLANNING DIVISION		6/22/11

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VOLUME I (Attached)

Field Review Minutes and Attendance List

Cost Estimate Spreadsheet

Aerial and USGS Map (Concept Layout)

Early Environmental Screening

VOLUME II (stand alone document)

Preliminary Purpose and Needs Document

Capacity Analysis

Crash Data

Traffic Counts

1.0 PURPOSE OF THE TRANSPORTATION PLANNING REPORT

The Tennessee Department of Transportation's (TDOT) Long Range Planning Division completed a Preliminary Purpose and Needs Statement in March of 2009 for improvements to an 11.44-mile segment of State Route (SR) 80 from SR 85 to SR 56/SR 262 in Macon and Smith Counties. This document was prepared at the request of the Dale Hollow Rural Planning Organization (RPO), which considers the corridor a primary north-south connector between Macon and Smith Counties. The RPO requested this route be studied due to a high level of traffic, including truck traffic, and safety issues. The Preliminary Purpose and Needs Statement recommended the preparation of a Transportation Planning Report (TPR) for the 11.44-mile segment of State Route 80.

This TPR includes:

- The proposed project's history and background;
- The context (setting) of the study area;
- The need and purpose (goals);
- Stakeholder issues identified early in planning;
- Options developed to satisfy the need;
- Costs of options;
- Potential environmental issues; and
- The proposed project's adherence to TDOT's guiding principles.

This TPR is a planning tool intended to establish the needs for improvement and to assess options for meeting these needs. This TPR also presents and evaluates the No-Build and Build options developed in the planning process. The environmental screening presented in this TPR will assist planners and engineers in developing corridors that would minimize impacts to known environmentally sensitive areas. The data gathered will provide information to take the proposed improvements to the next step, which may be a National Environmental Policy Act (NEPA) document if funding is identified. A 500 foot or 1,000 foot wide corridor (depending on location) into which alignments can be developed in the next project phase (i.e., NEPA) is being studied for this document. Planning level costs are also included in the analysis. Roadway design plans are not prepared during the TPR phase.

2.0 PROJECT HISTORY AND BACKGROUND

The Long Range Planning Division conducted a Needs Assessment (Study #6007007) for a 19.39 mile section along a SR 80/SR 56 corridor, running from SR 25 in Smith County to SR 52, Red Boiling Springs in Macon County. A TPR was subsequently completed in 2007 for a one-half mile section of roadway within the study corridor, extending north along SR 80 from Bishop Hollow Road to south of Toney Hollow Lane in Smith County for spot improvements to address safety issues. The TPR stated, *“This section has not experienced a large number of severe crashes; but with the substandard geometrics and unprotected roadside environment, there is a potential for fatal and/or severe injury crashes”*. Two (2) crashes with injuries occurred in this area in 2005 and one (1) in 2007.

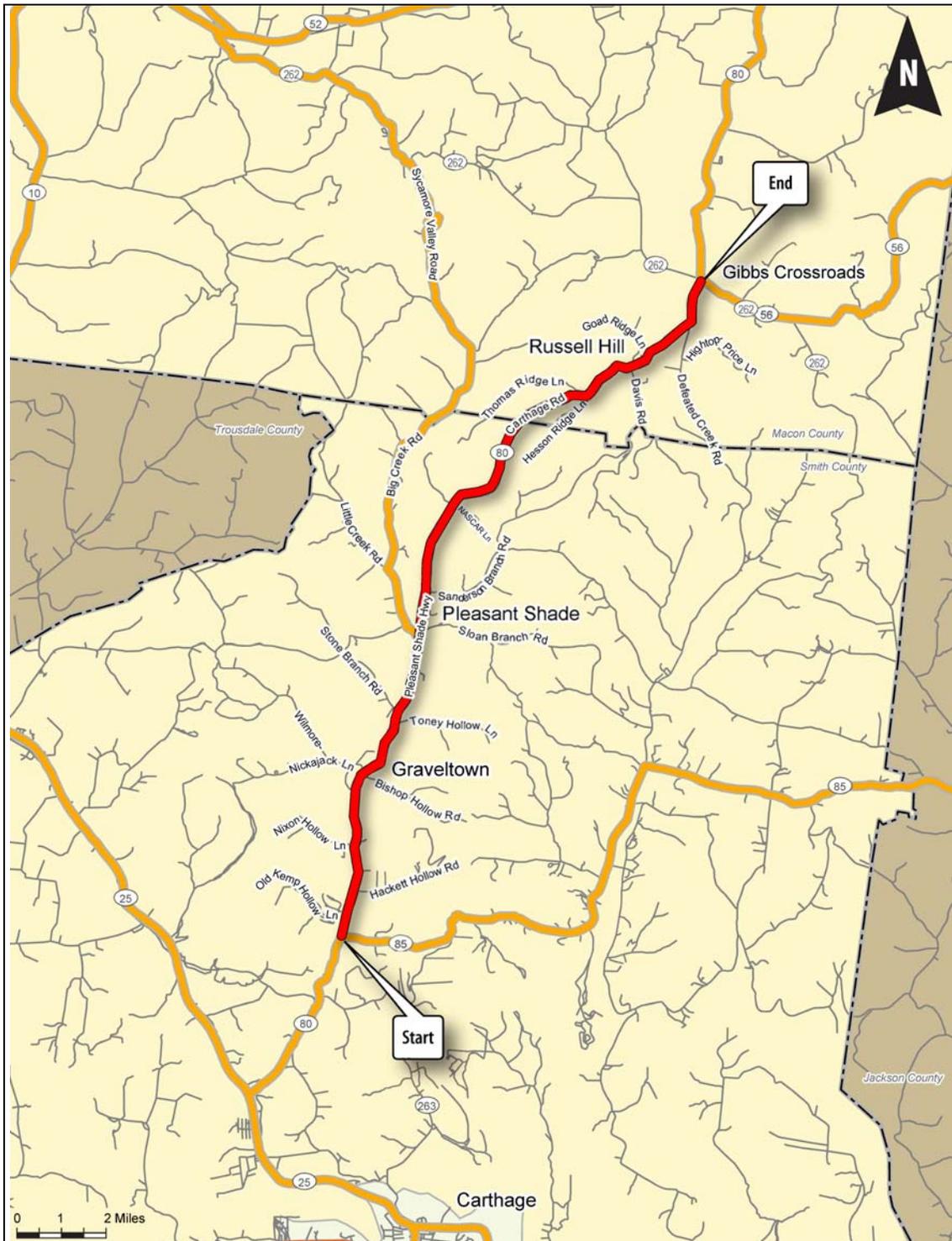
Approximately two years later, the Dale Hollow RPO requested that SR 80 between SR 85 and SR 56/262 be studied. The Long Range Planning Division completed a Preliminary Purpose and Need Statement in March of 2009 (see Appendices, Volume II). The following is taken from the Preliminary Purpose and Need Statement:

“The Dale Hollow RPO recommended this route be studied due to a high level of traffic, including truck and safety issues. State Routes 80 and 56 connect Red Boiling Springs in Macon County with Highway 25 near Carthage in Smith County. According to the Nestle Water Bottling plant in Red Boiling Springs, the average truck traffic entering and leaving the facility per day is 75 to 200, depending on the season, with peak season being spring/summer. There is a section of the highway that has excessive curves, in addition to narrow lane width and narrow shoulder width for most of the segment, compounding the likelihood of a hazardous roadway.”

“The RPO is currently proposing that improvements be undertaken for the section of the (19.39 mile) route, for the purpose of this analysis known as segment A-2, extending for 11.44 miles along SR 80 from SR 85 in Smith County to SR 57/SR 262 in the Macon County community of Willett. Several fatal crashes have occurred in this section over the past five years. Some locations of the roadway lie between a rock bluff and a creek bed, with very little clearance.”

This document recommended that the 11.44 mile segment of SR 80 from SR 85 in Smith County north to SR 56/262 in Macon County be selected for a TPR (see Figure 2, Study Area Map).

Figure 2. Study Area



3.0 EXISTING CONDITIONS

3.1 Community Characteristics

The study area for the proposed SR 80 road improvements lies to the north of the City of Carthage in Smith County, Tennessee and southwest of the City of Red Boiling Springs in Macon County, Tennessee. Carthage is located approximately 55 miles east of Nashville and Red Boiling Springs is located approximately 75 miles northeast of Nashville near the Kentucky border.

Population and Growth

Table 1 summarizes population growth in the two counties encompassing the study area, Macon and Smith Counties, between 1990 and 2008. In 2008, Macon County had an estimated population of 21,838 people and Smith County had a population of 19,107 people. The State of Tennessee is included for comparison purposes. Between 1990 and 2008, Macon County experienced a 37.3 percent increase in population and Smith County experienced a 35.1 percent increase in population, as compared to 27.4 percent for Tennessee as a whole. The state’s population growth occurred over the course of two decades, but both Macon County’s and Smith County’s growth occurred between 1990 and 2000 (28.1 percent for Macon County and 25.2 percent for Smith County).

Table 1: Population Growth

	1990	2000	2008 (Estimates)	Percent Change 1990-2008
Macon County	15,906	20,386	21,838	37.3%
Smith County	14,143	17,712	19,107	35.1%
Tennessee	4,877,185	5,689,283	6,214,888	27.4%

Source: US Census 1990 and 2000 and US Census Population Estimates

Major Employers and Traffic Generators

The largest employment sectors in the Macon-Smith County area are industrial/manufacturing and health care. According to statistics compiled by the Tennessee Department of Labor and Workforce Development in August 2009, the labor force in Macon County is experiencing an unemployment rate of 11.9 percent and the labor force in Smith County is experiencing an unemployment rate of 13.4 percent, which is above the statewide average of 10.9 percent.

The largest employer in Macon County is Wal-Mart, which is located in the City of Lafayette to the west of the study area, on the Highway 52 Bypass West (see Table 2). The largest employer in Smith County is the Smith County Department of Education (see Table 3). There are nine (9) schools in the Smith County school system: six (6) elementary schools, one (1) middle school and two (2) high schools. Tables 2 and 3 list the largest employers in Macon County and Smith Counties.

Table 2: Largest Employers in Macon County

Company	Industry	Employees
Wal-Mart	Retail sales	270
Tennplasco	Plastic Injection Molding	200
Macon County General Hospital	Healthcare	151
Tri-County Electric	Utilities	139
Nestle Water North America	Bottled water	124
The Palace Care and Rehabilitation	Healthcare/ Rest Home	120
Fleetwood Homes	Manufactured homes	119
North Central Telephone Corporation	Utilities	104

Source: Macon County Chamber of Commerce, December 2009

Table 3: Largest Employers in Smith County

Company	Industry	Employees
Smith County Department of Education	Education	500
William L. Bonnell	Aluminum extrusion	300
Riverview Regional Medical Center	Healthcare	200
Graphics Packaging	Paperboard packaging	200
Torque Traction/Dana	Drive shafts	200
Smith County Healthcare	Healthcare	130

Source: Smith County Chamber of Commerce, December 2009

Riverview Regional Medical Center (RRMC) in Carthage is one of the three rural hospitals operated by Sumner Regional Health Systems. Originally known as the Carthage General Hospital and then the Smith County Memorial Hospital, RRMC has more than eighty (80) physicians and mid-level providers. The Macon County General Hospital in Lafayette is a twenty-five (25) bed critical care hospital.

Potential Future Coordination

Resources in the general study area identified in the early planning/screening process that may invoke the need for coordination in future project phases are:

- Blueline stream crossings
- Gas and Electric Service Providers (utility easements crossing study area)
- Gas Pipelines (especially near Toney Hollow Lane)

3.2 Land Use

For the length of the study corridor, the land immediately adjacent to SR 80 is agricultural. Both the Smith County zoning map and the Macon County zoning map classified the land in the study area as *Agriculture*. A field review identified a number of farms and tobacco barns scattered along the corridor. Larger farms include Kemp Farms (registered Angus cattle), Faith Heritage Feeds, and Anderson Farms.

In the community of Pleasant Shade, some small commercial and civic uses exist. These include the Pleasant Shade Post Office and the Pleasant Shade Grocery. South of the community of Pleasant Shade, on SR 80, is an old Gulf Gas Station that is undergoing renovation. Another commercial site, the Four Way Market and Gas Station, is located at the intersection of SR 80 and SR 85.

The larger stretches of the study area, from SR 85 to Nickajack Road and from Nascar Lane to Davis Ridge Road, are characterized by a mix of undeveloped wetland, floodplain areas and steep topography that encroach upon the SR 80 corridor. Residential development is primarily scattered. There are no subdivisions within the study area.

3.3 Crash History

The statewide average crash rate for a roadway of the same functional classification is 1.6519; the actual rates for the three (3) segments starting at SR 85 and ending at SR 56/262 are 2.343, 1.132, and 3.246, respectively, as shown in Table 4. Of the three (3) segments, two (2) exceed the statewide average, with one segment nearly double the statewide average. The actual rate is derived from a formula that takes into account factors such as total number of crashes, length of roadway, average daily traffic volume for that segment, and the time period over which the crashes occurred. The stakeholders and local officials, however, have indicated that they and the public feel that safety is an issue along the existing route, primarily due to the crash rate along the corridor, the geometric deficiencies, and the volume of heavy trucks (up to 13 percent).

Table 4: Crash Summary

Section Description (from south to north)	Road Class	Begin Log Mile	End Log Mile	Statewide Ave Crash Rate	Actual Crash Rate
Defeated Creek Hwy (SR 85) to Little Creek Road, Smith County	Rural Minor Arterial	2.560	6.900	1.6519	2.343
Little Creek Rd to Smith / Macon County Line, through community of Pleasant Shade Smith County	Rural Minor Arterial	6.900	10.690	1.6519	1.132
Smith/Macon County Line to Willette Rd / Jennings Creek Rd (SR 56), Macon County	Rural Minor Arterial	0.00	3.310	1.6519	3.246

A summary of the 2005-2007 crash data findings for each segment is as follows:

- Defeated Creek Highway (SR 85) to Little Creek Road – There were twenty-two (22) documented crashes resulting in no fatalities or incapacitating injuries, thirteen (13) other injuries, and ten (10) crashes that resulted in property damage during the period from 2005-2007. However, a stakeholder’s comment indicated that the existing improvements at Bishop Hollow Lane were requested due to an incapacitating injury occurring when a vehicle collided with the rock bluff prior to 2005. A TPR has previously been prepared for this area and a subsequent roadway improvement has been constructed.
- Little Creek Road to Smith/Macon County Line - There were four (4) documented crashes resulting in a single fatality, no incapacitating injuries, and one other injury. Two (2) of these crashes resulted in property damage.
- Smith/Macon County Line to Willette Road / Jennings Creek Road (SR 56/262) - There were ten (10) documented crashes resulting in no fatalities or incapacitating injuries, and four (4) other injuries. Six (6) of these crashes resulted in property damage.

From 2005 to 2007, the most recent three years for which data had been compiled at the start of this study, thirty-six (36) crashes occurred along this 11.44 mile segment of SR 80, one of which had a fatality. Of those crashes, approximately 50 percent (17 crashes) involved personal injury.

3.4 Traffic and Level of Service Analysis

Traffic data for SR 80 was provided by TDOT, including the Annual Average Daily Traffic (AADT) and the Design Hour Volumes (DHV) for 2008. Based on TDOT’s historical traffic data for this segment of SR 80 over the last ten (10) years, it was determined that a growth rate of 1.0 percent should be used to develop the 2010 and 2030 traffic volumes.

SR 80 is projected to carry a 2010 AADT of 900 to 2,000 vehicles per day, depending on the segment, using the TDOT provided traffic data and the growth rate mentioned above. SR 80 is projected to carry a 2030 AADT of 1,100 to 2,500 vehicles per day, depending on the segment. A weighted average was used to determine the traffic volumes for segments that spanned multiple count stations. Figure 3 depicts the 2010 (base year) and 2030 (design year) AADT for each segment. Table 5 summarizes the traffic data for the base year and the design year. For a full copy of the Traffic and Level of Service Analysis report, see Volume II of the Appendices.

Figure 3: Average Annual Daily Traffic Volume (AADT)

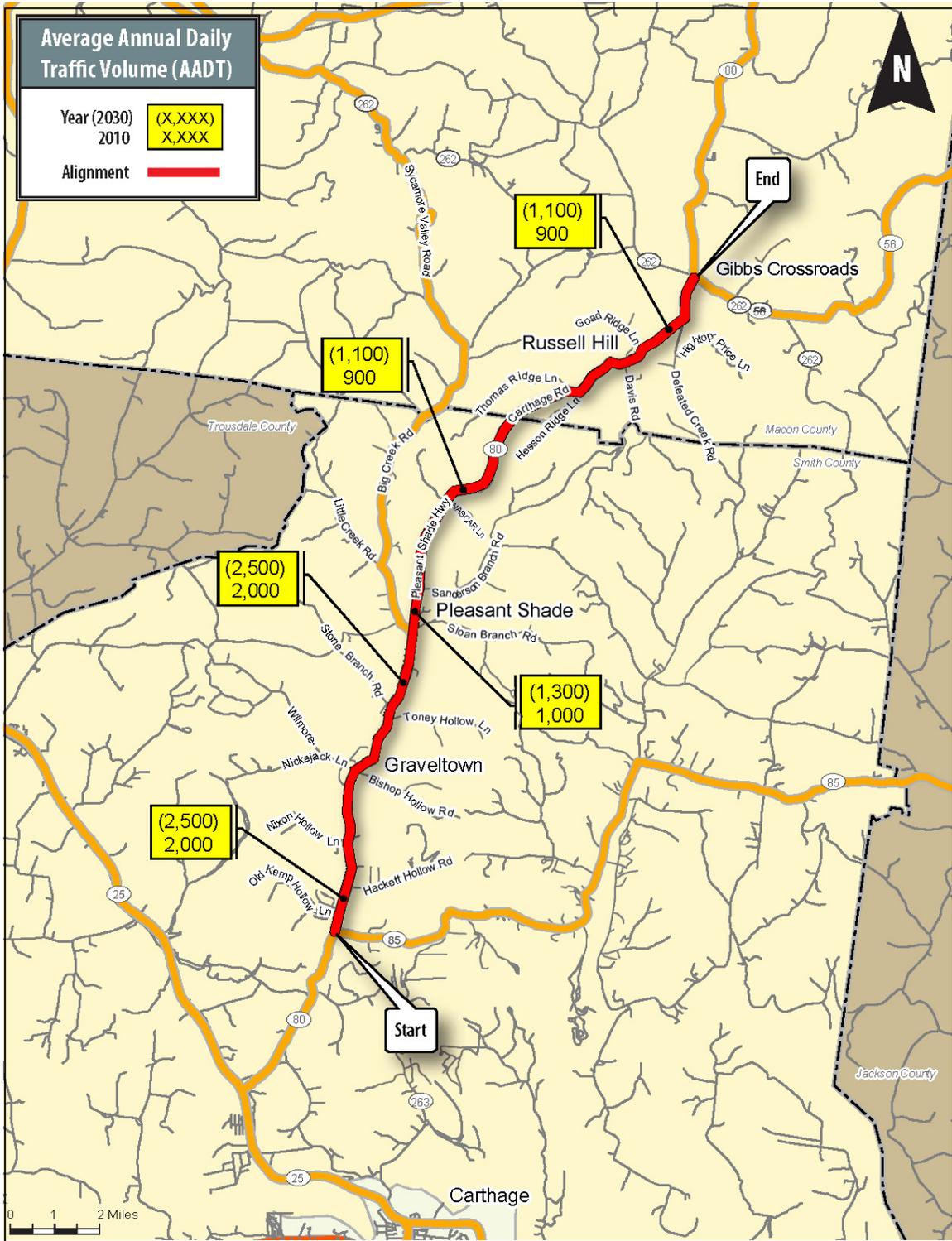


Table 5: SR 80 AADTs by Segment

Roadway Segment	Segment	Approximate Log Mile (LM)	2010 AADT	2030 AADT
Defeated Creek Highway (SR 85) to Little Creek Road, Smith County	1	2.560 – 6.900	2,000	2,500
Little Creek Road to Smith / Macon County Line, through community of Pleasant Shade, Smith County	2	6.900 – 10.690	1,000	1,300
Smith-Macon County line to Willette Rd / Jennings Creek Rd (SR 56/262), Macon County	3	0.000 – 3.310	900	1,100

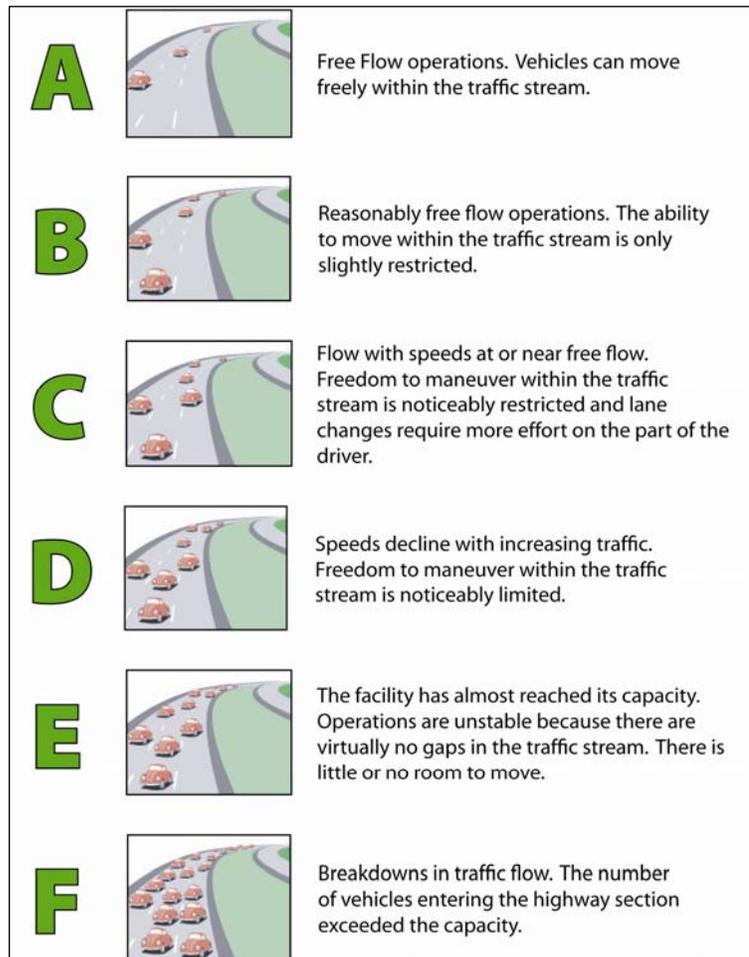
It should be noted that the traffic volumes for the base and design years do not change based on the “No-Build” and “Build” conditions, only when the characteristics of the roadway change. The proposed roadway configuration for SR 80 consists of upgrading the roadway to include twelve (12) foot travel lanes with ten (10) foot shoulders and follows the same alignment as the existing roadway. Because it follows the same alignment under the “Build” condition, re-distribution of traffic volumes was not required.

A Level of Service (LOS) analysis was used to gauge the operational performance of the existing roadway. LOS is a qualitative measure that describes traffic conditions related to speed and travel time, freedom to maneuver, and traffic interruptions. There are six levels, ranging from “A” to “F” with “A” representing the best operating conditions and “F” the worst. Each level represents a range of operating conditions. Figure 4 illustrates the traffic flow conditions and approximate driver comfort level at each LOS.

The traffic analysis for the segment of SR 80 from SR 85 to SR 56/262 was performed using the Highway Capacity Software (HCS+) for the base year (2010) and the design year (2030).

The traffic analysis used procedures from the Highway Capacity Manual 2000 (HCM) for evaluation of two (2) way, two (2) lane highway

Figure 4: Definition of Level of Service



segments. The two way segment methodology estimates measures of traffic operation along a section of highway, based on terrain, number of access points, geometric design and traffic conditions. Terrain is classified as either level or rolling. Traffic data needed to apply to the two way segment methodology include the two way hourly volume, a peak hour factor, the directional distribution of traffic flow as well as the percentage of trucks and recreational vehicles in the traffic stream.

Table 6 summarizes the LOS analysis for the Build and No-Build conditions for the base year (2010) and the design year (2030) traffic. In Table 6, Segment 2 has been divided into Segment 2A (the community of Pleasant Shade) and 2B (the rural area north of Pleasant Shade to the county line). Under the 2010 and 2030 No-Build conditions, Segment 2A of SR 80 from just before the intersection with Little Creek Road to just north of Shady Circle (Log Miles 6.900 to 7.670) operates at LOS E. The reasons for the LOS E are the lower speed limit of 35 MPH and turning vehicles at multiple access points through the community of Pleasant Shade. With the proposed roadway improvements, the LOS in this section will be improved to LOS D. All other roadway segments operate at acceptable levels of service in both the No-Build and Build Conditions.

Table 6: LOS Analysis for SR 80

Roadway	Segment	Approx. Log Mile (LM)	2010 No-Build	2010 Build	2030 No-Build	2030 Build
SR 80 (from intersection with SR 85 to intersection with Little Creek Road)	1	2.560 – 6.900	A	A	A	A
SR 80 (from just before intersection with Little Creek Road to just north of Shady Circle) through the community of Pleasant Shade	2A	6.900 – 7.670	E	D	E	D
SR 80 (from just north of Shady Circle to Smith-Macon Co. line)	2B	7.670 – 10.690	A	A	A	A
SR 80 (from Smith-Macon Co. line to intersection with SR 56/262)	3	0.000 – 3.310	C	B	C	C

3.5 Geometrics

The SR 80 study corridor begins at the intersection of SR 85, which has a corresponding log mile (LM) of 2.560, then extends northward to the Smith County line at LM 10.690. At the Macon County line, the SR 80 LM number restarts at 0.000 and extends northward to LM 3.310 where the study terminates at the intersection of SR 56/262. Typically, SR 80 from SR 85 in Smith County running north to SR 56/262 in Macon County, consists of two (2) ten (10) foot paved lanes, two (2) foot shoulders over most of the roadway length, and a right-of-way varying from forty (40) to sixty (60) feet. The entire route is classified as a rural minor arterial. The corridor connects Smith County to Macon County and provides regional linkage between the two. The current lanes and shoulders of SR 80 do not provide adequate space for vehicles to pull off the road in emergencies or sufficient maneuvering room for drivers to correct driving errors. Additionally, the horizontal sight distance is limited at multiple locations.

There are currently no provisions for bicycles or pedestrians along the corridor, which features rolling terrain and rural land uses. Without subdivisions along the route, and very little residential development, a share-the-road policy is sufficient. A summary of geometric data is provided in Table 7.

3.6 Corridor Review of Existing Conditions and Deficiencies

The majority of the existing facility consists of two substandard ten (10) foot travel lanes with varying shoulder widths, most of which are less than one (1) foot to two (2) feet in width. One 0.50 mile portion of the study area at Bishop Hollow Lane has been widened as part of a recent safety project. This project was initiated because of overall safety issues and geometric deficiencies in the area.

Eleven (11) spot locations along the study route have been identified as deficient. The following discussion includes the approximate Log Mile (LM) range of these areas:

Section of SR 80 from Kemp Hollow Lane to South of the Bridge over Peyton Creek at LM 3.77 (LM 2.88 to 3.62)

This section begins at Kemp Hollow Lane and proceeds northbound to just south of the bridge over an unnamed tributary to Peyton Creek. The most recent three (3) year crash data indicated that three (3) crashes had occurred along this stretch. These crashes resulted in three (3) injuries. The typical cross-section of existing SR 80 in this area consists of two (2) ten (10) foot travel lanes with shoulders ranging from less than one (1) foot to eight (8) feet. Narrow shoulder widths are present in conjunction with the rock bluff to the east of SR 80 and Peyton Creek to the west. In addition, the horizontal sight distance is limited in multiple locations, and guard rails are not present in all areas along the creek. The existing road is located between rock bluffs to the east and Peyton Creek to the west.



Facing North at the Kemp Hollow Lane and SR 80 intersection.

Table 7: Existing Roadway Geometrics

Roadway	Log Miles/ Length of Segment	Avg. ROW	Total Lanes	Avg. Lane Width	Avg. Outside Shoulder Width	Speed Limit	Bicycle Facilities/ Sidewalks	Land Use	Topography
Smith County									
SR 80 (from intersection with SR 85 to intersection with Hubbard Lane)	2.560 - 2.640; 0.08 miles	120'	2	11'	8'	55 mph	None	Rural	Rolling
SR 80 (from intersection w/ Hubbard Lane to just before intersection with Little Creek Road)	2.640 - 6.900; 4.26 miles	40-120'	2	10'	1-8'	55 mph	None	Rural	Rolling
SR 80 (from just before intersection with Little Creek Rd to just north of Shady Circle)	6.900 - 7.670; 0.77 miles	50'	2	10'	2'	30 mph	None	Rural	Rolling
SR 80 (from just north of Shady Circle to Smith-Macon Co. line)	7.670 - 10.690; 3.02 miles	40-100'	2	10'	2-5'	55 mph	None	Rural	Rolling
Macon County									
SR 80 (from Smith-Macon Co. line to intersection with SR 56 /SR 262)	0.000 - 3.310; 3.31 miles	50'	2	10'	1-2'	40-45 mph	None	Rural	Mountainous

Source: TDOT TRIMS Database

Section of SR 80 from Bishop Hollow Road to 2500 feet south of Toney Hollow Lane (LM 4.86 to LM 5.31)

This section begins at Bishop Hollow Road and proceeds northbound to 1,500 feet south of Toney Hollow Lane. A section of this stretch of SR 80 was improved in 2007 to address



Photo taken north of the Bishop Hollow Road and SR 80 intersection facing north.

geometric deficiencies and safety issues. The remaining unimproved portion consists of two (2) ten (10) foot lanes with less than one (1) foot to eight (8) foot shoulders. The existing geometry is not built to current TDOT design standards, and there is a lack of protection from the rock bluff to the east and Peyton Creek to the west. The most recent three (3) year crash data indicated that four (4) crashes had occurred along this stretch. Three (3) of the four (4) crashes involved a collision with the bluff and the fourth involved an overturned vehicle. Two (2) injuries resulted from these crashes. The road is located between the rock bluff to the east and Peyton Creek to the west.

Section of SR 80 south of Sawmill Lane from LM 6.44 to LM 6.70 (no photo available)

This section begins at LM 6.44 and proceeds north to LM 6.70 in Smith County. The typical section for existing SR 80 consists of two (2) ten (10) foot travel lanes and less than one (1) foot to two (2) foot shoulders. A crash involving a sideswipe in the opposite direction has occurred in this area. In addition to the need to correct geometric deficiencies with the typical section, SR 80 comes within twenty (20) feet of Peyton Creek in this location.

Post Office Lane Intersection at LM 7.52

Currently, Post Office Lane intersects SR 80 at a skewed angle resulting in sight distance issues.



Intersection of Shady Circle and SR 80, photo taken facing north



Intersection of Post Office Lane and SR 80, photo taken facing north

Shady Circle Intersection at LM 8.24

Currently, Shady Circle intersects SR 80 at a skewed angle resulting in sight distance issues.

Section of SR 80 North of Nascar Lane from LM 9.14 to LM 9.60

This section begins at LM 9.14 and proceeds north/northeast to LM 9.60 in Smith County. The typical section for existing SR 80 consists of two (2) ten (10) foot travel lanes and less than one (1) foot to five (5) foot shoulders. The current horizontal geometry of SR 80 in this area is not designed to maintain the speed of 45 MPH that is posted for the majority of the route. In addition to the need to correct geometric deficiencies with the horizontal curvature and typical section, the edge of SR 80 comes within fifteen (15) feet of the centerline of Boston Branch.



Facing northeast along SR 80

Section of SR 80 4000 feet South of County Line from LM 9.87 to LM 9.96 (no photo available)

This section begins at LM 9.87 and proceeds north to LM 9.96 in Smith County. The typical section for existing SR 80 consists of two (2) ten (10) foot travel lanes and less than one (1) foot to five (5) foot shoulders. A crash involving an over-turned vehicle has occurred in this area. One (1) injury resulted from this crash. In addition to the need to correct geometric deficiencies with the horizontal curvature and typical section, the west side of SR 80 comes within fifteen (15) feet of the centerline of Boston Branch.

Intersection of Hesson Ridge Road and Thomas Ridge Lane from LM 1.22 to LM 1.40

This section begins at LM 1.22 and proceeds east to LM 1.40 in Macon County. The typical section for existing SR 80 consists of two (2) ten (10) foot travel lanes and less than one (1) foot to two (2) foot shoulders. There are speed reduction advisory signs at this location because the current horizontal geometry of SR 80 in this area is not designed to maintain the speed of 45 MPH that is posted for the majority of the route. There is limited sight distance in this area, particularly for the northbound vehicles as they approach the intersections of Hesson Ridge Road and Thomas Ridge Lane. Three (3) crashes occurred in this area, two (2) involved a lane departure into a roadside ditch. Two (2) injuries resulted from these crashes.



Facing southwest at the Hesson Ridge Road and SR 80 intersection

Davis Ridge Road Area from LM 1.89 to LM 2.23

This section begins at LM 1.89 and proceeds east to LM 2.23 in Macon County. The typical section for existing SR 80 consists of two (2) Ten (10) foot travel lanes and less than one (1) foot to two (2) foot shoulders. There are speed reduction advisory signs at this location because the current horizontal geometry of SR 80 in this area is not designed to maintain the speed of 45 MPH that is posted for the majority of the route. Existing SR 80 follows a sharp reverse curve around a farm pond west of the Davis Ridge Road intersection with SR 80. A crash involving a lane departure occurred in this area. Two (2) injuries resulted from this crash.



Farm pond in the sharp reverse curve west of the Davis Ridge Road intersection with SR 80

North of Goad Ridge Road from LM 2.36 to LM 2.94



Facing northeast along SR 80 northeast of the Goad Ridge Road intersection

This section begins at LM 2.36 and proceeds northeast to LM 2.94 in Macon County. The typical section for existing SR 80 consists of two (2) ten (10) foot travel lanes and less than one (1) foot to two (2) foot shoulders. There are speed reduction advisory signs at this location because the current horizontal geometry of SR 80 in this area is not designed to maintain the speed of 45 MPH that is posted for the majority of the route. A head on collision with two (2) injuries occurred in this area.

Curve and Intersection at Defeated Creek Road from LM 3.01 to LM 3.12

This section begins at LM 3.01 and proceeds north to LM 3.12 in Macon County. The typical section for existing SR 80 consists of two (2) ten (10) foot travel lanes and less than one (1) foot to two (2) foot shoulders. There are speed reduction advisory signs at this location because the current horizontal geometry of SR 80 in this area is not designed to maintain the speed of 45 MPH that is posted for the majority of the route. In addition, Defeated Creek Road currently intersects SR 80 at a skew angle resulting in sight distance issues. A right-angle collision occurred at this intersection.



Facing southwest at the intersection of Defeated Creek Road and SR 80

3.7 Utilities

The following represents a listing of known utilities in the study corridor.

Water

Water facilities along the corridor in Smith County are provided by the Cordell Hull Utility District and include:

- Six (6) inch main running on west side of SR 80 from SR 85 to Bishop Hollow Road. A two (2) inch main on Bishop Hollow Road ties into the six (6) inch main.
- Six (6) inch main running on east side of SR 80 just north of Bishop Hollow Road, then switches to west side of SR 80 to just south of Sawmill Lane.
- Six (6) inch main running on east side of SR 80 from just south of Sawmill Lane to Shady Circle. A four (4) inch main on Sloan Branch Road / Little Creek Road ties into the six (6) inch main in the Pleasant Shade community.
- Three (3) inch main running from Shady Circle to just south of Smith-Macon County line.

A representative at the Cordell Hull Utility District indicated that most of the water mains running along SR 80 lie within the creek bed.

Water facilities along the corridor in Macon County are provided by the City of Lafayette, but a representative with the City indicated that they do not have any water lines located within the SR 80 right-of-way.

Sewer

There are no sewer lines located along the corridor.

Septic Systems

As with most rural areas, there are septic systems in place for the treatment of wastewater. In some areas, particularly where homes and businesses are in close proximity to the roadway, septic system fields may be impacted.

Electric

Electric service is provided throughout the corridor by Upper Cumberland Electric Membership Corporation (EMC) in Smith County and Tri-County Electric Membership Corporation (EMC) in Macon County. The majority of the Upper Cumberland EMC lines are within the right-of-way. The Upper Cumberland EMC service extends from the intersection with SR 85 to about one (1) mile north of the Smith-Macon County line. None of the lines are buried, and multiple lines cross over SR 80.

Tri-County EMC also has electric lines along the SR 80 right-of-way. Their lines follow SR 80 and extend from Hesson Ridge Road to the intersection with SR 56/262. Tri-County EMC does not have underground primary lines in the study corridor, but there is a possibility of some underground service lines. There are multiple places where either the overhead primary or overhead secondary lines cross over SR 80.

Telephone and Cable

Telephone and cable service are provided throughout the corridor by North Central Telephone Cooperative. A telephone utility representative indicated that multiple lines and

poles are located within the SR 80 right-of-way. Lines are buried in the Pleasant Shade community. All other lines are on poles within the corridor.

Gas

Natural gas service is provided by the Middle Tennessee Gas Company along the corridor in Smith County and is provided by the City of Lafayette in Macon County. No gas lines are located along SR 80.

3.8 Structures and Bridges

There are nine (9) bridges along the SR 80 corridor in Smith County. These bridges are located at:

- Log Mile 2.580 (Smith Branch)
- Log Mile 3.220 (Unnamed Branch)
- Log Mile 3.770 (Peyton Creek)
- Log Mile 4.630 (Peyton Creek)
- Log Mile 4.900 (Unnamed Branch)
- Log Mile 5.750 (Peyton Creek)
- Log Mile 5.900 (Stone Branch)
- Log Mile 7.000 (Peyton Creek)
- Log Mile 9.360 (Boston Branch)

The current bridge inspection reports provided by TDOT were reviewed. Bridges located at Log Miles 2.580, 3.220, 4.900, and 9.360 have a sufficiency rating of above 80, meaning the bridges are structurally sufficient. The bridges at Log Miles 3.770 and 4.630 were recently replaced in a bridge repair project and have not been rated. If the selected roadway option(s) includes widening at specific bridge locations, then the affected structure(s) will need to be widened or possibly rebuilt to accommodate the roadway widening.

Three bridges at Log Miles 5.750, 5.900, and 7.000 have a rating of 47.8, 69.2, and 54.9, respectively. These ratings support bridge replacement; therefore, these bridges will need to be replaced if they are affected by roadway widening or spot improvements.

On SR 80 in the Smith County portion of the study area, there are culverts currently located at:

- Log Mile 2.720 (branch culvert)
- Log Mile 3.220 (branch culvert)
- Log Mile 5.350 (branch culvert)
- Log Mile 8.900 (branch culvert)

There are no culverts or bridges within the Macon County portion of the SR 80 study corridor. In addition, there are no stop signs or traffic signals located within the corridor on SR 80 in Smith County or Macon County.

4.0 FIELD REVIEW

A stakeholder meeting and field review of the study area were held on December 10, 2009 to gather input that assists in the development of this TPR. Representatives from the Smith County Mayor's office, Macon County Mayor's office, Gordonsville Mayor's office, South Carthage Mayor's office, Carthage Mayor's office, Lafayette Mayor's office, Red Boiling Springs Mayor's office, Smith County Commissioners, Macon County Commissioners, Smith County Officials, Macon County Officials, Dale Hollow RPO, TDOT, and FHWA were invited to attend. A summary of the meeting, including the sign-in sheet, is included in Volume I of the attached Appendices.

The meeting and field review provided a valuable venue for identifying issues, gathering information and recognizing opportunities for collaboration. The meeting consisted of an explanation of the TPR process and the next planning steps, and an overview of project history and background, including previously completed projects. Meeting participants were invited to: comment on the proposed improvement's purpose and need; identify issues and constraints; and offer suggestions for preliminary study corridors and spot improvements.

The purpose and need discussion focused heavily on the need to accommodate the various users within the corridor, including heavy truck traffic (approximately 13% within the area), local traffic, and through traffic. Additional input to the purpose and need included: safety concerns regarding the high volume of heavy truck traffic, curve geometry, and narrow shoulders; fatal, incapacitating injury, and injury crashes along the road; the need for a truck climbing lane in Macon County near the Smith County line; and future business/industrial development. Stakeholders identified issues and constraints in the study area including flooding of areas of SR 80, future expansion of the public water system, a cemetery near Boston Branch, natural gas substation with lines crossing the road near Toney Hollow Lane, possible Civil War sites in the study area and available parking in front of the Pleasant Shade Grocery Store.

Meeting attendees used an aerial photography map and a roadway map to help identify preliminary study corridors and areas for spot improvements in the study area. Possible study corridors and spot improvements were suggested. TDOT staff responded to stakeholder questions and concerns.

Following the stakeholder meeting, attendees were invited to participate in a field review of the study area to visually examine many of the issues and constraints identified during the meeting and to ensure that none had been overlooked. A van carried representatives of TDOT and FHWA through the study area and focused on the potential corridor and areas where spot improvements might occur. Land use, environmental features and other constraints were noted.

5.0 PURPOSE AND NEED

5.1 Purpose

The purpose of the proposed improvements for the study corridor has been determined as follows:

- To promote safer operations and
- Improve geometric deficiencies.

The Dale Hollow RPO indicated that this corridor was a priority and requested TDOT to conduct additional studies to determine the viability of improvements and long-term needs for the corridor. The TDOT Long Range Planning Division developed a Preliminary Purpose and Needs Statement (included in Volume II of the Appendices) and recommended a TPR for the segment of SR 80 from SR 85 in Smith County to SR 56/262 in Macon County. The report indicated that the study corridor currently has both geometric and safety issues.

5.2 Need

The primary needs for improvements to this segment of SR 80 are to promote safer operations and improve geometric deficiencies. Based on initial findings, as documented in Section 6.0 of this TPR, there are multiple areas of concern along the route that merit additional consideration. A review of the corridor indicates that along a majority of the study route, lane and shoulder widths are deficient, and many areas have less than recommended clear zones.

5.2.1 Safety

Two (2) of the three (3) segments along the SR 80 corridor exceed the statewide average of 1.6519. The actual rates for the three (3) segments starting at SR 85 and ending at SR 56/262 are 2.343, 1.132, and 3.246, respectively. The first segment of Defeated Creek Highway (SR 85) to Little Creek Road had twenty-two (22) documented crashes resulting in thirteen (13) injuries. There were four (4) documented crashes resulting in a single fatality and one (1) injury from Little Creek Road to Smith/Macon County Line. The last segment of SR 80 from the Smith/Macon County Line to Willette Road/Jennings Creek Road (SR 56/262) had ten (10) documented crashes resulting in four (4) injuries.

The stakeholders and local officials have indicated that they and the public feel that safety is an issue along the existing route, primarily due to several crashes along the corridor, the geometric deficiencies, and the volume of heavy trucks (approximately 13 percent) along the route.

5.2.2 Roadway Deficiencies

Existing SR 80 does not meet current TDOT design standards for lane and shoulder widths throughout the majority of the corridor. The corridor has shoulders ranging from less than one (1) foot to eight (8) feet. This is particularly valid in the portion of the road from Kemp Hollow Lane to Nixon Hollow Lane with the rock cut on one side and a steep

slope down to Peyton Creek on the other. Lane widths range from ten (10) to eleven (11) feet. In addition, there is poor vertical and horizontal sight distance at several locations along the roadway.

5.2.3 Other Needs Considered

The following is a list of items that were considered in the explanation of the need for the proposed action.

System Linkage - SR 80 is a primary north-south connector in both Smith and Macon Counties. It serves as a critical link between Carthage and Red Boiling Springs, as well as the adjacent areas of Smith and Macon Counties. An upgraded SR 80 will improve the linkage to the existing regional transportation system. However, this is not considered a need because the system linkage currently exists.

Capacity – The capacity of SR 80 is adequate for present and projected traffic. The LOS for the roadway section through Pleasant Shade will be improved to LOS D with the proposed improvement.

Transportation Demand – Not Applicable

Legislation – There are no Federal, State or local mandates for this improvement.

Social Demands or Economic Development – There are no known economic development/land use changes indicating the need to improve or add capacity to SR 80. However, improving SR 80 would make the connector route more appealing for development, as access to Red Boiling Springs, Carthage, and local industrial facilities would be improved through a safer, upgraded roadway. This corridor is a desired expansion area for Macon and Smith Counties, and with the abundance of undeveloped land in the corridor, it could accommodate area growth and economic development.

Modal Interrelationships – Not Applicable

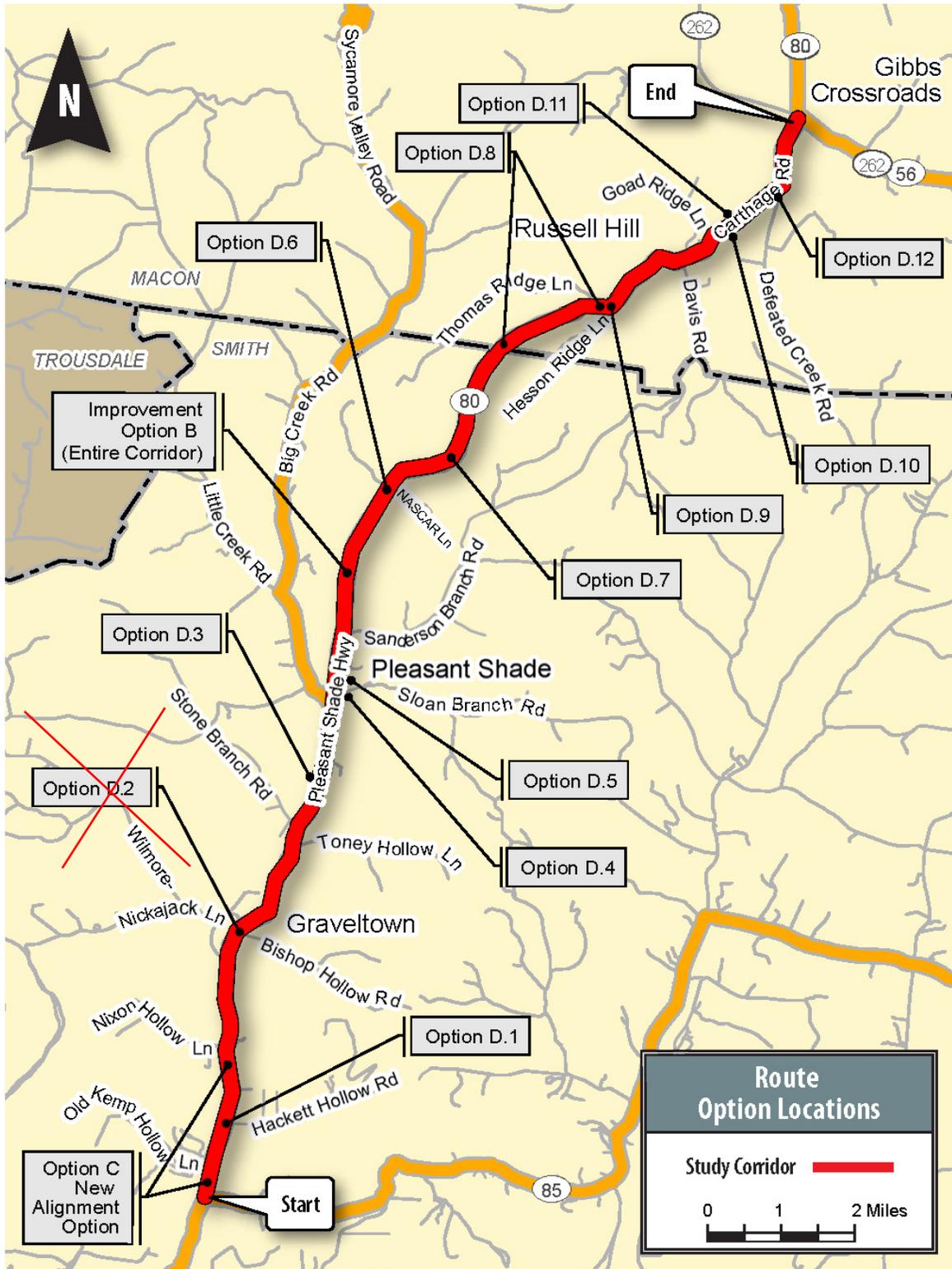
6.0 OPTIONS

6.1 Route Improvement Option Discussion

This report examines operational and safety improvement options along the corridor. These options evaluate opportunities for meeting the safety needs and correcting roadway deficiencies as outlined in Section 5.0 of this TPR. Figure 5 represents route improvement option locations throughout the corridor. The options examined are summarized below:

- **Option A - No-Build:** This option assumes no modifications or improvements will be made over the planning horizon to add capacity. Analysis of projected traffic volumes supports this. Routine maintenance related activities as well as scheduled resurfacing, signing, and possible safety projects may occur. This option, however, does not support the project's stated Purpose and Need for providing a transportation facility to enhance mobility, support economic development and improve safety.
- **Option B - Two (2) Lane Reconstruction:** This option seeks to improve existing lane and shoulder widths, along with correcting deficient horizontal and vertical geometry along the entire corridor. A truck climbing lane on northbound SR 80 from LM 0.06 to LM 1.22 in Macon County is also included in Option B due to the steep uphill grade through this section.
- **Option C – New Alignment:** This option relocates a 0.74-mile section of SR 80. This option bypasses a section of existing SR 80 with substandard clear zone and constructability issues due to the creek and rock embankment in close proximity to the travel lane on each side of the road. The new location begins north of the Hubbard Lane intersection and ends south of the Nixon Hollow Lane intersection. This option can be combined with Option B.
- **Option D – Spot Improvements:** Twelve (12) potential locations for spot improvements can be implemented independently or in combination as an overall improvement strategy along the corridor as discussed in Section 6.4.2, Improvement Options.

Figure 5: Route Option Locations



Option D.2 has been completed and is on the ground as of 9/2011.

6.2 Cross-Section Discussion

Capacity analysis for the 25 year planning horizon indicated that suitable capacity exists on the current two (2) lane facility and additional through lanes are not necessary to accommodate future forecasted traffic conditions. Therefore, the proposed cross-section for SR 80 would widen to one (1) twelve (12) foot travel lane in each direction from the beginning of the study area to LM 7.0, Little Creek Road. The shoulders would be widened to a standard ten (10) foot width with eight (8) feet of that being paved from the beginning of the study area to LM 7.0, Little Creek Road. The AADT for SR 80 from Little Creek Road to the end of the study area is below the criteria requiring twelve (12) foot travel lanes and ten (10) foot shoulders for both the 2010 and 2030 traffic data. Based on the guidelines shown on TDOT Standard Roadway Drawing RD01-TS-3, the proposed cross section is one (1) eleven (11) foot travel lane in each direction from Little Creek Road to the end of the study area with an eight (8) foot shoulder width with six (6) feet of that being paved (reference Typical Sections and Plan Sheets at the end of Section 10). The typical ditch slopes would be 3:1 to minimize additional right-of-way and/or easement. This would also minimize impacts to existing utilities and sensitive areas. Some areas of the roadway widening east of SR 80 would require excavation of the rock bluff.

6.3 Pedestrian and Bicycles

The proposed cross-section will have accommodations to share the road with bicycles. The minimum paved shoulder is ten (10) feet wide from the beginning of the study area to LM 7.0, Little Creek Road, and eight (8) feet wide from Little Creek Road to the end of the study area. This is adequate for bicycle and pedestrian use. Signing the road for bicycle use should be considered. The addition of sidewalks is not necessary because of the sparse building density and lack of walkable destinations.

6.4 Options Analyzed

6.4.1 No-Build (Option A)

The No-Build option assumes no modifications or improvements will be made over the planning horizon to add capacity. Analysis of projected traffic volumes supports this. Routine maintenance related activities as well as scheduled resurfacing, signing, and possible safety projects may occur. This option, however, does not support the project's stated Purpose and Need for providing a transportation facility to enhance mobility, support economic development and improve safety.

6.4.2 Improvement Options

Option B - Two (2) Lane Reconstruction *(Continuous throughout route except the area covered by the previous project from Bishop Hollow Road to Toney Hollow Lane)*

This option proposes to improve the entire SR 80 corridor from SR 85 to SR 56/262 in Smith and Macon Counties (see Concept Plans located in Volume I of the Appendices). This option seeks to improve existing lane and shoulder widths along with horizontal and vertical geometry to meet the design speed along the entire corridor. The proposed typical section for this consists of two (2) twelve (12) foot travel lanes, two (2) ten (10) foot shoulders [eight (8) foot stabilized] from the start of the study area to LM 7.0 (Little

Creek Road) and two (2) eleven (11) foot travel lanes, two (2) eight (8) foot shoulders [six (6) foot stabilized] from the Little Creek Road to the end of the study area. Roadside geometry is consistent with the typical section shown in the Concept Plans following Section 10. Additional right-of-way will be required and rock bluff excavation will be necessary. The estimated cost for this option is \$37,453,607. Included in this option are improvements to curves and intersections where indicated for spot improvements. Estimated right-of-way required for this option is 87.6 acres.

A truck climbing lane from LM 0.06 to LM 1.22 in Macon County is also included in Option B because of the heavy trucks (approximately 13 percent) that use SR 80. The proposed typical section is two (2) eleven (11) foot travel lanes, one (1) twelve (12) foot truck climbing lane, two (2) eight (8) foot shoulders [six (6) foot stabilize] for the 1.19-mile segment. The estimated cost of the truck climbing lane is included in the total estimated cost for Option B.

Option C (New Alignment) – From Kemp Hollow Lane to South of the Bridge over Peyton Creek at LM 3.77 (LM 2.88 to 3.62)

Relocate a section of SR 80 beginning at Kemp Hollow Lane and extending to the south of the bridge over Peyton Creek at LM 3.77, a distance of approximately 0.74 miles. This new alignment would consist of two (2) 12 foot lanes with ten (10) foot shoulders, eight (8) foot stabilized. The proposed route passes to the west of the existing roadway and Peyton Creek, avoiding substantial rock cuts. Environmental issues, such as potential stream crossings should be studied further if this option is advanced. There are no existing utilities within this new location option. See the plans located In Volume I of the Appendices for Option C (New Alignment). The estimated cost for this option is \$6,932,365. Estimated right-of-way required for this option is 43.45 acres.

Option C, if constructed in conjunction with Option B, will eliminate Spot Improvement Option D.1. The total of Option B - Widening Entire Corridor with the New Alignment Option C is approximately \$41,885,607.

New utilities may be installed along the new route as construction progresses or can be maintained along the existing SR 80 alignment. The existing SR 80 alignment would remain as it accesses a number of residences. Typically, ownership of the existing route would be turned over to the local government who will be responsible for all future maintenance of the bypassed section of the existing route.

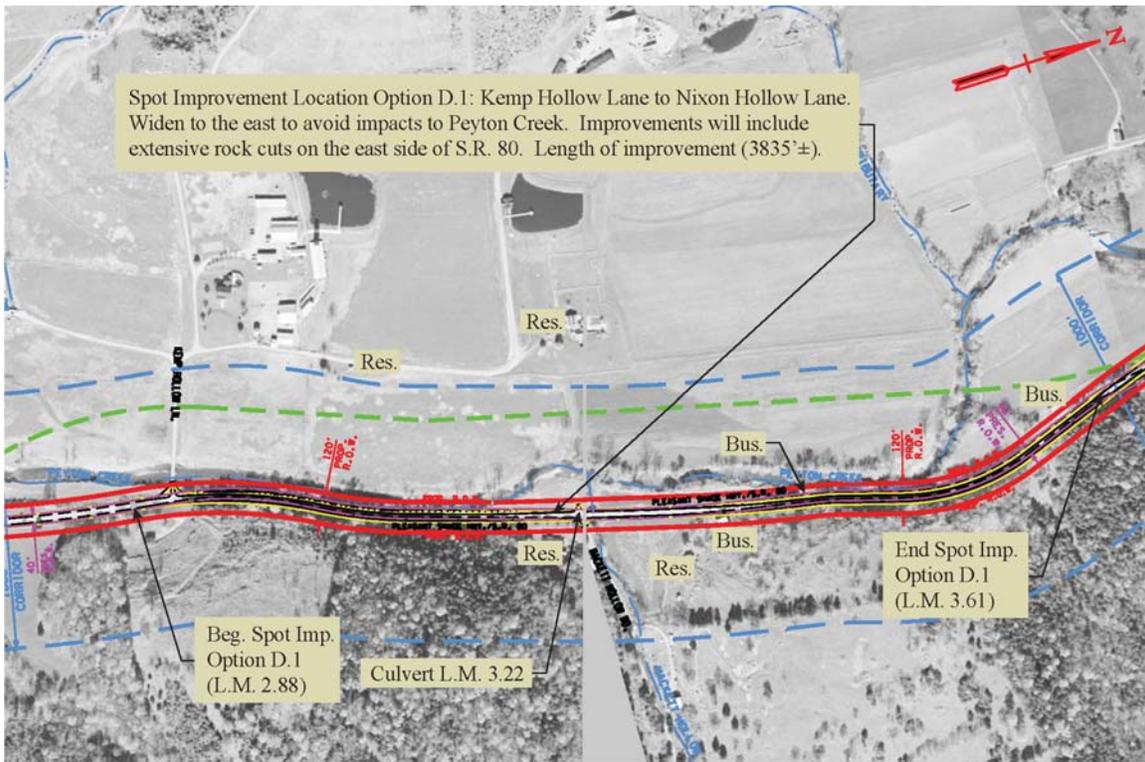
Option D - Spot Improvements Option

There are twelve (12) spot improvements that are being considered for safety improvements.

Option D.1: From Kemp Hollow Lane to South of the Bridge over Peyton Creek at LM 3.77 (LM 2.88 to LM 3.61)

This option considers improving lane and shoulder widths from Kemp Hollow Lane to south of the bridge over Peyton Creek at LM 3.77. For this improvement, SR 80 will be widened to the east of the existing alignment and ten (10) foot shoulders added as per the typical section shown in Volume I of the Appendices. The majority of the roadway widening occurs east of SR 80 away from the creek and will require excavation of the rock bluff. Three (3) crashes into the bluff have occurred in this area due to the close proximity of the bluff to the roadway. The estimated cost for this option is \$2,767,794 (see Volume I of the Appendices for preliminary Cost Estimate Spreadsheet). Estimated right-of-way required for this option is 7.1 acres.

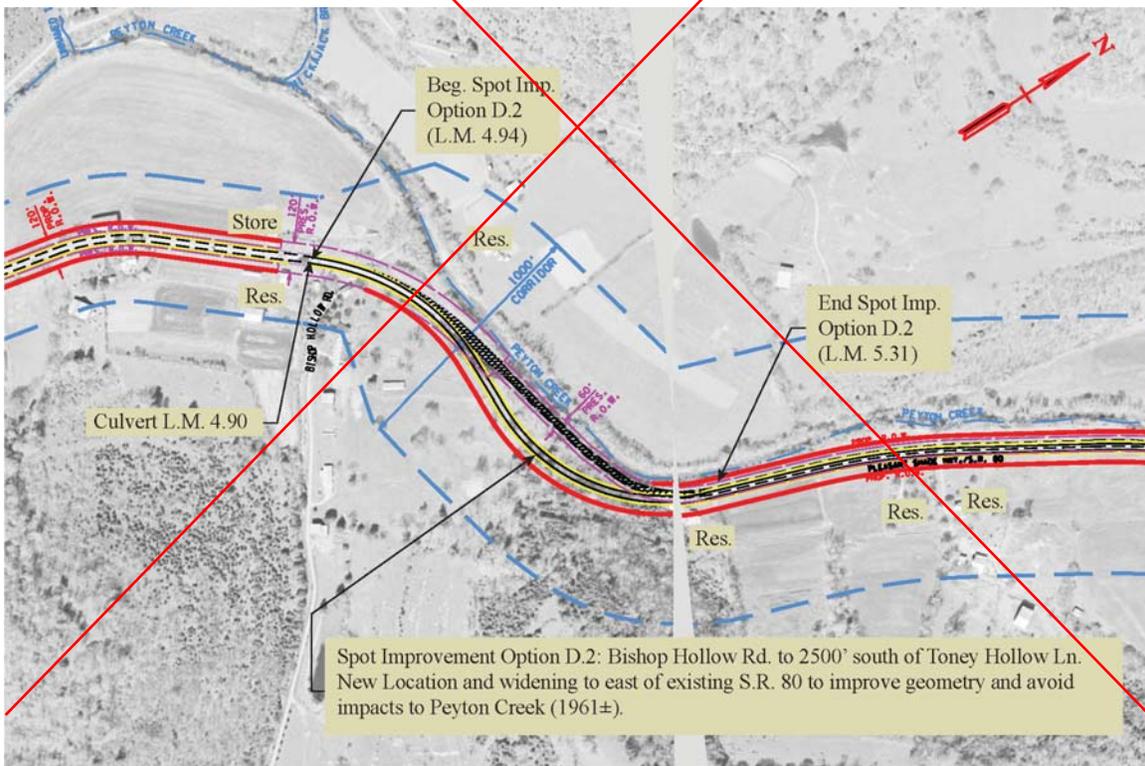
Figure 6: Spot Improvement Option D.1 (LM 2.88 to LM 3.61)



Option D.2: From Bishop Hollow Road to 2500 feet South of Toney Hollow Lane from LM 4.94 to LM 5.31 (Options 2A & 2B)

This option includes a combination of widening the existing roadway with some areas of re-alignment to meet the design speed. This improvement will correct horizontal geometric deficiencies and sight distance deficiencies. The proposed typical section for this option would consist of two (2) twelve (12) foot travel lanes; two (2) ten (10) foot shoulders, eight (8) foot stabilized, and roadside geometry (including rock cuts) consistent with the typical section shown in Volume I of the Appendices. The majority of the roadway widening would be to the east of SR 80 and would require excavation of the bluff. The length for this improvement is 0.37 mile. The estimated cost for this option is \$3,438,842. Estimated right-of-way required for this option is 3.2 acres.

Figure 7: Spot Improvement Option D.2 (LM 4.94 to LM 5.31)

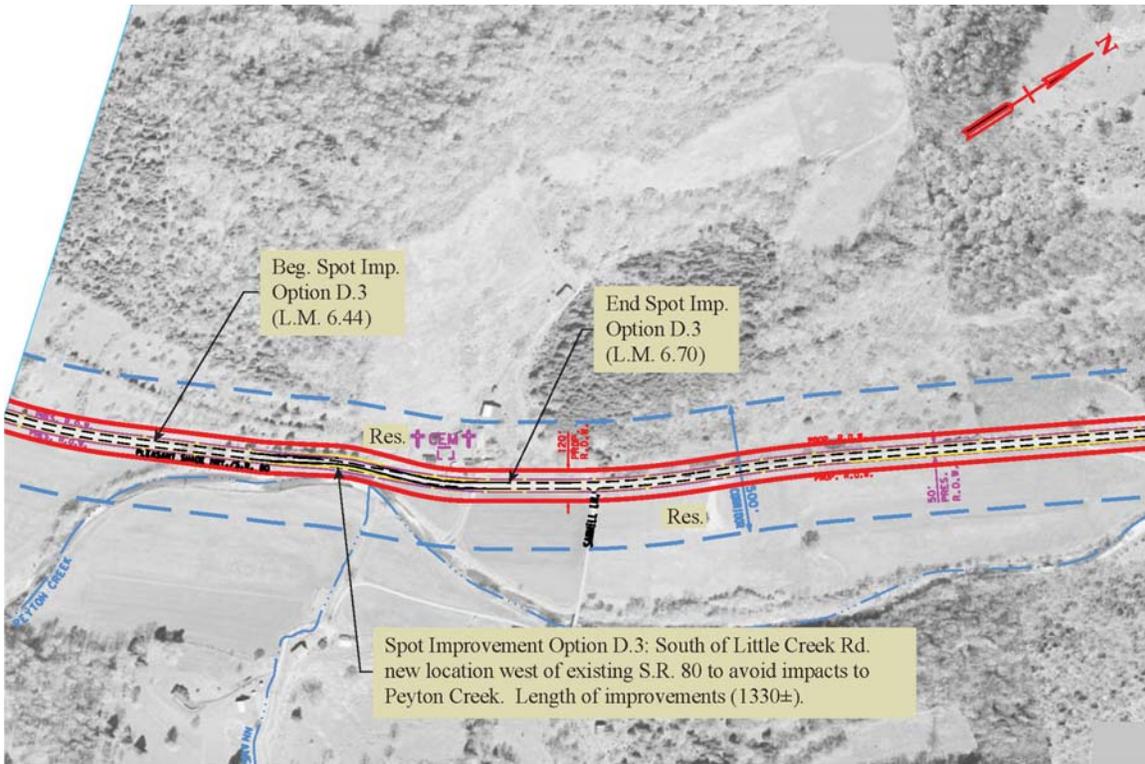


This spot improvement has been completed as of 9/2011.

Option D.3: Section of SR 80 South of Sawmill Lane from LM 6.44 to LM 6.70

This option proposes a re-aligned SR 80 as shown on Figure 8 to avoid impacts to Peyton Creek. In addition, the installation of guardrail in this roadway cross section is required per TDOT standards. The proposed typical section for this option would consist of two (2) twelve (12) foot travel lanes; two (2) ten (10) foot shoulders, eight (8) foot stabilized, and roadside geometry consistent with the typical section shown in Volume I of the Appendices. The length of the proposed improvement is approximately 0.26 mile. The estimated cost for this option is \$827,188. Estimated right-of-way required for this option is 2.1 acres.

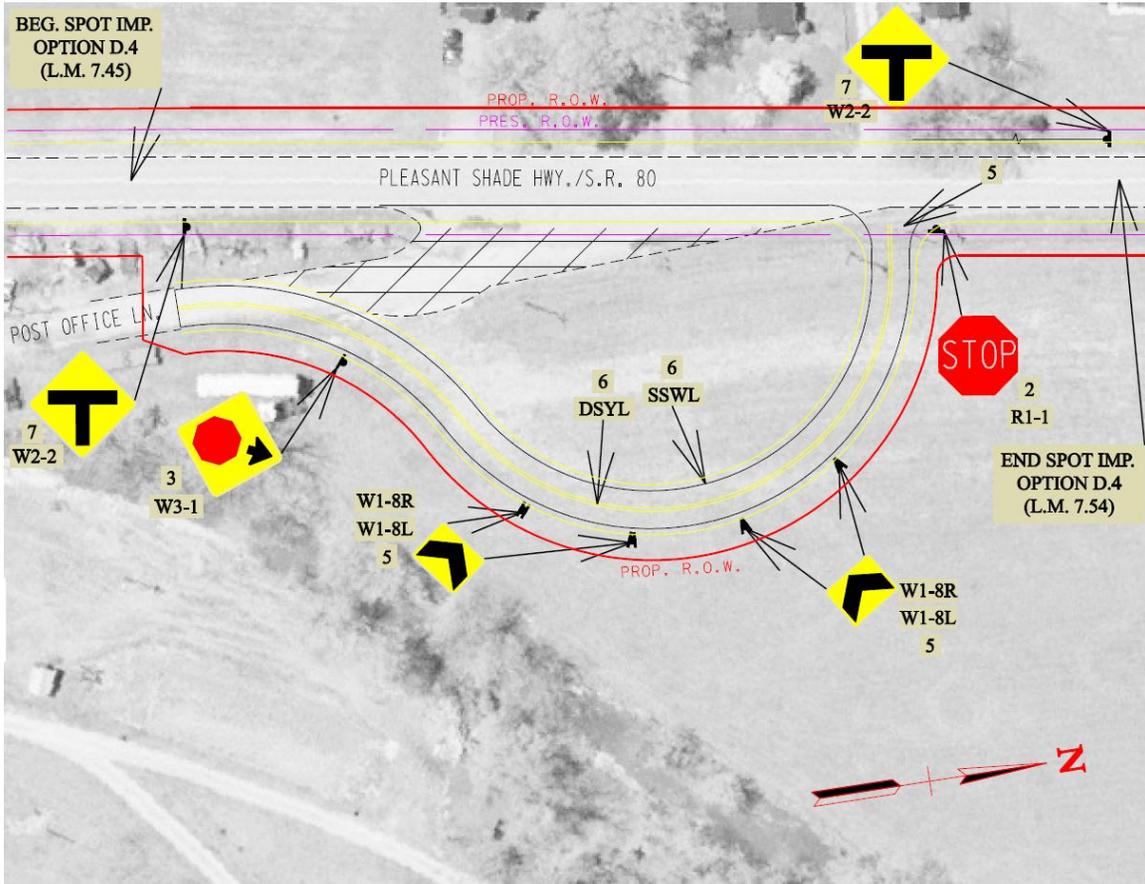
Figure 8: Spot Improvement Option D.3 (LM 6.44 to LM 6.70)



Spot Improvement Option D.4: Post Office Lane Intersection from LM 7.45 to LM 7.54

This option proposes to re-align Post Office Lane to intersect SR 80 at a "T" type intersection, for increased sight distance, as depicted in Figure 9. The estimated cost for this option is \$207,362. Estimated right-of-way required for this option is 1.0 acre.

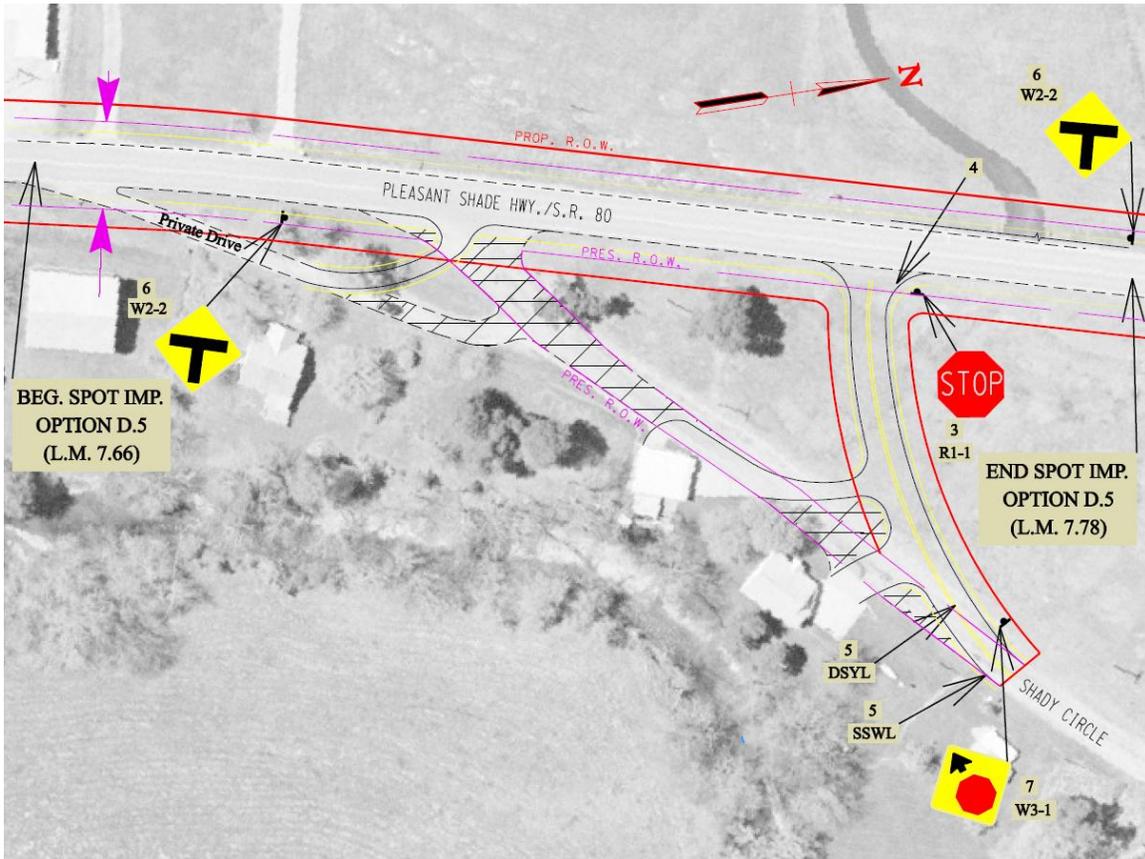
Figure 9: Spot Improvement Option D.4 (LM 7.45 to LM 7.54)



Spot Improvement Option D.5: Shady Circle Intersection from LM 7.66 to LM 7.78

The Shady Circle alignment should be adjusted to intersect SR 80 at a “T” type intersection, for increased sight distance, as shown on Figure 10. The estimated cost for this option is \$184,798. Estimated right-of-way required for this option is 0.9 acre.

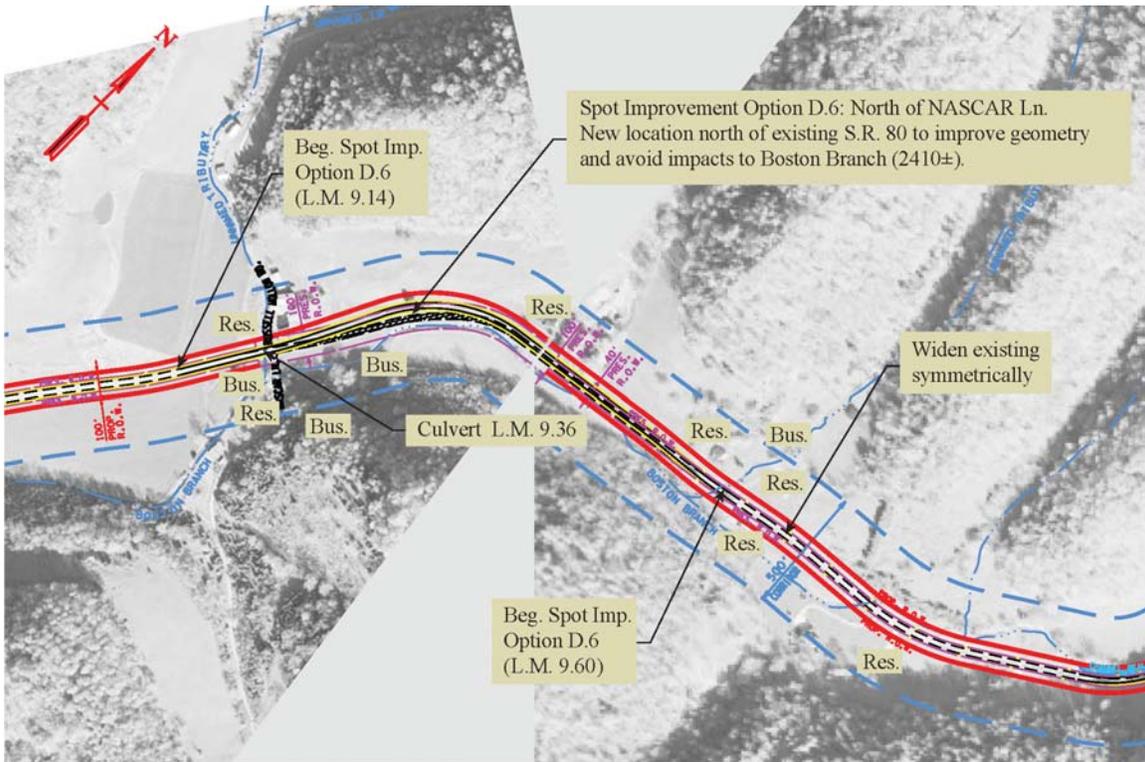
Figure 10: Spot Improvement Option D.5 (LM 7.66 to LM 7.78)



Spot Improvement Option D.6: Section of SR 80 North of Nascar Lane from LM 9.14 to LM 9.60

This option considers a combination of widening the existing roadway with some areas of re-alignment. The proposed typical section for this option consists of two (2) eleven (11) foot travel lanes; two (2) eight (8) foot shoulders, [six (6) foot stabilized], and roadside geometry consistent with the typical section shown in Volume I of the Appendices. To avoid impacts to Boston Branch, a re-alignment as shown on Figure 11 will be required. The length of this option is approximately 0.46 mile. The estimated cost for Spot Improvement Option D.6 is \$1,784,588. Estimated right-of-way required for this option is 2.3 acres.

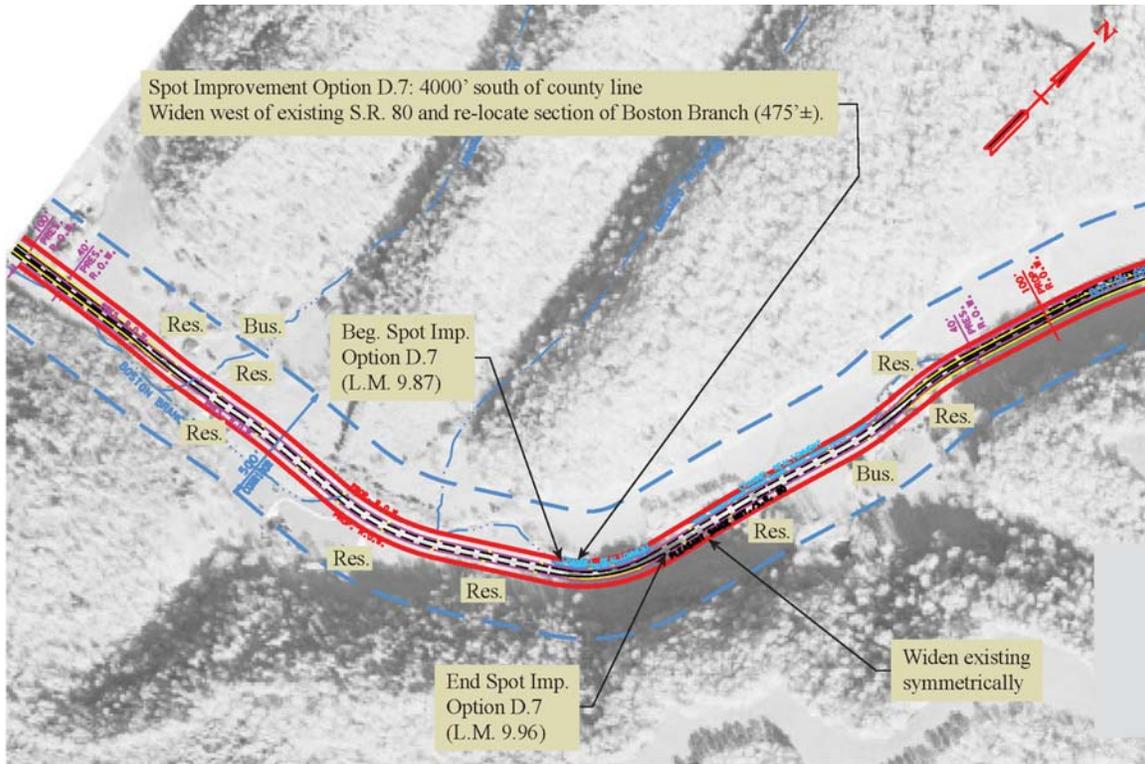
Figure 11: Spot Improvement Option D.6 (LM 9.14 to LM 9.60)



Spot Improvement Option D.7: Section of SR 80 South of County Line from LM 9.87 to LM 9.96

This option considers a combination of widening the existing road and some realignment. The proposed typical section consists of two (2) eleven (11) foot travel lanes; two (2) eight (8) foot shoulders, [six (6) foot stabilized], and roadside geometry consistent with the typical section shown in the Concept Plans located in Volume I of the Appendices. A portion of Boston Branch will require relocation. The length of these improvements is approximately 475 feet as shown in Figure 12. The estimated cost for this option is \$264,344. Estimated right-of-way required for this option is 0.6 acre.

Figure 12: Spot Improvement Option D.7 (LM 9.87 to LM 9.96)



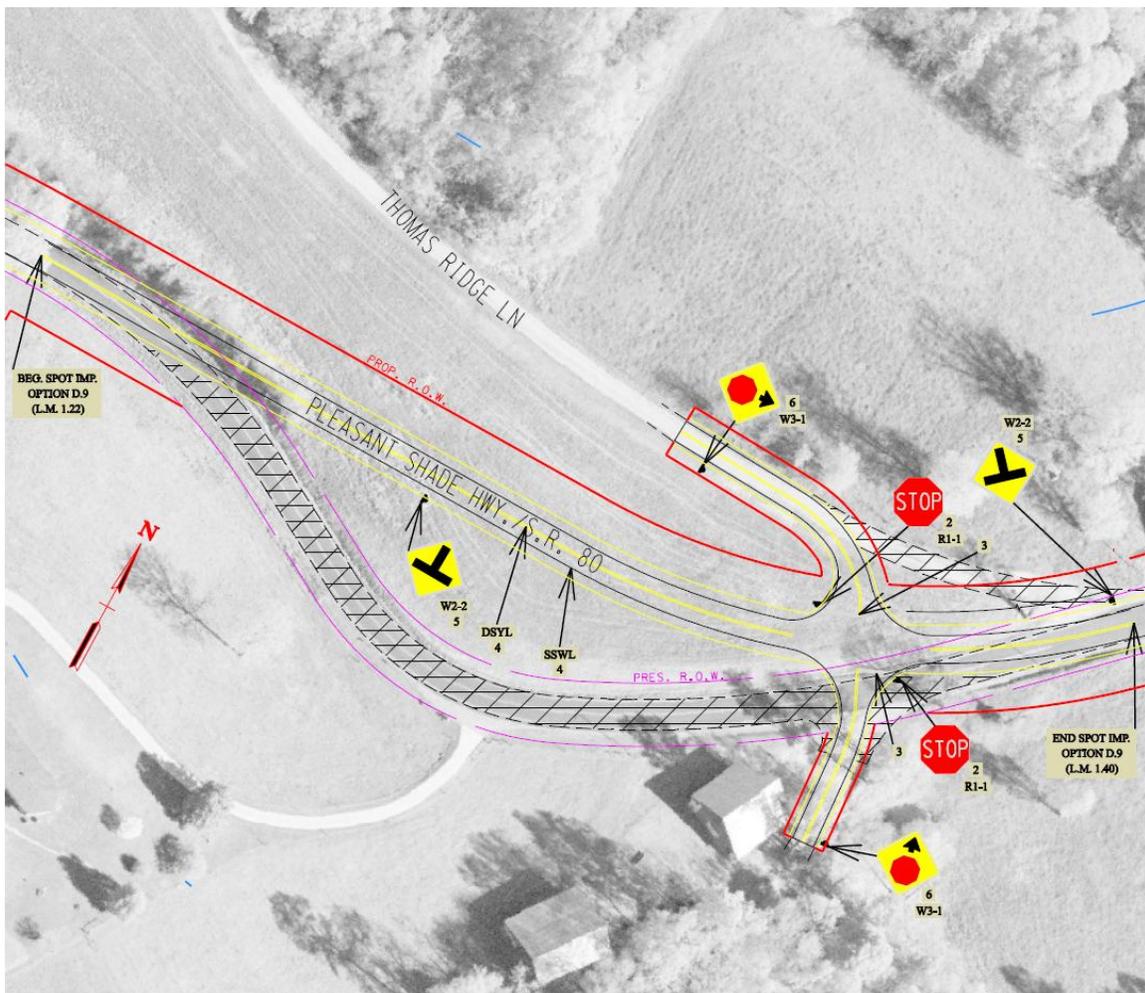
Spot Improvement Option D.8: Truck Climbing Lane North of County Line from LM 0.06 to LM 1.22

A truck climbing lane from LM 0.06 to LM 1.22 in Macon County is being considered because of the heavy trucks (approximately 13 percent) that use SR 80. The proposed typical section is two (2) eleven (11) foot travel lanes, one (1) twelve (12) foot truck climbing lane, two (2) eight (8) foot shoulders [six (6) foot stabilize] for the 1.19-mile segment. See Appendix, Volume 1 for location of truck climbing lane depicted on Concept Layouts on Sheets 10 and 11. The estimated cost for this option is \$1,713,866. Estimated right-of-way required for this option is 20 acres.

Spot Improvement Option D.9: Intersection of SR 80 and Hesson Ridge Road from LM 1.22 to LM 1.40

Three (3) crashes with two (2) injuries due to lane departure occurred on the sharp curve. This option considers removing the reverse curve and adjusting vertical alignment as indicated in Figure 13. Additional consideration will be given to realigning the two (2) side road connections so that they intersect SR 80 at the same location. The proposed typical section consists of two (2) eleven (11) foot travel lanes; two (2) eight (8) foot shoulders [six (6) foot stabilized] and roadside geometry consistent with the typical section shown in the Concept Plans located in Volume I of the Appendices. The length of these improvements is approximately 950 feet. The estimated cost for this option is \$915,141. Estimated right-of-way required for this option is 87.6 acres.

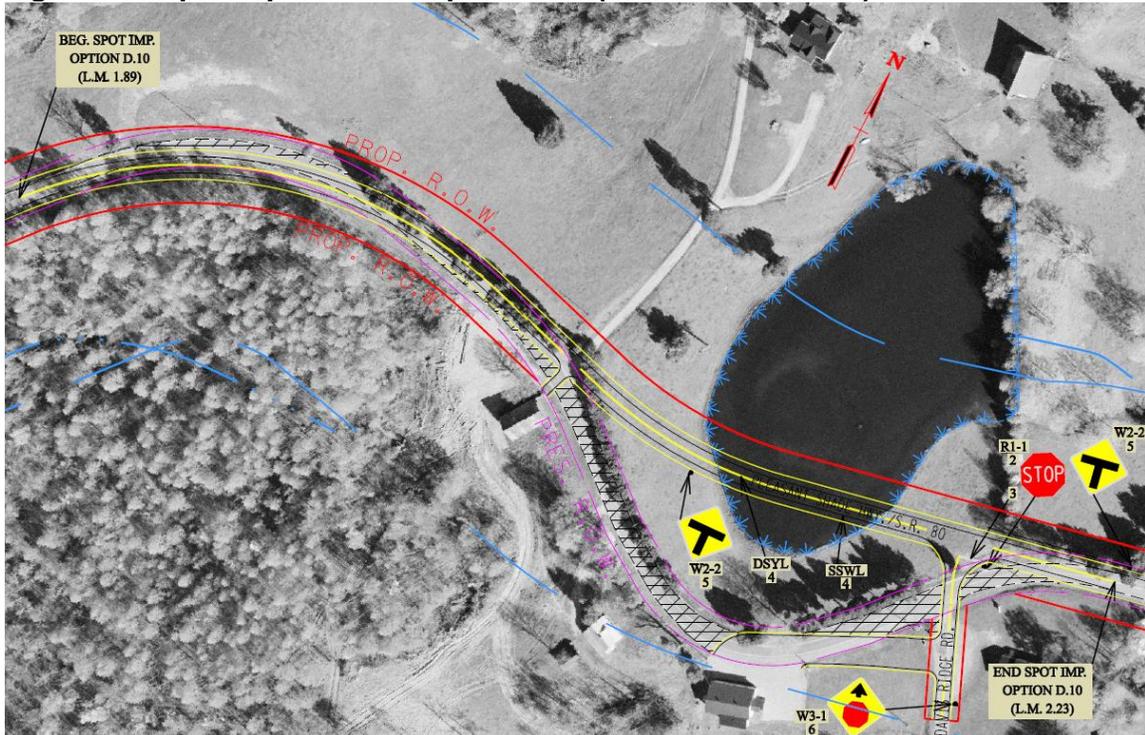
Figure 13: Spot Improvement Option D.9 (LM 1.22 to LM 1.40)



Spot Improvement Option D.10: SR 80 Davis Ridge Road Area from LM 1.89 to LM 2.23

A crash with two (2) injuries due to lane departure occurred on the sharp curves in this area. In order to minimize the potential safety issues associated with the current configuration, these curves need to be flattened. A farm pond is located north of SR 80 within the curve. Improvements to SR 80 will include filling a portion of the southwestern end of the pond. The proposed typical section consists of two (2) eleven (11) foot travel lanes; two (2) eight (8) foot shoulders, six (6) foot stabilized, and roadside geometry consistent with the typical section shown in Volume I of the Appendices. The length of these improvements is approximately 1,795 feet. The estimated cost for this option is \$1,062,837. Estimated right-of-way required for this option is 3.4 acres.

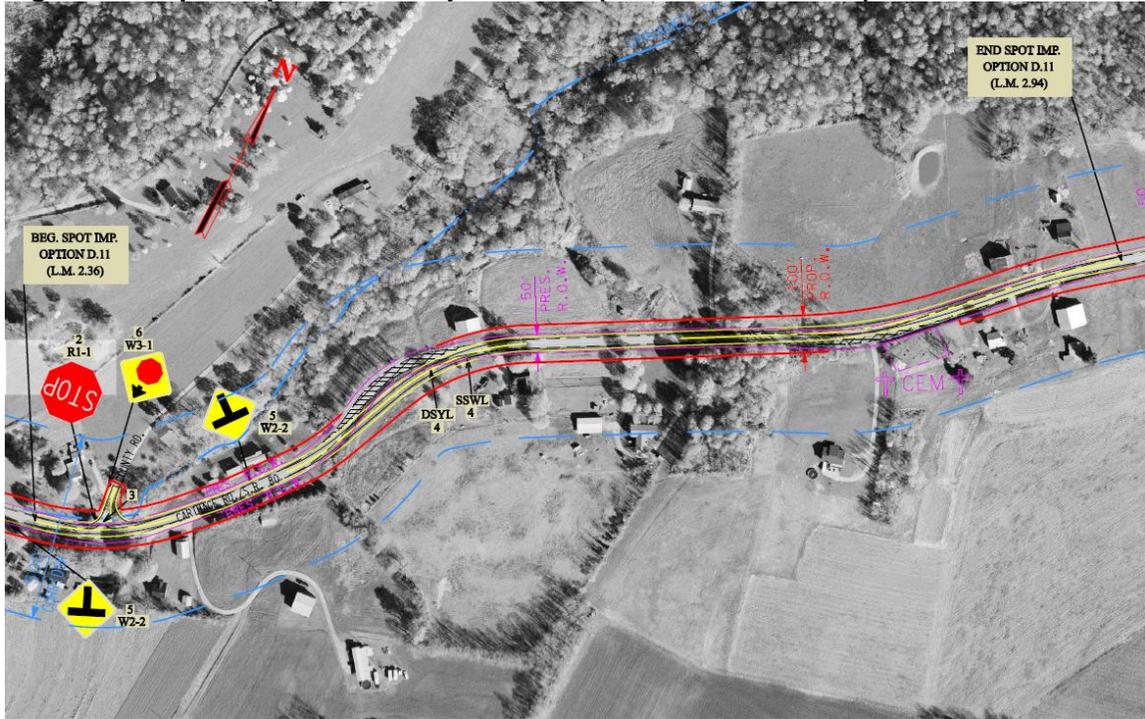
Figure 14: Spot Improvement Option D.10 (LM 1.89 to LM 2.23)



Spot Improvement Option D.11: North of Goad Ridge Road from LM 2.36 to LM 2.94

This option considers widening portions of the existing roadway with some areas of realignment. It takes into consideration a cemetery located south of SR 80; all widening will be to the north. The proposed typical section for this option consists of two (2) eleven (11) foot travel lanes; two (2) eight (8) foot shoulders, six (6) foot stabilized, and roadside geometry consistent with the typical section shown in the Concept Plans located in Volume I of the Appendices. To avoid impacts to Boston Branch some realignment as shown on Figure 15 will be required. The length of this option is approximately 3,063 feet. The estimated cost for Spot Improvement Option D.10 is \$1,438,595. Estimated right-of-way required for this option is 3.7 acres.

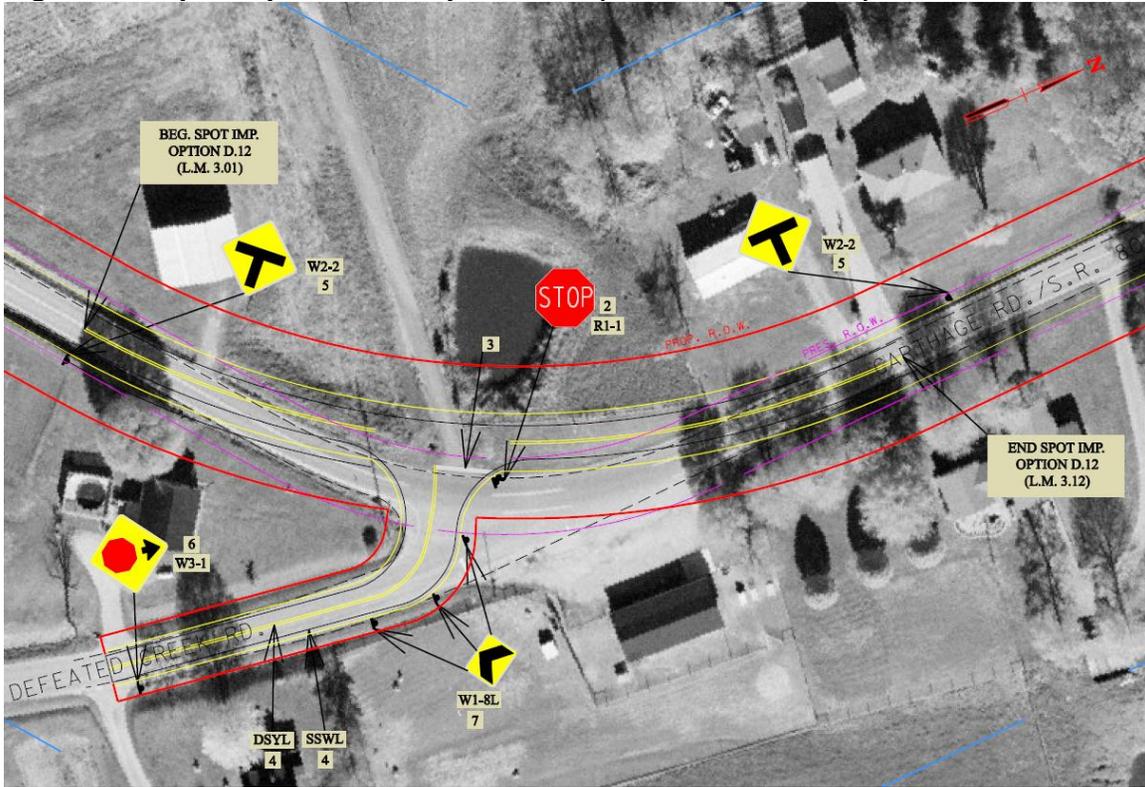
Figure 15: Spot Improvement Option D.11 (LM 2.36 to LM 2.94)



Spot Improvement Option D.12: Defeated Creek Road Intersection from LM 3.01 to LM 3.12

This option considers improvements to the curve to meet current standards for the design speed. In addition, the alignment of Defeated Creek Road should be adjusted to intersect SR 80 at a “T” type intersection in the center of the curve for increased sight distance. Improvements to SR 80 in the area will impact a small farm pond on the west side of the roadway (see Figure 16). The estimated cost for this option is \$269,253. Estimated right-of-way required for this option is 0.9 acre.

Figure 16: Spot Improvement Option D.12 (LM 3.01 to LM 3.12)



6.5 Estimated Costs of Improvements

Cost estimates are provided for Option B – Two (2) Lane Reconstruction and the eleven (12) spot improvements. The cost estimate for Option B is \$37,453,607. The total cost estimate for all spot improvements is \$14,874,608. There is also an option for an approximately 0.74 mile section to be relocated and this is referred to as “New Alignment Option C”. The cost estimate for the New Alignment - Option C is \$6,932,365.

Planning level cost estimates for each of the options is summarized in Table 8. For estimating future costs, a compound inflation rate of ten (10) percent per year should be applied from the date of the estimate.

Detailed preliminary cost estimates are included in Volume I of the Appendices.

Table 8: Planning Level Cost Estimates for Two (2) Lane Reconstruction – Options B, Option C - New Alignment and Option D - Spot Improvement Options D.1 – D.6

	Option B –Two (2) Lane Reconstruction	Option C – New Alignment***	Spot Improvement Option D.1	Spot Improvement Option D.2	Spot Improvement Option D.3	Spot Improvement Option D.4	Spot Improvement Option D.5	Spot Improvement Option D.6
Right-of-Way	\$2,250,900	\$243,450	\$419,525	\$158,800	\$5,775	\$2,750	\$2,475	\$356,325
Construction*	\$19,647,059	\$5,224,355	\$1,347,998	\$2,278,353	\$474,623	\$92,286	\$74,743	\$807,869
Utilities	\$8,678,440	\$64,700	\$527,060	\$324,900	\$180,500	\$72,200	\$72,200	\$332,120
Mobilization	\$767,647	\$238,974	\$65,660	\$107,526	\$23,731	\$4,614	\$3,737	\$40,393
Contingency	\$2,909,315	\$552,803	\$194,072	\$271,078	\$67,885	\$16,910	\$15,068	\$118,038
Total Construction	\$32,002,461	\$6,080,832	\$2,134,790	\$2,981,857	\$746,739	\$186,011	\$165,748	\$1,298,421
Preliminary Engineering	\$3,200,246	\$608,083	\$213,479	\$298,186	\$74,674	\$18,601	\$16,575	\$129,842
TOTAL COST**	\$37,453,607	\$6,932,365	\$2,767,794	\$3,438,842	\$827,188	\$207,362	\$184,798	\$1,784,588

* Erosion Control Costs are included as part of the Construction Cost

** For estimating future project costs, a compounded inflation rate of 10 percent per year will be applied from the date of this estimate.

*** Option C, if constructed in conjunction with Option B, will eliminate Spot Improvement Option D.1. The total of Option B - Widening Entire Corridor with the New Alignment Option C to is approximately \$41,885,607.

Note: Detailed estimates are located in Volume I of the Appendices.

Table 8 (con't): Planning Level Cost Estimates for Option D - Spot Improvement Options D.7 – D.12 and a Total Cost of All Spot Improvements

	Spot Improvement Option D.7	Spot Improvement Option D.8	Spot Improvement Option D.9	Spot Improvement Option D.10	Spot Improvement Option D.11	Spot Improvement Option D.12	Total of All Spot Improvements
Right-of-Way	\$1,650	\$55,000	\$206,050	\$9,350	\$160,175	\$2,475	\$1,380,350
Construction*	\$138,002	\$1,037,108	\$386,215	\$595,400	\$607,415	\$148,360	\$7,988,372
Utilities	\$72,200	\$282,000	\$180,500	\$245,480	\$418,760	\$64,700	\$2,772,620
Mobilization	\$6,900	\$51,855	\$19,311	\$29,770	\$30,371	\$7,418	\$391,286
Contingency	\$21,710	\$137,096	\$58,603	\$87,065	\$105,655	\$22,048	\$1,115,228
Total Construction	\$238,813	\$1,508,060	\$644,628	\$957,715	\$1,162,200	\$242,526	\$12,267,508
Preliminary Engineering	\$23,881	\$150,806	\$64,463	\$95,772	\$116,220	\$24,253	\$1,226,752
TOTAL COST**	\$264,344	\$1,713,866	\$915,141	\$1,062,837	\$1,438,595	\$269,253	\$14,874,608

* Erosion Control Costs are included as part of the Construction Cost

** For estimating future project costs, a compounded inflation rate of 10 percent per year will be applied from the date of this estimate.

Note: Detailed estimates are located in Volume I of the Appendices.

New total cost following removal of D.2 is \$11,435,766.

6.6 Recommended Priority of Spot Improvements

To prioritize improvements, each improvement was evaluated in relationship to promoting safer operations and improving geometric deficiencies. The following is the suggested order of improvements:

1. **Spot Improvement Option D.12 (Defeated Creek Road Intersection, LM 3.01 to LM 3.12):** This improvement requires minimal work to implement; it promotes safer operations, has a relatively low cost, and can be implemented in a short amount of time. The estimated cost for this option is \$269,253.
2. **Spot Improvement Option D.9 (Intersection of SR 80 and Hesson Ridge Road, LM 1.22 to LM 1.40):** This improvement requires minimal work to implement; it promotes safer operations, and has a moderate cost. The estimated cost for this option is \$915,141.
3. **Spot Improvement Option D.10 (SR 80 Davis Ridge Road Area, LM 1.89 to LM 2.23):** This improvement addresses an area where crashes have historically occurred; it will promote safer operations and improve geometric deficiencies. The estimated cost for this option is \$1,062,837.
4. **Spot Improvement Option D.7 (Section of SR 80 4000 feet South of County Line, LM 9.87 to LM 9.96):** This improvement addresses an area where crashes have historically occurred; it will promote safer operations and improve geometric deficiencies. The estimated cost for this option is \$264,344.
5. **Spot Improvement Option D.3 (Section of SR 80 South of Sawmill Lane, LM 6.44 to LM 6.70):** This improvement addresses an area where crashes have historically occurred; it will promote safer operations and improve geometric deficiencies. The estimated cost for this option is \$827,188.
6. **Spot Improvement Option D.11 (North of Goad Ridge Road, LM 2.36 to LM 2.94):** This improvement addresses an area where crashes have historically occurred; it will promote safer operations and improve geometric deficiencies. The estimated cost for this option is \$1,438,595.
7. **Spot Improvement Option D.6 (Section of SR 80 North of Nascar Lane, LM 9.14 to LM 9.60):** This improvement will promote safer operations and improve geometric deficiencies. The estimated cost for this option is \$1,784,588.
8. **Spot Improvement Option D.5 (Shady Circle Intersection, LM 9.66 to LM 7.78):** This improvement will promote safer operations. It will improve geometric deficiencies on Shady Circle but will have minimal improvement to the geometric deficiencies of SR 80 in the area. The estimated cost for this option is \$184,798.

9. **Spot Improvement Option D.4 (Post Office Lane Intersection, LM 7.45 to LM 7.54):** This improvement will promote safer operations. It will improve geometric deficiencies on Post Office Lane but will have minimal improvement to the geometric deficiencies of SR 80 in the area. The estimated cost for this option is \$207,362.
- ~~10. **Spot Improvement Option D.2 (From Bishop Hollow Road to 2500 feet South of Toney Hollow Lane, LM 4.94 to LM 5.31):** This improvement would promote safer operations and improve geometric deficiencies in the area of improvement. Due to the extensive amount of rock excavation required, this option is more expensive relative to the other spot improvements. The estimated cost for this option is \$3,438,842.~~
11. **Spot Improvement Option D.1 (From Kemp Hollow Lane to South of the Bridge over Peyton Creek, LM 2.88 to LM 3.61):** This improvement would promote safer operations and improve geometric deficiencies in the area of improvement. Due to the extensive amount of rock excavation required, this option is more expensive relative to the other spot improvements. The estimated cost for this option is \$2,767,794.
12. **Spot Improvement Option D.8 - Truck Climbing Lane (North of County Line, LM 0.06 to LM 1.22):** This improvement would promote safer operations in the area of the improvement. Due to the extensive amount of rock excavation required, this option is more expensive relative to the other spot improvements. The estimated cost for this option is \$1,713,866.

The total cost estimate for all spot improvements is \$14,874,608.

7.0 POTENTIAL ENVIRONMENTAL IMPACTS

The environmental screening presented in this TPR is a combination of information that was provided by the TDOT Early Environmental Screening (EES) reports, and additional information and GIS mapping that were researched in support of this TPR. The EES report documents the potential for impacts to sensitive environmental resources within 1,000, 2,000, 4,000, and 10,000 feet of the study area. Environmental screening maps produced in support of the analysis in this report are found in Volume I of the Appendices. Also found there is a full copy of the TDOT EES reports prepared in support of this TPR.

7.1 Wetlands and Floodplains

The southern portion of the study area is traversed by Peyton Creek. The proposed improvements to SR 80 in the Lane and Shoulder Widening Options and in the New Location Option will result in improvements to an existing crossing or a new crossing.

The United States Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) maps were reviewed to identify known wetlands in the study area. Wetlands data for the Carthage and Pleasant Shade USGS Quadrangle maps, which encompasses the study area, have been digitized by USFWS. A digitized version of the NWI data created by the Tennessee Wildlife Resources Agency (TWRA) and made available on the Tennessee Spatial Data Server was used for the mapping of wetlands in the study area. Potential wetlands are scattered throughout the study area, and are the most present along both sides of Peyton Creek and the miscellaneous tributaries to Peyton Creek in the southern portion of the study area. The relationship of the potential wetlands present within the study area is displayed on the map E-1 in Volume I of the Appendices.

A hydric soil is a soil that formed under conditions of saturation, flooding or ponding long enough during the growing season to develop anaerobic conditions in the upper part. This is one of three indicators used in the assessment for a potential wetland. The Natural Resources Conservation Service, National Hydric Soils List was consulted to determine if hydric soils are present in the study area. None of the soils present in the study area are listed as hydric soils.

According to Federal Emergency Management Agency (FEMA) Flood Insurance Rate Maps (FIRM), multiple portions of the study area lie within the 100-year flood zone. Areas along Peyton Creek (TN05130201026_1000), Boston Branch (TN05130201026_0500), Nickajack Branch (TN05130201026_0200) and the miscellaneous tributaries to Peyton Creek (TN05130201026_0999) fall within this zone. FIRMs depicting the 100-year floodplains within the study area were digitized and are included in Volume I of the Appendices, Map E-2. None of the streams are listed on the Tennessee Department of Environment and Conservation's (TDEC) 303(d) list. The 303(d) list is considered a priority for water quality improvement efforts. Multiple portions of the current SR 80 roadway are encroached upon by the 100-year flood zone, but improvements avoid impacts to floodplain areas to the extent possible.

7.2 Threatened and Endangered Species

The TDEC Division of Natural Areas maintains records of rare, threatened and endangered species located throughout the state. TDEC files were examined in an attempt to identify threatened and endangered species recorded in the general vicinity of the study area.

The species that are both federally and state-listed, threatened or endangered in Macon and/or Smith County include the following:

- Short's bladderpod plant
- Pink Mucket mussel
- Gray myotis bat
- Ring pink mussel
- White wartyback mussel
- Orangefoot pimpleback mussel
- Pigtoe mussel

The records check revealed the following state-listed species reported within the Macon and/or Smith County area that are "Deemed in Need of Management" meaning that it should be investigated in order to develop information relating to populations, distribution, habitat needs, limiting factors, and other biological and ecological data to determine management measures necessary for their continued ability to sustain themselves successfully. They are as follows:

- Allegheny woodrat
- Sooty darter
- Southern cavefish
- Meadow jumping mouse

The records check revealed the following state-listed Threatened and Endangered species reported within the Macon and/or Smith County area:

- Bewick's wren
- Butternutis plant
- Golden eagle plant

The records check revealed two (2) state-listed species of "Special Concern" reported within the Macon and/or Smith County area. The indication of Special Concern means a plant that is uncommon in Tennessee, or has unique or highly specific habitat requirements or scientific value and therefore requires careful monitoring of its status. They are as follows:

- American chestnut
- American ginseng

The TDOT Early Environmental Screening (EES) report revealed one federally and state-listed species reported within 1,000 feet of the study area. The gray myotis (*Myotis grisescens*) is a migratory bat that lives in caves and frequents forested areas. Environmental screening to confirm the presence of bats within the corridor will be conducted during the NEPA phase.

All of the above listed Threatened and/or Endangered species have been noted to exist within the two (2) counties. As the planning process advances, additional consideration

for proposed improvements and modifications will include additional environmental studies to determine if any of the above listed species are in the area of potential impact. Many of the above listed species are associated with watercourses such as the Tennessee and Cumberland River and their tributaries. Additional consideration must be given when proposing improvements in areas where watercourses may be impacted.

7.3 Hazardous Materials

Project planners reviewed Environmental Protection Agency (EPA) records and TDEC Division of Remediation records to check for the presence of any hazardous materials sites in the study area. Databases checked included the Resource Conservation and Recovery Act (RCRAInfo) database, the Comprehensive Environmental Response Compensation and Liability Information System (CERCLIS) database, the Superfund Information Systems Database, the Compliance History Online (ECHO) database and TDEC's Promulgated Site List of Inactive Hazardous Sites. In addition, TDOT produced an EES report for the study area. The EES did not identify any Hazardous Materials sites within the study area.

8.0 POTENTIAL CULTURAL IMPACTS

8.1 Historic Resources

A review of State Historic Preservation Office (SHPO) records at the Tennessee Historical Commission (THC) was conducted on December 16, 2009, to check for the presence of historic resources within the study area. The records check revealed that there are no properties listed on the National Register of Historic Places (NRHP) within the study area. In addition, a review of the THC United States Geological Survey (USGS) quadrangle survey maps indicated that there are no properties in the Area of Potential Effect (APE) listed in the NRHP.

According to the SHPO records, approximately seven (7) properties in Macon County and thirty six (36) properties in Smith County are listed on the Tennessee Historic Sites Survey within the study area, but none were deemed eligible for the NRHP by the surveyor. Most of these surveyed historic properties are located near the intersections of SR 80 with Peyton Creek Road, Bishop Hollow Road, Little Creek Road, Sloan Branch Road and Davis Ridge Road. Additional survey work will be done in future project phases to determine whether the APE in Macon and Smith Counties contains resources that are eligible for the NRHP.

8.2 Cemeteries

One cemetery located near the intersection with Davis Road is listed in the EES report. However, the participants in the field review located an additional cemetery south of the intersection of Sawmill Lane and SR 80 (see Concept Plans for cemetery locations).

8.3 Community Resources

The study area is home to a number of community resources, which are illustrated in Volume I of the Appendices on Map E-3. The three churches in the study area include:

- Mt. Tabor Missionary Baptist Church, located south of the intersection of SR 80 and Toney Hollow Lane
- Russell Hill Missionary Baptist Church (established 1885), located southeast of the intersection with Davis Road
- Russell Hill Cumberland Presbyterian Church, located southwest of the intersection with Davis Road (Note: the TDOT EES lists two (2) churches having the names Upper Cumberland Church and Russell Hill Presbyterian Church, but the church within the study area is Russell Hill Cumberland Presbyterian Church.)

The Pleasant Shade Post Office is located just off the intersection of SR 80 with Sloan Branch Road at 19 Post Office Lane.

8.4 Environmental Justice

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

Minority Populations

Map E-4 located in Volume I of the Appendices illustrates the minority populations in the study area by Census Block for the 2000 U.S. Census. The county-wide average percentage of minority populations for Macon County was 2.14 percent and for Smith County was 4.58 percent. Both of these averages are considerably lower than the statewide average of 19.79 percent. Of the 36 census blocks encompassing the study area, only two (2) have minority populations higher than 4.58 percent.

These two (2) Census Blocks are highlighted in Map E-4 (located in Volume I of the Appendices) and are adjacent to the Lane and Shoulder Widening/Improvement Options. Block 1054 of Census Tract 9750 in Smith County has a minority population of 100 percent; however, at the time of the 2000 Census the block contained only two (2) residents. In addition, Block 3047 of Census Tract 9707 in Macon County has a minority population of 6.59 percent (6 out of 91 persons), but none of the houses that accommodate these populations are located in an improvement option.

Low Income Populations

Map E-5, located in Volume I of the Appendices, shows the percentage of the population living below poverty in the study area by Census Block Group. The study area is encompassed by four Census Block Groups. US Census data on poverty status are only provided for the portion of the population for which poverty status can be determined. Thus, the percent living below poverty level is calculated using the population for which status can be determined rather than the total population of the Block Group in 2000.

The average percent of the population living below poverty in 2000 (based on 1999 income) for Macon County was 15.10 percent and for Smith County was 12.21 percent. The Macon County average is slightly higher than the statewide average of 13.48 percent. Only one Block Group in the study area has a percentage of residents living below poverty level that is higher than 15.10 percent. This Block Group is Census Tract 9750, Block Group 1 in Smith County, which has an average of 18.46 percent (230 out of 1,246 persons). This Block Group is highlighted in blue on Map E-5. Spot Improvement Numbers 3 through 7 would lie within Census Tract 9750, Block Group 1 in Smith County, as would the Lane and Shoulder Widening Throughout - Improvement Options B and C.

9.0 ASSESSMENT OF OPTIONS

TDOT has adopted seven (7) 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 SR 80.

Guiding Principle 1: Preserve and Manage the Existing Transportation System

The options presented for this corridor will enhance the existing facility and provide for a safer route for current and future motorists. It is consistent with TDOT's goal of preserving the existing transportation system. The No-Build option does the least to manage the existing transportation system. It does not address deficiencies which exist that exceed typical maintenance activities.

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

The options discussed in this report will provide the capacity and safety needed to address the corridor's travel demands. The No-Build option is the least attractive option concerning the guiding principle. Various enhancements are needed to ensure that the mobility needs of the region are served. This corridor is important to both counties and provides regional mobility and economic opportunities to its residents and businesses.

Guiding Principle 3: Support the State's Economy

Enhancing the corridor with localized improvements or a comprehensive improvement program will ultimately enhance the corridor for all users. This may encourage residential, commercial, and industrial development in the area. However, it is too early to determine if this possible increase in development would be significant to the overall economy of Tennessee.

Guiding Principle 4: Maximize Safety and Security

From 2005 to 2007, thirty six (36) crashes occurred along this 11.44-mile segment of SR 80, one (1) of which was a fatality. Of those crashes, approximately fifty percent (seventeen (17) crashes) involved personal injury. All options considered, other than the No-Build, would meet or exceed current design standards and provide for a high degree of mobility in a reliable and safe fashion. One of the primary goals of each build option/spot improvement is to improve the system and address deficiencies or safety related issues. Creating a safer transportation system is aligned with this guiding principle and further promotes mobility and economic opportunities as desired by the region.

**Guiding Principle 5:
Build Partnerships for Livable Communities**

Coordination with local leaders and interested agencies to identify their concerns and objectives for the proposed improvements was conducted throughout the planning process. TDOT's Long Range Transportation Plan promotes and encourages projects that have public and community support. This planning study, originated by the Dale Hollow RPO, identified improving SR 80 as a regional need and is supported by both Smith and Macon Counties. The public involvement process will continue as mandated by provisions of the National Environmental Policy Act (NEPA).

**Guiding Principle 6:
Promote Stewardship of the Environment**

Potential adverse environmental impacts identified during the environmental screening phase or coordination with local government and stakeholders have been carefully considered in the development of the options included in this study. Should continued federal funding be obtained for the project, a NEPA document will be prepared in future project phases. The NEPA document will assess the proposed improvement's impacts on the social, historic and natural environment. All efforts will be made to avoid adverse impacts to sensitive resources. If impacts cannot be avoided, they will be minimized and mitigated. Early and continuous coordination will continue to take place with the appropriate federal, state, and local agencies and the public. This coordination will assist with the identification of important resources early in the planning process and help ensure the proposed improvement promotes stewardship of the environment.

Several areas within the study area should be considered for avoidance or minimization of impacts. These areas include cemeteries, churches, businesses, and homes. The study area contains several streams. Most of the options are improvements along existing alignment and these generally have less natural impacts than constructing on new location.

**Guiding Principle 7:
Promote Financial Responsibility**

It is the Department's goal to follow a comprehensive transportation planning process, promote coordination among public and private operators of transportation systems, and support efforts to provide stable funding for the public component of the transportation system. This entails exercising financial responsibility in the development and implementation of roadway projects and minimizing costs to taxpayers. Preliminary construction cost estimates shown in Table 8 in this report are offered for comparison purposes and will fluctuate with inflation and any unexpected conditions.

10.0 SUMMARY

SR 80 is a primary north-south connector in both Smith and Macon Counties. It serves as a critical link between Carthage and Red Boiling Springs, as well as the adjacent areas of Smith and Macon Counties.

Through coordination with local officials and stakeholders, the need for the improvements has been stated. Improvements to SR 80 are needed to address the following:

- Safety issues due to the roadway in some areas lying between a rock bluff and a creek bed, with very little clearance and
- Geometric deficiencies such as narrow lanes and shoulders, and excessive curves and grades.

This TPR analyzed existing operational and geometric conditions, conducted capacity analyses for future traffic projects, and developed a series of conceptual improvements that independently, or in combination, can improve safety and operational conditions along the SR 80 corridor, thereby addressing purpose, needs, and goals of an improved corridor.

Criteria for choosing route options should incorporate the purpose, needs, and goals listed in Section 5.0 of this report, Purpose and Need. Table 9 depicts the improvement options as they relate to the purpose and need of the improvements under study. The route options are summarized as follows:

- Option A - No-Build: This option assumes no modifications or improvements will be made over the planning horizon. Routine maintenance related activities, as well as scheduled resurfacing, signing, and possible safety projects may occur. This option, however, does not support the project's stated Purpose and Need goals of improving safety and correcting geometric deficiencies.
- Option B – Two (2) Lane Reconstruction: This option seeks to improve existing travel lane and shoulder widths and address roadside geometry issues where appropriate. Existing ROW is forty (40) feet to sixty (60) feet for the majority of the corridor. It is assumed that some work will occur in areas where additional ROW will need to be acquired and in other areas only easements would be needed for construction and maintenance. A truck climbing lane from LM 0.06 to LM 1.22 in Macon County is also included in Option B.
- Option C - New Alignment: This option introduces an approximately 0.74 mile segment of newly located SR 80. It bypasses some existing curve geometry and an area where bluff excavation would be needed. It can be used with Improvement Option B.
- Option D - Spot Improvements: There are twelve (12) potential location improvements that can be implemented independently or in combination as an overall improvement program. These improvements meet the needs to improve safety at each improvement location and to correct geometric deficiencies.

Table 9: Improvement Options' Relationship to Purpose, Need and Goals

	Option A – No-Build	Option B - Two (2) Lane Reconstruction	Option C - New Alignment	Option D – Spot Improvements											
				D.1	D.2	D.3	D.4	D.5	D.6	D.7	D.8	D.9	D.10	D.11	D.12
Promote Safer Operations	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Improve Geometric Deficiencies	N	Y	Y	Y	Y	Y	--	--	Y	Y	--	Y	Y	Y	Y

Y = Yes
 N = No
 -- = Marginal

Priority List of Spot Improvement Options

Some combination of spot improvements or route improvements is recommended to provide safer operations and correct roadway deficiencies. The following is a recommended priority list of spot improvements:

1. Spot Improvement Option D.12 (Defeated Creek Road Intersection, LM 3.01 to LM 3.12) – estimated cost \$269,253
2. Spot Improvement Option D.9 (Intersection of SR 80 and Hesson Ridge Road, LM 1.22 to LM 1.40) – estimated cost \$915,141
3. Spot Improvement Option D.10 (SR 80 Davis Ridge Road Area, LM 1.89 to LM 2.33) – estimated cost \$1,062,837
4. Spot Improvement Option D.7 (Section of SR 80 4000 feet South of County Line, LM 9.87 to LM 9.96) – estimated cost \$264,344
5. Spot Improvement Option D.3 (Section of SR 80 South of Sawmill Lane, LM 6.44 to LM 6.70) – estimated cost \$827,188
6. Spot Improvement Option D.11 (North of Goad Ridge Road, LM 2.36 to LM 2.94) – estimated cost \$1,438,595
7. Spot Improvement Option D.6 (Section of SR 80 North of Nascar Lane, LM 9.14 to LM 9.60) – estimated cost \$1,784,588
8. Spot Improvement Option D.5 (Shady Circle Intersection, LM 7.66 to LM 7.78) – estimated cost \$184,798
9. Spot Improvement Option D.4 (Post Office Lane Intersection, LM 7.45 to LM 7.54) – estimated cost \$207,362
- ~~10. Spot Improvement Option D.2 (From Bishop Hollow Road to 2500 feet South of Toney Hollow Lane, LM 4.94 to LM 5.31) – estimated cost \$3,438,842~~
11. Spot Improvement Option D.1 (From Kemp Hollow Lane to South of the Bridge over Peyton Creek, LM 2.88 to LM 3.61) – estimated cost \$2,767,794
12. Spot Improvement Option D.8 - Truck Climbing Lane (North of County Line, LM 0.06 to LM 1.22) - estimated cost \$1,713,866.

The total cost estimate for all spot improvements is \$14,874,608.

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. Table 10 summarizes the results of environmental screening for the study area in this TPR.

Table 10: Summary of Environmental Screening Results for the Corridor

Improvement	Wetlands / Streams	Floodplains	Threatened and Endangered Species	Hazardous Materials	NRHP Historic Resources	Community Resources	Environmental Justice
Spot Improvement D.1	Possible wetland / Peyton Creek and Misc. Tributary to Peyton Creek	Floodplain associated with Peyton Creek and Misc. Tributary to Peyton Creek	The federally-listed and state listed gray myotis bat	None	None	None	No EJ issues anticipated.
Spot Improvement D.2	Possible wetlands / Peyton Creek	Floodplain associated with Peyton Creek	The federally-listed and state listed gray myotis bat	None	None	None	No EJ issues anticipated.
Spot Improvement D.3	None / Peyton Creek	Floodplain associated with Peyton Creek	The federally-listed and state listed gray myotis bat	None	None	Cemetery located within corridor	No EJ issues anticipated.
Spot Improvement D.4	None / Boston Branch	None	The federally-listed and state listed gray myotis bat	None	None	Post Office	No EJ issues anticipated.
Spot Improvement D.5	None	None	The federally-listed and state listed gray myotis bat	None	None	None	No EJ issues anticipated.
Spot Improvement D.6	None / Boston Branch	None	The federally-listed and state listed gray myotis bat	None	None	None	No EJ issues anticipated.
Spot Improvement D.7	None / Boston Branch	None	The federally-listed and state listed gray myotis bat	None	None	None	No EJ issues anticipated.
Spot Improvement D.7	None / Boston Branch	None	The federally-listed and state listed gray myotis bat	None	None	None	No EJ issues anticipated.

Improvement	Wetlands / Streams	Floodplains	Threatened and Endangered Species	Hazardous Materials	NRHP Historic Resources	Community Resources	Environmental Justice
Spot Improvement D.8	None	None	The federally-listed and state listed gray myotis bat	None	None	None	No EJ issues anticipated.
Spot Improvement D.9	None	None	The federally-listed and state listed gray myotis bat	None	None	None	No EJ issues anticipated.
Spot Improvement D.10	Farm pond / Boston Branch & Misc. Tributary to Peyton Creek	None	The federally-listed and state listed gray myotis bat	None	None	2 Churches	No EJ issues anticipated.
Spot Improvement D.11	Possible wetland / Misc. Tributary to Peyton Creek	None	The federally-listed and state listed gray myotis bat	None	None	Cemetery	No EJ issues anticipated.
Spot Improvement D.12	Possible wetland / None	None	The federally-listed and state listed gray myotis bat	None	None	None	No EJ issues anticipated.
Two (2) Lane Reconstruction – Option B	Possible wetlands / Peyton Creek, Misc. Tributary to Peyton Creek & Boston Branch	Corridor within floodplains associated with Peyton Creek, Misc. Tributary to Peyton Creek & Boston Branch	The federally-listed and state listed gray myotis bat	None	None	2 Cemeteries, 3 Churches, and the Post Office	No EJ issues anticipated.
New Alignment – Option C	Possible wetlands / Peyton Creek	Crosses floodplain associated with Peyton Creek	The federally-listed and state listed gray myotis bat	None	None	None	None No EJ issues anticipated.

STATE ROUTE 80
PIN 112964.00
APPENDICES – VOLUME I

**FIELD REVIEW MINUTES AND
ATTENDANCE LIST**

MEETING SUMMARY

STATE ROUTE 80 IMPROVEMENTS FROM SR 85 TO SR 56/SR 262

MEETING DATE: December 10, 2009, 10:00 A.M.
Smith County Chamber of Commerce

PARTICIPANTS: See attached sign-in sheet

SUBJECT: SR 80 Improvements from SR 85 to SR 56/SR 262
In Smith and Macon Counties, Tennessee
Transportation Planning Report, Stakeholders Meeting

The purpose of this meeting for the State Route (SR) 80 Improvements was to inform stakeholders that Gresham, Smith and Partners has begun work on a Transportation Planning Report (TPR), which is the first step in the development of the project. The meeting was intended to assist in the identification of the project need by gathering stakeholder input and to identify project issues (e.g., safety, environmental, proposed development in project area).

Handouts provided to meeting attendees included the meeting agenda, a project area map depicting known environmental constraints and community resources that have been identified early in the planning process, and a possible typical roadway section for the improved SR 80. Other materials displayed included: examples of TPRs, an aerial map including photographs of the project area, and a roadway map of the project area showing the environmental constraints.

The meeting discussion is summarized below:

Welcome - The meeting began with Greg Horton from TDOT welcoming all those in attendance and acknowledging Fran Davis of the Dale Hollow RPO. He stated that the RPO had requested that this corridor be studied by TDOT.

Introductions, Project Background, & Process – Mark Holloran, of GS&P, began by inviting all of the stakeholders to introduce themselves (see attached sign-in sheet).

Mark then explained that the project development process can be broken down into the following five phases:

1. The planning phase, which is currently being conducted. During this phase, project needs and constraints along with possible solutions will be identified.
2. Environmental studies phase that will fully identify issues and develop a preferred solution.
3. Design phase that will implement the solution identified in the environmental document and include development of right-of-way plans. Based upon available funding, this may only include plans for spot improvements.
4. Right-of-way acquisition phase, which will include coordination with utilities.
5. Construction phase, during this phase the project will be advertised, bids received, a contractor selected, and the roadway constructed.

Mark went into further detail concerning the TPR. He explained that the Dale Hollow RPO had already developed a preliminary project purpose and need in March 2009. During the preparation of the TPR, environmental issues will be identified on a preliminary screening level,

and multiple transportation options to fulfill the need will be examined. GS&P will look at existing and future land uses and traffic projections, environmental issues, and local government concerns.

Project Need and Issues – Sandy Layne-Sclafani of GS&P identified some of the current project needs as follows:

- The RPO recommended a study of this corridor because of a high level of traffic, including trucks, and safety issues.
- This is the main corridor between Red Boiling Springs in Macon County to near Carthage in Smith County.
- Nestle Water Bottling plant is located in Red Boiling Springs. They report 75 to 200 trucks per day entering and leaving their facility.
- There is a section of roadway w/excessive curves, narrow lane and shoulder width making the roadway hazardous.
- Several fatal crashes have occurred in this section over the past 5 years.
- Some of this section lies between a rock bluff and a creek bed with very little lateral clearance causing extreme safety issues.

Sandy then asked stakeholders if they have anything to add to project need. Comments were as follows:

- It is the only north/south route in the area. It has a high volume of truck logging traffic (especially from Willette to I-40, and from other counties bringing in raw materials to saw mills/plants).
- There are safety issues especially regarding semi-trailers on SR 80.
- A truck climbing lane may be needed at the Smith/Macon County line. However, trucks are usually empty when they are climbing the hill.
- Dangerous curves (It was shared that a bad wreck that paralyzed 16-year old boy at Bishop Hollow was the impetus for the spot improvements already completed at that location)
- Narrow shoulders makes it dangerous to even fix a flat tire
- Areas of SR 80 flood on a regular basis
- This road is needed for future business development

Sandy stated that in order to devise study corridors into which alignments can later be developed, potential constraints within the project area need to be identified. Lindsay Smith with GS&P then outlined the potential issues that have already been identified for this project through preliminary environmental screening, which are:

- Streams/Creeks in the study area include Peyton Creek, miscellaneous tributaries to Peyton Creek, Sanderson Branch, and Nickajack Branch
- The project area is bisected by the 100-year floodplain that is associated with the above listed streams
- Possible wetlands are scattered in the area (field confirmation will be conducted during environmental studies phase)
- Current land uses within the area consist of rural/agricultural, rolling land (all land is zoned agricultural)
- Pleasant Shade School appears to be closed, are there future plans? Stakeholders responded that the school is closed because of lack of students attending (students moved to Defeated Creek School); they will possibly reutilize the school as a community center in the future

- A cemetery was observed by GS&P during field review by Davis Road
- Churches identified that are all active include:
 - Russell Hill Missionary Baptist Church – near Davis Road
 - Russell Hill Upper Cumberland Church – near Davis Road
 - Mount Tabor Missionary Baptist Church – 558 Pleasant Shade Hwy
 - Pleasant Shade Upper Cumberland Pres. Church (by post office)
- Historic structures – none are listed on the National Register of Historic Places. There was a question whether the Anderson Farm house is potentially eligible.

Other comments/issues brought up by attendees included:

- Public water is only available in Smith County to the Pleasant Shade area. North of Pleasant Shade is serviced with well water. The Smith County Mayor wants to expand their water service area further north in the future but must rely on federal funding to do so.
- Pleasant Shade Grocery store is about to re-open, there are parking concerns if right-of-way is taken from the front of the store.
- Cemetery near Sanderson Branch (need to confirm public or private)
- Need to talk to Civil War Trails to find out if there are any Civil War sites in the project area
- There is a natural gas substation by Tony Hollow with the pipeline crossing the road.

Roadway Concepts – Mark Holloran discussed potential spot improvements along SR 80 (beginning at the intersection with SR 85 and going north to the project end at the intersection with SR 262/56)

1. Re-aligning a section of SR 80 to the west side of Peyton Creek would be an option but would require building two new bridges. Another option would be to cut into the bluff. There is a trade off between cost and alignment.
2. Near Bishop Hollow, where the road currently bends next to Peyton Creek, re-align the section of SR 80 north of Bishop Hollow to the west side of Peyton Creek.
3. Shift SR 80 slightly east to replace bridge over Peyton Creek and re-align Toney Hollow intersection.
4. Replace bridges over Peyton Creek and at Stone Branch Road; traffic would be maintained by staged construction.
5. Realign intersection with Shady Circle (currently a sharp angle intersection; realign to create a “T” intersection with SR 80); sight distance is a possible issue.
6. Consider addition of a truck climbing lane at section of SR 80 near county line; ditch location may have to be adjusted.
7. Remove sharp reverse curve and adjust vertical alignment by Hesson Ridge. Sight distance is currently an issue. Re-align side road Hesson Ridge and Thomas Ridge.
8. Straighten reverse curve around farm pond.
9. Straighten curves on SR 80 east of Goad Ridge Lane.
10. Straighten curve on SR 80 and re-align intersection with Defeated Circle Road.

Stakeholders noted that there are a lot of wrecks in the small curve just before the intersection with SR 56.

SIGN IN SHEET
SR 80 Improvements from SR 85 to SR 56/262
Smith and Macon Counties, TN

Date/Time: December 10, 2009
 Location: Smith County Chamber of Commerce
 Purpose: Stakeholders Meeting

Name	Organization/Affiliation	Contact Information: e-mail
Lindsay Smith	Gresham, Smith & Partners	lindsay-smith@gspnet.com
MARK HOLLORAN	GS&P	MARK-HOLLORAN@gspnet.com
Sandy Layne-Sclafani	GS&P	sandy_layne-sclafani@gspnet.com
Bob Allen	TDOT-ENV.	Bob.Allen@tn.gov
Tyler King	TDOT-Planning	Tyler.King@tn.gov
Fran Davis	RPO Dale Hollow	fdavis@ucdh.org
Gary Fottrell	FHWA	gary.fottrell@dot.gov
Kevin Rush	Smith Co Planning office	Kevin.Rush@smithcounty.com
Jenna Ray	Macon Co. Comm	
Hester Simpson Y.	TDOT - Project Planning	
J. Carter	City of Lafayette	mcay@lafayette-cityhall.org
Michael J. Hanks	Smith Co Mayor	mshank@smithcounty.com
Samy Hanks	Rep	

COST ESTIMATE SPREADSHEET

Route: SR 80 - Spot Improvements D.1 and D.2
 Description: Spot Improvement D.1: LM 2.88 to LM 3.61
 Spot Improvement D.2: LM 4.94 to LM 5.31
 County: Smith
 Length: Spot Imp. D.1 - 3855 FT., Spot Imp. D.2 - 2376 FT.
 Date: 3/8/2010

	UNIT	QUANT. - S.I. D.1	QUANT. - S.I. D.2	UNIT COST	SPOT IMP. D.1 - TOTAL	SPOT IMP. D.2 - TOTAL
RIGHT-OF-WAY COST						
LAND	AC	7.1	0	\$2,750	\$ 19,525	\$ 8,800
COMMERCIAL	EACH	2	0	\$200,000	\$ 400,000	\$ -
RESIDENTIAL	EACH	0	1	\$150,000	\$ -	\$ 150,000
				SUBTOTAL	\$ 419,525	\$ 158,800
CONSTRUCTION COST						
CLEAR AND GRUBBING					\$ 22,000	\$ 14,000
EARTHWORK					\$ 491,839	\$ 1,500,236
PAVEMENT REMOVAL					\$ 6,345	\$ 7,613
DRAINAGE (INCLUDING EROSION CONTROL) STRUCTURES					\$ 134,560	\$ 146,485
RAILROAD CROSSING OR SEPARATION					\$ -	\$ -
PAVING (INCLUDING CURB, GUTTER AND SIDEWALK)					\$ 362,830	\$ 194,549
RETAINING WALLS					\$ -	\$ -
MAINTENANCE OF TRAFFIC					\$ 51,990	\$ 43,550
TOPSOIL					\$ -	\$ -
SEEDING					\$ 1,434	\$ 894
SODDING					\$ -	\$ -
SIGNING					\$ 15,075	\$ 10,050
LIGHTING					\$ -	\$ -
SIGNALIZATION					\$ -	\$ -
FENCE					\$ -	\$ -
GUARDRAIL					\$ 78,000	\$ 48,400
RIP RAP OR SLOPE PROTECTION					\$ 8,100	\$ 5,400
OTHER CONST. ITEMS (15%)					\$ 175,826	\$ 297,176
				SUBTOTAL	\$ 1,347,998	\$ 2,278,353
UTILITY COST						
OVERHEAD ELECTRIC	MI.	0.73	0.45	\$135,000	\$ 98,550	\$ 60,750
TELEPHONE	MI.	0.73	0.45	\$75,000	\$ 54,750	\$ 33,750
WATER	MI.	0.73	0.45	\$275,000	\$ 200,750	\$ 123,750
SEWER	MI.	0	0	\$165,000	\$ -	\$ -
CABLE	MI.	0.73	0.45	\$25,000	\$ 18,250	\$ 11,250
GAS	MI.	0.73	0.45	\$212,000	\$ 154,760	\$ 95,400
				SUBTOTAL	\$ 527,060	\$ 324,900
MOBILIZATION						
BASED ON SP 717, CALCULATED FOR TOTAL COST						
				SUBTOTAL	\$ 65,660	\$ 107,526
CONTINGENCY (10% OF CONSTRUCTION COST AND UTILITIES)						
					\$ 194,072	\$ 271,078
TOTAL CONSTRUCTION COST						
					\$ 2,134,790	\$ 2,981,857
PRELIMINARY ENGINEERING (10% OF TOTAL CONSTRUCTION COST)						
					\$ 213,479	\$ 298,186
TOTAL COST*						
					\$ 2,767,794	\$ 3,438,842

* For estimating future project costs, a compounded inflation rate of 10% per year will be applied from the date of this estimate.

Route: SR 80 - Spot Improvements D.3 and D.4
 Description: Spot Imp. D.3 - LM 6.44 to LM 6.70
 Spot Imp. D.4 - LM 7.45 to LM 7.54
 County: Smith
 Length: Spot Imp. D.3 - 1335 FT., Spot Imp. D.4 - 500 FT.
 Date: 3/8/2010

	UNIT	QUANT. - S.I. D.3	QUANT. - S.I. D.4	UNIT COST	SPOT IMP. D.3 TOTAL	SPOT IMP. D.4 TOTAL
RIGHT-OF-WAY COST						
LAND	AC	2.1	1	\$2,750	\$ 5,775	\$ 2,750
COMMERCIAL	EACH	0	0	\$20,000	-	-
RESIDENTIAL	EACH	0	0	\$150,000	-	-
				SUBTOTAL	\$ 5,775	\$ 2,750
CONSTRUCTION COST						
CLEAR AND GRUBBING					\$ 8,000	\$ 2,800
EARTHWORK					\$ 133,556	\$ 7,710
PAVEMENT REMOVAL					234	2,241
DRAINAGE (INCLUDING EROSION CONTROL)					\$ 46,770	\$ 13,640
STRUCTURES					-	-
RAILROAD CROSSING OR SEPARATION					-	-
PAVING (INCLUDING CURB, GUTTER AND SIDEWALK)					\$ 139,963	\$ 42,529
RETAINING WALLS					-	-
MAINTENANCE OF TRAFFIC					\$ 26,305	\$ 8,690
TOPSOIL					-	-
SEEDING					540	129
SODDING					-	-
SIGNING					\$ 24,748	\$ 2,240
LIGHTING					-	-
SIGNALIZATION					-	-
FENCE					-	-
GUARDRAIL					\$ 29,900	\$ -
RIP RAP OR SLOPE PROTECTION					\$ 2,700	\$ 270
OTHER CONST. ITEMS (15%)					\$ 61,907	\$ 12,037
				SUBTOTAL	\$ 474,623	\$ 92,286
UTILITY COST						
OVERHEAD ELECTRIC	MI.	0.25	0.1	\$135,000	\$ 33,750	\$ 13,500
TELEPHONE	MI.	0.25	0.1	\$75,000	\$ 18,750	\$ 7,500
WATER	MI.	0.25	0.1	\$275,000	\$ 68,750	\$ 27,500
SEWER	MI.	0	0	\$165,000	-	-
CABLE	MI.	0.25	0.1	\$25,000	\$ 6,250	\$ 2,500
GAS	MI.	0.25	0.1	\$212,000	\$ 53,000	\$ 21,200
				SUBTOTAL	\$ 180,500	\$ 72,200
MOBILIZATION						
BASED ON SP 717, CALCULATED FOR TOTAL COST						
CONTINGENCY (10% OF CONSTRUCTION COST AND UTILITIES)						
				SUBTOTAL	\$ 23,731	\$ 4,614
					\$ 67,885	\$ 16,910
TOTAL CONSTRUCTION COST						
					\$ 746,739	\$ 186,011
PRELIMINARY ENGINEERING (10% OF TOTAL CONSTRUCTION COST)						
					\$ 74,674	\$ 18,601
TOTAL COST*						
					\$ 821,413	\$ 204,612

* For estimating future project costs, a compounded inflation rate of 10% per year will be applied from the date of this estimate.

Route: SR 80 - Spot Improvements D.5 and D.6
 Description: Spot Imp. D.5: LM 7.66 to 7.78
 Spot Imp. D.6: LM 9.14 to LM 9.60
 County: Smith
 Length: Spot Imp. D.5 - 550 FT., Spot Imp. D.6 - 2429 FT.
 Date: 3/8/2010

UNIT	QUANT. - S.I. D.5	QUANT. - S.I. D.6	UNIT COST	SPOT IMP. D.5 TOTAL	SPOT IMP. D.6 TOTAL
RIGHT-OF-WAY COST					
LAND	AC	2.3	\$2,750	\$ 2,475	\$ 6,325
COMMERCIAL	EACH	1	\$200,000	-	\$ 200,000
RESIDENTIAL	EACH	1	\$150,000	-	\$ 150,000
			SUBTOTAL	\$ 2,475	\$ 356,325
CONSTRUCTION COST					
CLEAR AND GRUBBING				\$ 3,200	\$ 14,000
EARTHWORK				\$ 5,250	\$ 137,347
PAVEMENT REMOVAL				\$ 905	\$ 9,378
DRAINAGE (INCLUDING EROSION CONTROL)				\$ 14,950	\$ 194,070
STRUCTURES				-	-
RAILROAD CROSSING OR SEPARATION				-	-
PAVING (INCLUDING CURB, GUTTER AND SIDEWALK)				\$ 29,369	\$ 228,131
RETAINING WALLS				-	-
MAINTENANCE OF TRAFFIC				\$ 8,998	\$ 53,900
TOPSOIL				-	-
SEEDING				\$ 129	\$ 894
SODDING				-	-
SIGNING				\$ 1,924	\$ 10,050
LIGHTING				-	-
SIGNALIZATION				-	-
FENCE				-	-
GUARDRAIL				-	\$ 49,325
RIP RAP OR SLOPE PROTECTION				\$ 270	\$ 5,400
OTHER CONST. ITEMS (15%)				\$ 9,749	\$ 105,374
			SUBTOTAL	\$ 74,743	\$ 807,869
UTILITY COST					
OVERHEAD ELECTRIC	Ml.	0.1	\$135,000	\$ 13,500	\$ 62,100
TELEPHONE	Ml.	0.46	\$75,000	\$ 7,500	\$ 34,500
WATER	Ml.	0.46	\$275,000	\$ 27,500	\$ 126,500
SEWER	Ml.	0	\$165,000	-	-
CABLE	Ml.	0.1	\$25,000	\$ 2,500	\$ 11,500
GAS	Ml.	0.46	\$212,000	\$ 21,200	\$ 97,520
			SUBTOTAL	\$ 72,200	\$ 332,120
MOBILIZATION					
BASED ON SP 717, CALCULATED FOR TOTAL COST					
CONTINGENCY (10% OF CONSTRUCTION COST AND UTILITIES)				\$ 3,737	\$ 40,393
				\$ 15,068	\$ 118,038
TOTAL CONSTRUCTION COST				\$ 165,748	\$ 1,298,421
PRELIMINARY ENGINEERING (10% OF TOTAL CONSTRUCTION COST)				\$ 16,575	\$ 129,842
TOTAL COST*				\$ 184,798	\$ 1,784,588

* For estimating future project costs, a compounded inflation rate of 10% per year will be applied from the date of this estimate.

Route: SR 80 - Spot Improvements D.7 and D.9
 Description: Spot Imp. D.7: LM 9.87 to LM 9.96
 Spot Imp. D.9: LM 1.22 to LM 1.40
 County: Smith/Macon
 Length: Spot Imp. D.7 - 475 FT., Spot Imp. D.9 - 951 FT.
 Date: 3/8/2010

UNIT	QUANT. - S.I. D.7	QUANT. - S.I. D.9	UNIT COST	SPOT IMP. D.7 TOTAL	SPOT IMP. D.9 TOTAL
RIGHT-OF-WAY COST					
LAND	AC	2.2	\$2,750	\$ 1,650	\$ 6,050
COMMERCIAL	EACH	1	\$200,000	\$ -	\$ 200,000
RESIDENTIAL	EACH	0	\$150,000	\$ -	\$ -
			SUBTOTAL	\$ 1,650	\$ 206,050
CONSTRUCTION COST					
CLEAR AND GRUBBING				\$ 2,800	\$ 6,000
EARTHWORK				\$ 4,695	\$ 96,340
PAVEMENT REMOVAL				\$ -	\$ 10,692
DRAINAGE (INCLUDING EROSION CONTROL)				\$ 26,230	\$ 35,690
STRUCTURES				\$ -	\$ -
RAILROAD CROSSING OR SEPARATION				\$ -	\$ -
PAVING (INCLUDING CURB, GUTTER AND SIDEWALK)				\$ 35,565	\$ 117,031
RETAINING WALLS				\$ -	\$ -
MAINTENANCE OF TRAFFIC				\$ 20,675	\$ 46,455
TOPSOIL				\$ -	\$ -
SEEDING				\$ 387	\$ 387
SODDING				\$ -	\$ -
SIGNING				\$ 5,600	\$ 4,594
LIGHTING				\$ -	\$ -
SIGNALIZATION				\$ -	\$ -
FENCE				\$ -	\$ -
GUARDRAIL				\$ 13,250	\$ 13,250
RIP RAP OR SLOPE PROTECTION				\$ 10,800	\$ 5,400
OTHER CONST. ITEMS (15%)				\$ 18,000	\$ 50,376
			SUBTOTAL	\$ 138,002	\$ 386,215
UTILITY COST					
OVERHEAD ELECTRIC	MI.	0.1	\$135,000	\$ 13,500	\$ 33,750
TELEPHONE	MI.	0.1	\$75,000	\$ 7,500	\$ 18,750
WATER	MI.	0.1	\$275,000	\$ 27,500	\$ 68,750
SEWER	MI.	0	\$165,000	\$ -	\$ -
CABLE	MI.	0.1	\$25,000	\$ 2,500	\$ 6,250
GAS	MI.	0.1	\$212,000	\$ 21,200	\$ 53,000
			SUBTOTAL	\$ 72,200	\$ 180,500
MOBILIZATION					
BASED ON SP 717, CALCULATED FOR TOTAL COST					
CONTINGENCY (10% OF CONSTRUCTION COST AND UTILITIES)				\$ 6,900	\$ 19,311
				\$ 21,710	\$ 58,603
TOTAL CONSTRUCTION COST				\$ 238,813	\$ 644,628
PRELIMINARY ENGINEERING (10% OF TOTAL CONSTRUCTION COST)				\$ 23,881	\$ 64,463
TOTAL COST*				\$ 264,344	\$ 915,141

* For estimating future project costs, a compounded inflation rate of 10% per year will be applied from the date of this estimate.

Route: SR 80 - Spot Improvements D.8 Truck Climbing Lane

Description:

County: Macon

Length: 6125 FT.

Date: 6/16/2011

RIGHT-OF-WAY COST	UNIT	QUANT. - S.I. D.8	UNIT COST	SPOT IMP. D.8 TOTAL
LAND	AC	20	\$2,750	\$ 55,000
COMMERCIAL	EACH	0	\$200,000	\$ -
RESIDENTIAL	EACH	0	\$150,000	\$ -
			SUBTOTAL	\$ 55,000
CONSTRUCTION COST				
CLEAR AND GRUBBING				\$ 14,200
EARTHWORK				\$ 111,050
PAVEMENT REMOVAL				\$ -
DRAINAGE (INCLUDING EROSION CONTROL)				\$ 125,100
STRUCTURES				\$ -
RAILROAD CROSSING OR SEPARATION				\$ -
PAVING (INCLUDING CURB, GUTTER AND SIDEWALK)				\$ 398,532
RETAINING WALLS				\$ -
MAINTENANCE OF TRAFFIC				\$ 231,950
TOPSOIL				\$ -
SEEDING				\$ 8,826
SODDING				\$ -
SIGNING				\$ 9,475
LIGHTING				\$ -
SIGNALIZATION				\$ -
FENCE				\$ -
GUARDRAIL				\$ -
RIP RAP OR SLOPE PROTECTION				\$ 2,700
OTHER CONST. ITEMS (15%)				\$ 135,275
			SUBTOTAL	\$ 1,087,108
UTILITY COST				
OVERHEAD ELECTRIC	MI.	1.2	\$135,000	\$ 162,000
TELEPHONE	MI.	1.2	\$75,000	\$ 90,000
WATER	MI.	0	\$275,000	\$ -
SEWER	MI.	0	\$165,000	\$ -
CABLE	MI.	1.2	\$25,000	\$ 30,000
GAS	MI.	0	\$212,000	\$ -
			SUBTOTAL	\$ 282,000
MOBILIZATION				
BASED ON SP 717, CALCULATED FOR TOTAL COST				
CONTINGENCY (10% OF CONSTRUCTION COST AND UTILITIES)				
			SUBTOTAL	\$ 51,855
			SUBTOTAL	\$ 137,096
TOTAL CONSTRUCTION COST				
				\$ 1,508,060
PRELIMINARY ENGINEERING (10% OF TOTAL CONSTRUCTION COST)				
				\$ 150,806
TOTAL COST*				
				\$ 1,713,866

* For estimating future project costs, a compounded inflation rate of 10%, per year will be applied from the date of this estimate.

Route: SR 80 - Spot Improvements D.10 and D.11

Description: Spot Imp. D.10: LM 1.89 to LM 2.23

Spot Imp. D.11: LM 2.36 to LM 2.94

County: Macon

Length: Spot Imp. D.10 - 1796 FT., Spot Imp. D.11 - 3063 FT.

Date: 3/8/2010

	UNIT	QUANT. - S.I. D.10	QUANT. - S.I. D.11	UNIT COST	SPOT IMP. D.10 TOTAL	SPOT IMP. D.11 TOTAL
RIGHT-OF-WAY COST						
LAND	AC	3.4	3.7	\$2,750	\$ 9,350	\$ 10,175
COMMERCIAL	EACH	0	0	\$200,000	\$ -	\$ -
RESIDENTIAL	EACH	0	1	\$150,000	\$ -	\$ 150,000
				SUBTOTAL	\$ 9,350	\$ 160,175
CONSTRUCTION COST						
CLEAR AND GRUBBING					\$ 12,000	\$ 18,000
EARTHWORK					\$ 94,181	\$ 53,650
PAVEMENT REMOVAL					\$ 13,451	\$ 5,864
DRAINAGE (INCLUDING EROSION CONTROL)					\$ 128,820	\$ 107,720
STRUCTURES					\$ -	\$ -
RAILROAD CROSSING OR SEPARATION					\$ -	\$ -
PAVING (INCLUDING CURB, GUTTER AND SIDEWALK)					\$ 158,664	\$ 256,077
RETAINING WALLS					\$ -	\$ -
MAINTENANCE OF TRAFFIC					\$ 49,735	\$ 55,788
TOPSOIL					\$ -	\$ -
SEEDING					\$ 765	\$ 1,170
SODDING					\$ -	\$ -
SIGNING					\$ 6,374	\$ 11,269
LIGHTING					\$ -	\$ -
SIGNALIZATION					\$ -	\$ -
FENCE					\$ -	\$ -
GUARDRAIL					\$ 13,250	\$ 13,250
RIP RAP OR SLOPE PROTECTION					\$ 40,500	\$ 5,400
OTHER CONST. ITEMS (15%)					\$ 77,661	\$ 79,228
				SUBTOTAL	\$ 595,400	\$ 607,415
UTILITY COST						
OVERHEAD ELECTRIC	MI.	0.34	0.58	\$135,000	\$ 45,900	\$ 78,300
TELEPHONE	MI.	0.34	0.58	\$75,000	\$ 25,500	\$ 43,500
WATER	MI.	0.34	0.58	\$275,000	\$ 93,500	\$ 159,500
SEWER	MI.	0	0	\$165,000	\$ -	\$ -
CABLE	MI.	0.34	0.58	\$25,000	\$ 8,500	\$ 14,500
GAS	MI.	0.34	0.58	\$212,000	\$ 72,080	\$ 122,960
				SUBTOTAL	\$ 245,480	\$ 418,760
MOBILIZATION						
BASED ON SP 717, CALCULATED FOR TOTAL COST						
CONTINGENCY (10% OF CONSTRUCTION COST AND UTILITIES)						
				SUBTOTAL	\$ 29,770	\$ 30,371
				\$	\$ 87,065	\$ 105,655
TOTAL CONSTRUCTION COST						
				\$	\$ 957,715	\$ 1,162,200
PRELIMINARY ENGINEERING (10% OF TOTAL CONSTRUCTION COST)						
				\$	\$ 95,772	\$ 116,220
TOTAL COST*						
				\$	\$ 1,062,837	\$ 1,438,595

* For estimating future project costs, a compounded inflation rate of 10% per year will be applied from the date of this estimate.

Route: SR 80 - Spot Improvement D.12 and Option C - New Alignment
 Description: Spot Imp. D.12: LM 3.01 to LM 3.12
 Opt. C - New Alignment: LM 2.36 to LM 2.94
 County: Smith/Macon
 Length: Spot Imp. No. D.12 - 581 FT., Option C - New Alignment - 0.74 mile
 Date: 3/8/2010

UNIT	QUANT. - S.I. D.12	QUANT. - Opt. C	UNIT COST	SPOT IMP. D.12 TOTAL	OPT. C TOTAL
RIGHT-OF-WAY COST					
LAND	AC	15.8	\$2,750	2,475	\$ 43,450
COMMERCIAL	EACH	1	\$200,000	-	\$ 200,000
RESIDENTIAL	EACH	0	\$150,000	-	-
			SUBTOTAL	2,475	\$ 243,450
CONSTRUCTION COST					
CLEAR AND GRUBBING			\$	4,000	\$ 36,000
EARTHWORK			\$	7,979	\$ 934,596
PAVEMENT REMOVAL			\$	4,014	\$ 4,500
DRAINAGE (INCLUDING EROSION CONTROL)			\$	31,313	\$ 217,265
STRUCTURES			\$	-	\$ 2,448,000
RAILROAD CROSSING OR SEPARATION			\$	-	\$ -
PAVING (INCLUDING CURB, GUTTER AND SIDEWALK)			\$	52,716	\$ 803,652
RETAINING WALLS			\$	-	\$ -
MAINTENANCE OF TRAFFIC			\$	14,960	\$ 16,075
TOPSOIL			\$	-	\$ -
SEEDING			\$	258	\$ 22,494
SODDING			\$	-	\$ -
SIGNING			\$	2,444	\$ 4,525
LIGHTING			\$	-	\$ -
SIGNALIZATION			\$	-	\$ -
FENCE			\$	-	\$ -
GUARDRAIL			\$	8,625	\$ 45,010
RIP RAP OR SLOPE PROTECTION			\$	2,700	\$ 10,800
OTHER CONST. ITEMS (15%)			\$	19,351	\$ 681,438
			SUBTOTAL	148,360	\$ 5,224,355
UTILITY COST					
OVERHEAD ELECTRIC	MI.	0.1	\$135,000	13,500	\$ 13,500
TELEPHONE	MI.	0	\$75,000	-	\$ -
WATER	MI.	0.1	\$275,000	27,500	\$ 27,500
SEWER	MI.	0	\$165,000	-	\$ -
CABLE	MI.	0.1	\$25,000	2,500	\$ 2,500
GAS	MI.	0.1	\$212,000	21,200	\$ 21,200
			SUBTOTAL	64,700	\$ 64,700
MOBILIZATION					
BASED ON SP 717, CALCULATED FOR TOTAL COST					
CONTINGENCY (10% OF CONSTRUCTION COST AND UTILITIES)				7,418	\$ 236,974
				22,048	\$ 562,803
TOTAL CONSTRUCTION COST				242,526	\$ 6,080,832
PRELIMINARY ENGINEERING (10% OF TOTAL CONSTRUCTION COST)				24,253	\$ 608,083
TOTAL COST*				269,253	\$ 6,932,365

* For estimating future project costs, a compounded inflation rate of 10%, per year will be applied from the date of this estimate.

Route: SR 80 - Option B
Description: Widening for Entire Corridor - S.R. 80 from S.R. 85 (Defeated Creek Rd.) to S.R. 56 (Union Camp Rd.) Smith/Macon
County: Smith/Macon
Length: Option B - 12.02 Miles, Option B - 12.01 Miles
Date: 3/8/2010

	UNIT	QUANT. - OPT. B	UNIT COST	OPT. B TOTAL
RIGHT-OF-WAY COST				
LAND	AC	87.6	\$2,750	\$ 240,900
COMMERCIAL	EACH	6	\$200,000	\$ 1,200,000
RESIDENTIAL	EACH	6	\$135,000	\$ 810,000
			SUBTOTAL	\$ 2,250,900
CONSTRUCTION COST				
CLEAR AND GRUBBING				\$ 364,000
EARTHWORK				\$ 4,783,804
PAVEMENT REMOVAL				\$ 117,581
DRAINAGE (INCLUDING EROSION CONTROL)				\$ 1,615,520
STRUCTURES				\$ 2,661,860
RAILROAD CROSSING OR SEPARATION				\$ -
PAVING (INCLUDING CURB, GUTTER AND SIDEWALK)				\$ 5,613,151
RETAINING WALLS				\$ -
MAINTENANCE OF TRAFFIC				\$ 779,600
TOPSOIL				\$ -
SEEDING				\$ 22,494
SODDING				\$ -
SIGNING				\$ 232,000
LIGHTING				\$ -
SIGNALIZATION				\$ -
FENCE				\$ -
GUARDRAIL				\$ 219,390
RIP RAP OR SLOPE PROTECTION				\$ 675,000
OTHER CONST. ITEMS (15%)				\$ 2,562,660
			SUBTOTAL	\$ 19,647,059
UTILITY COST				
OVERHEAD ELECTRIC	MI.	12.02	\$135,000	\$ 1,622,700
TELEPHONE	MI.	12.02	\$75,000	\$ 901,500
WATER	MI.	12.02	\$275,000	\$ 3,305,500
SEWER	MI.	0	\$165,000	\$ -
CABLE	MI.	12.02	\$25,000	\$ 300,500
GAS	MI.	12.02	\$212,000	\$ 2,548,240
			SUBTOTAL	\$ 8,678,440
MOBILIZATION				
BASED ON SP 717, CALCULATED FOR TOTAL COST				\$ 767,647
CONTINGENCY (10% OF CONSTRUCTION COST AND UTILITIES)				\$ 2,909,315
TOTAL CONSTRUCTION COST				\$ 32,002,461
PRELIMINARY ENGINEERING (10% OF TOTAL CONSTRUCTION COST)				\$ 3,200,246
TOTAL COST*				\$ 37,453,607

* For estimating future project costs, a compounded inflation rate of 10% per year will be applied from the date of this estimate.

Summary of Detailed Cost Estimates

Spot Improvement D.1: LM 2.88 to LM 3.61

	UNIT	QUANTITY	UNIT COST	TOTAL
CLEAR AND GRUBBING				
125' x 3855'	AC	11	\$2,000.00	\$22,000
			SUBTOTAL	\$22,000
EARTHWORK				
ROAD AND DRAINAGE UNCLASSIFIED	CY	88019	\$4.00	\$352,076
BORROW EXCAVATION	CY	0	\$3.00	\$0
PRESPLITTING OF ROCK EXCAVATION	SY	18635	\$7.50	\$139,763
			SUBTOTAL	\$491,839
PAVEMENT REMOVAL				
AREA	SY	1410	\$4.50	\$6,345
			SUBTOTAL	\$6,345
DRAINAGE (INCLUDING EROSION CONTROL)				
RCBC	SF	880	\$60.00	\$52,800
RCP	LF	160	\$65.00	\$10,400
SIDE DRAINS	LF	175	\$40.00	\$7,000
SILT FENCE	LF	7600	\$1.40	\$10,640
SILT FENCE WITH BACKING	LF	500	\$3.40	\$1,700
SEDIMENT REMOVAL	CY	550	\$4.40	\$2,420
CATCH BASIN PROTECTION	EACH	0	\$500.00	\$0
CHECK DAMS	EACH	80	\$325.00	\$26,000
SEDIMENT FILTER BAGS	EACH	4	\$900.00	\$3,600
EROSION CONTROL BLANKET	SY	10000	\$2.00	\$20,000
			SUBTOTAL	\$134,560
STRUCTURES				
BRIDGES OVER PEYTON CREEK	SF	0	\$85.00	\$0
			SUBTOTAL	\$0
RAILROAD CROSSING OR SEPARATION				
NONE	SF	0	\$85.00	\$0
			SUBTOTAL	\$0
PAVING (INCLUDES CURB, GUTTER & SIDEWALK)				
1.25" ASPHALTIC CONCRETE SURFACE (411-02.10)	TON	1221	\$77.00	\$94,017
2" ASPHALT BASE BINDER (307-02.08)	TON	898	\$63.00	\$56,574
2" ASPHALT AGGREGATE BASE BINDER (307-02.01)	TON	914	\$59.00	\$53,926
8" MINERAL AGGREGATE BASE (303-01)	TON	9659	\$15.00	\$144,885
TACK COAT	TON	2	\$464.00	\$928
PRIME COAT	TON	25	\$500.00	\$12,500
UNDERDRAIN	LF	0	\$5.00	\$0
CURB AND GUTTER	CY	0	\$162.50	\$0
SIDEWALK	SF	0	\$2.50	\$0
			SUBTOTAL	\$362,830
RETAINING WALLS				
NONE	SF	0	\$45.00	\$0
			SUBTOTAL	\$0
MAINTENANCE OF TRAFFIC				
TRAFFIC CONTROL	LS	1	\$15,000.00	\$15,000
TRAFFIC CONTROL SIGNAGE	SF	150	\$8.50	\$1,275
PORTABLE BARRIER RAIL	LF	500	\$22.00	\$11,000
FLEXIBLE DRUMS	EACH	70	\$30.00	\$2,100
WARNING LIGHTS	EACH	70	\$22.00	\$1,540
ARROW BOARD	EACH	2	\$900.00	\$1,800
CHANGEABLE MESSAGE SIGN UNIT	EACH	0	\$4,400.00	\$0
TEMPORARY STRIPING	LF	15420	\$1.25	\$19,275
			SUBTOTAL	\$51,990
TOPSOIL				
TOPSOIL	CY	0	\$2.75	\$0
			SUBTOTAL	\$0
SEEDING				
SEEDING WITH MULCH	UNIT	54	\$21.00	\$1,134
WATER	M.G.	50	\$6.00	\$300
			SUBTOTAL	\$1,434
SODDING				
SODDING	SY	0	\$2.50	\$0
WATER	M.G.	0	\$8.00	\$0
			SUBTOTAL	\$0
SIGNING				
SIGNS	SF	150	\$11.50	\$1,725
STRIPING	LM	3	\$4,450.00	\$13,350
			SUBTOTAL	\$15,075
LIGHTING				
NONE	LS	0	\$0.00	\$0
			SUBTOTAL	\$0
SIGNALIZATION				
NONE	LS	0	\$0.00	\$0
			SUBTOTAL	\$0
FENCE				
NONE	LF	0	\$15.00	\$0
			SUBTOTAL	\$0
GUARDRAIL				
GUARDRAIL	LF	4000	\$18.50	\$74,000
END TERMINALS	EACH	2	\$2,000.00	\$4,000
GUARDRAIL AT BRIDGE ENDS	LF	0	\$66.00	\$0
			SUBTOTAL	\$78,000
RIP RAP OR SLOPE PROTECTION				
RIP RAP	TON	300	\$27.00	\$8,100
			SUBTOTAL	\$8,100

Summary of Detailed Cost Estimates

Spot Improvement D.2: LM 4.86 to LM 5.31

	UNIT	QUANTITY	UNIT COST	TOTAL
CLEAR AND GRUBBING				
25' x 2376'	AC	7	\$2,000.00	\$14,000
			SUBTOTAL	\$14,000
EARTHWORK				
ROAD AND DRAINAGE UNCLASSIFIED	CY	341652	\$4.00	\$1,366,608
BORROW EXCAVATION	CY	0	\$3.00	\$0
PRESPLITTING OF ROCK EXCAVATION	SY	17817	\$7.50	\$133,628
			SUBTOTAL	\$1,500,236
PAVEMENT REMOVAL				
AREA	SY	3914	\$4.50	\$17,613
			SUBTOTAL	\$17,613
DRAINAGE (INCLUDING EROSION CONTROL)				
RCBC	SF	1160	\$60.00	\$69,600
RCP	LF	160	\$65.00	\$10,400
SIDE DRAINS	LF	175	\$40.00	\$7,000
SILT FENCE	LF	7600	\$1.40	\$10,640
SILT FENCE WITH BACKING	LF	500	\$3.40	\$1,700
SEDIMENT REMOVAL	CY	550	\$4.40	\$2,420
CATCH BASIN PROTECTION	EACH	0	\$500.00	\$0
CHECK DAMS	EACH	65	\$325.00	\$21,125
SEDIMENT FILTER BAGS	EACH	4	\$900.00	\$3,600
EROSION CONTROL BLANKET	SY	10000	\$2.00	\$20,000
			SUBTOTAL	\$146,485
STRUCTURES				
BRIDGES OVER PEYTON CREEK	SF	0	\$85.00	\$0
			SUBTOTAL	\$0
RAILROAD CROSSING OR SEPARATION				
NONE	SF	0	\$85.00	\$0
			SUBTOTAL	\$0
PAVING (INCLUDES CURB, GUTTER & SIDEWALK)				
1.25" ASPHALTIC CONCRETE SURFACE (411-02.10)	TON	491	\$77.00	\$37,807
2" ASPHALT BASE BINDER (307-02.08)	TON	503	\$63.00	\$31,689
2" ASPHALT AGGREGATE BASE BINDER (307-02.01)	TON	511	\$59.00	\$30,149
8" MINERAL AGGREGATE BASE (303-01)	TON	5796	\$15.00	\$86,940
TACK COAT	TON	1	\$464.00	\$464
PRIME COAT	TON	15	\$500.00	\$7,500
UNDERDRAIN	LF	0	\$5.00	\$0
CURB AND GUTTER	CY	0	\$162.50	\$0
SIDEWALK	SF	0	\$2.50	\$0
			SUBTOTAL	\$194,549
RETAINING WALLS				
NONE	SF	0	\$45.00	\$0
			SUBTOTAL	\$0
MAINTENANCE OF TRAFFIC				
TRAFFIC CONTROL	LS	1	\$15,000.00	\$15,000
TRAFFIC CONTROL SIGNAGE	SF	150	\$8.50	\$1,275
PORTABLE BARRIER RAIL	LF	500	\$22.00	\$11,000
FLEXIBLE DRUMS	EACH	50	\$30.00	\$1,500
WARNING LIGHTS	EACH	50	\$22.00	\$1,100
ARROW BOARD	EACH	2	\$900.00	\$1,800
CHANGEABLE MESSAGE SIGN UNIT	EACH	0	\$4,400.00	\$0
TEMPORARY STRIPING	LF	9500	\$1.25	\$11,875
			SUBTOTAL	\$43,550
TOPSOIL				
TOPSOIL	CY	0	\$2.75	\$0
			SUBTOTAL	\$0
SEEDING				
SEEDING WITH MULCH	UNIT	34	\$21.00	\$714
WATER	M.G.	30	\$6.00	\$180
			SUBTOTAL	\$894
SODDING				
SODDING	SY	0	\$2.50	\$0
WATER	M.G.	0	\$8.00	\$0
			SUBTOTAL	\$0
SIGNING				
SIGNS	SF	100	\$11.50	\$1,150
STRIPING	LM	2	\$4,450.00	\$8,900
			SUBTOTAL	\$10,050
LIGHTING				
NONE	LS	0	\$0.00	\$0
			SUBTOTAL	\$0
SIGNALIZATION				
NONE	LS	0	\$0.00	\$0
			SUBTOTAL	\$0
FENCE				
NONE	LF	0	\$15.00	\$0
			SUBTOTAL	\$0
GUARDRAIL				
GUARDRAIL	LF	2400	\$18.50	\$44,400
END TERMINALS	EACH	2	\$2,000.00	\$4,000
GUARDRAIL AT BRIDGE ENDS	LF	0	\$56.00	\$0
			SUBTOTAL	\$48,400
RIP RAP OR SLOPE PROTECTION				
RIP RAP	TON	200	\$27.00	\$5,400
			SUBTOTAL	\$5,400

Summary of Detailed Cost Estimates

Spot Improvement D.3: LM 6.52 to LM 6.70

	UNIT	QUANTITY	UNIT COST	TOTAL
CLEAR AND GRUBBING				
125' x 1335'	AC	4	\$2,000.00	\$8,000
			SUBTOTAL	\$8,000
EARTHWORK				
ROAD AND DRAINAGE UNCLASSIFIED	CY	30389	\$4.00	\$121,556
BORROW EXCAVATION	CY	0	\$3.00	\$0
PRESPLITTING OF ROCK EXCAVATION	SY	1600	\$7.50	\$12,000
			SUBTOTAL	\$133,556
PAVEMENT REMOVAL				
AREA	SY	52	\$4.50	\$234
			SUBTOTAL	\$234
DRAINAGE (INCLUDING EROSION CONTROL)				
RCBC	SF	0	\$60.00	\$0
RCP	LF	100	\$65.00	\$6,500
SIDE DRAINS	LF	100	\$40.00	\$4,000
SILT FENCE	LF	5000	\$1.40	\$7,000
SILT FENCE WITH BACKING	LF	250	\$3.40	\$850
SEDIMENT REMOVAL	CY	550	\$4.40	\$2,420
CATCH BASIN PROTECTION	EACH	0	\$500.00	\$0
CHECK DAMS	EACH	28	\$325.00	\$9,100
SEDIMENT FILTER BAGS	EACH	1	\$900.00	\$900
EROSION CONTROL BLANKET	SY	8000	\$2.00	\$16,000
			SUBTOTAL	\$46,770
STRUCTURES				
BRIDGES OVER PEYTON CREEK	SF	0	\$85.00	\$0
			SUBTOTAL	\$0
RAILROAD CROSSING OR SEPARATION				
NONE	SF	0	\$85.00	\$0
			SUBTOTAL	\$0
PAVING (INCLUDES CURB, GUTTER & SIDEWALK)				
1.25" ASPHALTIC CONCRETE SURFACE (411-02.10)	TON	402	\$77.00	\$30,954
2" ASPHALT BASE BINDER (307-02.08)	TON	381	\$63.00	\$24,003
2" ASPHALT AGGREGATE BASE BINDER (307-02.01)	TON	388	\$59.00	\$22,892
8" MINERAL AGGREGATE BASE (303-01)	TON	3810	\$15.00	\$57,150
TACK COAT	TON	1	\$464.00	\$464
PRIME COAT	TON	9	\$500.00	\$4,500
UNDERDRAIN	LF	0	\$5.00	\$0
CURB AND GUTTER	CY	0	\$162.50	\$0
SIDEWALK	SF	0	\$2.50	\$0
			SUBTOTAL	\$139,963
RETAINING WALLS				
NONE	SF	0	\$45.00	\$0
			SUBTOTAL	\$0
MAINTENANCE OF TRAFFIC				
TRAFFIC CONTROL	LS	1	\$10,000.00	\$10,000
TRAFFIC CONTROL SIGNAGE	SF	150	\$8.50	\$1,275
PORTABLE BARRIER RAIL	LF	200	\$22.00	\$4,400
FLEXIBLE DRUMS	EACH	40	\$30.00	\$1,200
WARNING LIGHTS	EACH	40	\$22.00	\$880
ARROW BOARD	EACH	2	\$900.00	\$1,800
CHANGEABLE MESSAGE SIGN UNIT	EACH	0	\$4,400.00	\$0
TEMPORARY STRIPING	LF	5400	\$1.25	\$6,750
			SUBTOTAL	\$26,305
TOPSOIL				
TOPSOIL	CY	0	\$2.75	\$0
			SUBTOTAL	\$0
SEEDING				
SEEDING WITH MULCH	UNIT	20	\$21.00	\$420
WATER	M.G.	20	\$6.00	\$120
			SUBTOTAL	\$540
SODDING				
SODDING	SY	0	\$2.50	\$0
WATER	M.G.	0	\$8.00	\$0
			SUBTOTAL	\$0
SIGNING				
SIGNS	SF	1765	\$11.50	\$20,298
STRIPING	LM	1	\$4,450.00	\$4,450
			SUBTOTAL	\$24,748
LIGHTING				
NONE	LS	0	\$0.00	\$0
			SUBTOTAL	\$0
SIGNALIZATION				
NONE	LS	0	\$0.00	\$0
			SUBTOTAL	\$0
FENCE				
NONE	LF	0	\$15.00	\$0
			SUBTOTAL	\$0
GUARDRAIL				
GUARDRAIL	LF	1400	\$18.50	\$25,900
END TERMINALS	EACH	2	\$2,000.00	\$4,000
GUARDRAIL AT BRIDGE ENDS	LF	0	\$56.00	\$0
			SUBTOTAL	\$29,900
RIP RAP OR SLOPE PROTECTION				
RIP RAP	TON	100	\$27.00	\$2,700
			SUBTOTAL	\$2,700

Summary of Detailed Cost Estimates

Spot Improvement D.4: LM 7.52

	UNIT	QUANTITY	UNIT COST	TOTAL
CLEAR AND GRUBBING				
125' x 500'	AC	1.4	\$2,000.00	\$2,800
			SUBTOTAL	\$2,800
EARTHWORK				
ROAD AND DRAINAGE UNCLASSIFIED	CY	0	\$4.00	\$0
BORROW EXCAVATION	CY	2570	\$3.00	\$7,710
PRESPLITTING OF ROCK EXCAVATION	SY	0	\$7.50	\$0
			SUBTOTAL	\$7,710
PAVEMENT REMOVAL				
AREA	SY	498	\$4.50	\$2,241
			SUBTOTAL	\$2,241
DRAINAGE (INCLUDING EROSION CONTROL)				
RCBC	SF	0	\$60.00	\$0
RCP	LF	30	\$65.00	\$1,950
SIDE DRAINS	LF	30	\$40.00	\$1,200
SILT FENCE	LF	1500	\$1.40	\$2,100
SILT FENCE WITH BACKING	LF	100	\$3.40	\$340
SEDIMENT REMOVAL	CY	0	\$4.40	\$0
CATCH BASIN PROTECTION	EACH	0	\$500.00	\$0
CHECK DAMS	EACH	10	\$325.00	\$3,250
SEDIMENT FILTER BAGS	EACH	0	\$900.00	\$0
EROSION CONTROL BLANKET	SY	2400	\$2.00	\$4,800
			SUBTOTAL	\$13,640
STRUCTURES				
BRIDGES OVER PEYTON CREEK	SF	0	\$85.00	\$0
			SUBTOTAL	\$0
RAILROAD CROSSING OR SEPARATION				
NONE	SF	0	\$85.00	\$0
			SUBTOTAL	\$0
PAVING (INCLUDES CURB, GUTTER & SIDEWALK)				
1.25" ASPHALTIC CONCRETE SURFACE (411-02.10)	TON	103	\$77.00	\$7,931
2" ASPHALT BASE BINDER (307-02.08)	TON	175	\$63.00	\$11,025
2" ASPHALT AGGREGATE BASE BINDER (307-02.01)	TON	179	\$59.00	\$10,561
8" MINERAL AGGREGATE BASE (303-01)	TON	752	\$15.00	\$11,280
TACK COAT	TON	0.5	\$464.00	\$232
PRIME COAT	TON	3	\$500.00	\$1,500
UNDERDRAIN	LF	0	\$5.00	\$0
CURB AND GUTTER	CY	0	\$162.50	\$0
SIDEWALK	SF	0	\$2.50	\$0
			SUBTOTAL	\$42,529
RETAINING WALLS				
NONE	SF	0	\$45.00	\$0
			SUBTOTAL	\$0
MAINTENANCE OF TRAFFIC				
TRAFFIC CONTROL	LS	1	\$5,000.00	\$5,000
TRAFFIC CONTROL SIGNAGE	SF	100	\$8.50	\$850
PORTABLE BARRIER RAIL	LF	0	\$22.00	\$0
FLEXIBLE DRUMS	EACH	20	\$30.00	\$600
WARNING LIGHTS	EACH	20	\$22.00	\$440
ARROW BOARD	EACH	2	\$900.00	\$1,800
CHANGEABLE MESSAGE SIGN UNIT	EACH	0	\$4,400.00	\$0
TEMPORARY STRIPING	LF	0	\$1.25	\$0
			SUBTOTAL	\$8,690
TOPSOIL				
TOPSOIL	CY	0	\$2.75	\$0
			SUBTOTAL	\$0
SEEDING				
SEEDING WITH MULCH	UNIT	5	\$21.00	\$105
WATER	M.G.	4	\$6.00	\$24
			SUBTOTAL	\$129
SODDING				
SODDING	SY	0	\$2.50	\$0
WATER	M.G.	0	\$8.00	\$0
			SUBTOTAL	\$0
SIGNING				
SIGNS	SF	40	\$11.50	\$460
STRIPING	LM	0.4	\$4,450.00	\$1,780
			SUBTOTAL	\$2,240
LIGHTING				
NONE	LS	0	\$0.00	\$0
			SUBTOTAL	\$0
SIGNALIZATION				
NONE	LS	0	\$0.00	\$0
			SUBTOTAL	\$0
FENCE				
NONE	LF	0	\$15.00	\$0
			SUBTOTAL	\$0
GUARDRAIL				
GUARDRAIL	LF	0	\$18.50	\$0
END TERMINALS	EACH	0	\$2,000.00	\$0
GUARDRAIL AT BRIDGE ENDS	LF	0	\$56.00	\$0
			SUBTOTAL	\$0
RIP RAP OR SLOPE PROTECTION				
RIP RAP	TON	10	\$27.00	\$270
			SUBTOTAL	\$270

Summary of Detailed Cost Estimates

Spot Improvement D.5: LM 8.24

	UNIT	QUANTITY	UNIT COST	TOTAL
CLEAR AND GRUBBING				
125' x 550'	AC	1.6	\$2,000.00	\$3,200
			SUBTOTAL	\$3,200
EARTHWORK				
ROAD AND DRAINAGE UNCLASSIFIED	CY	0	\$4.00	\$0
BORROW EXCAVATION	CY	1750	\$3.00	\$5,250
PRESPLITTING OF ROCK EXCAVATION	SY	0	\$7.50	\$0
			SUBTOTAL	\$5,250
PAVEMENT REMOVAL				
AREA	SY	201	\$4.50	\$905
			SUBTOTAL	\$905
DRAINAGE (INCLUDING EROSION CONTROL)				
RCBC	SF	0	\$60.00	\$0
RCP	LF	30	\$65.00	\$1,950
SIDE DRAINS	LF	60	\$40.00	\$2,400
SILT FENCE	LF	1500	\$1.40	\$2,100
SILT FENCE WITH BACKING	LF	100	\$3.40	\$340
SEDIMENT REMOVAL	CY	25	\$4.40	\$110
CATCH BASIN PROTECTION	EACH	0	\$500.00	\$0
CHECK DAMS	EACH	10	\$325.00	\$3,250
SEDIMENT FILTER BAGS	EACH	0	\$900.00	\$0
EROSION CONTROL BLANKET	SY	2400	\$2.00	\$4,800
			SUBTOTAL	\$14,950
STRUCTURES				
BRIDGES OVER PEYTON CREEK	SF	0	\$85.00	\$0
			SUBTOTAL	\$0
RAILROAD CROSSING OR SEPARATION				
NONE	SF	0	\$85.00	\$0
			SUBTOTAL	\$0
PAVING (INCLUDES CURB, GUTTER & SIDEWALK)				
1.25" ASPHALTIC CONCRETE SURFACE (411-02.10)	TON	62	\$77.00	\$4,774
2" ASPHALT BASE BINDER (307-02.08)	TON	107	\$63.00	\$6,741
2" ASPHALT AGGREGATE BASE BINDER (307-02.01)	TON	108	\$59.00	\$6,372
8" MINERAL AGGREGATE BASE (303-01)	TON	650	\$15.00	\$9,750
TACK COAT	TON	0.5	\$464.00	\$232
PRIME COAT	TON	3	\$500.00	\$1,500
UNDERDRAIN	LF	0	\$5.00	\$0
CURB AND GUTTER	CY	0	\$162.50	\$0
SIDEWALK	SF	0	\$2.50	\$0
			SUBTOTAL	\$29,369
RETAINING WALLS				
NONE	SF	0	\$45.00	\$0
			SUBTOTAL	\$0
MAINTENANCE OF TRAFFIC				
TRAFFIC CONTROL	LS	1	\$5,000.00	\$5,000
TRAFFIC CONTROL SIGNAGE	SF	75	\$8.50	\$638
PORTABLE BARRIER RAIL	LF	0	\$22.00	\$0
FLEXIBLE DRUMS	EACH	30	\$30.00	\$900
WARNING LIGHTS	EACH	30	\$22.00	\$660
ARROW BOARD	EACH	2	\$900.00	\$1,800
CHANGEABLE MESSAGE SIGN UNIT	EACH	0	\$4,400.00	\$0
TEMPORARY STRIPING	LF	0	\$1.25	\$0
			SUBTOTAL	\$8,998
TOPSOIL				
TOPSOIL	CY	0	\$2.75	\$0
			SUBTOTAL	\$0
SEEDING				
SEEDING WITH MULCH	UNIT	5	\$21.00	\$105
WATER	M.G.	4	\$6.00	\$24
			SUBTOTAL	\$129
SODDING				
SODDING	SY	0	\$2.50	\$0
WATER	M.G.	0	\$8.00	\$0
			SUBTOTAL	\$0
SIGNING				
SIGNS	SF	12.5	\$11.50	\$144
STRIPING	LM	0.4	\$4,450.00	\$1,780
			SUBTOTAL	\$1,924
LIGHTING				
NONE	LS	0	\$0.00	\$0
			SUBTOTAL	\$0
SIGNALIZATION				
NONE	LS	0	\$0.00	\$0
			SUBTOTAL	\$0
FENCE				
NONE	LF	0	\$15.00	\$0
			SUBTOTAL	\$0
GUARDRAIL				
GUARDRAIL	LF	0	\$18.50	\$0
END TERMINALS	EACH	0	\$2,000.00	\$0
GUARDRAIL AT BRIDGE ENDS	LF	0	\$56.00	\$0
			SUBTOTAL	\$0
RIP RAP OR SLOPE PROTECTION				
RIP RAP	TON	10	\$27.00	\$270
			SUBTOTAL	\$270

Summary of Detailed Cost Estimates

Spot Improvement D.6: LM 9.14 to LM 9.60

	UNIT	QUANTITY	UNIT COST	TOTAL
CLEAR AND GRUBBING				
125' x 2429'	AC	7	\$2,000.00	\$14,000
			SUBTOTAL	\$14,000
EARTHWORK				
ROAD AND DRAINAGE UNCLASSIFIED	CY	1750	\$4.00	\$7,000
BORROW EXCAVATION	CY	43449	\$3.00	\$130,347
PRESPLITTING OF ROCK EXCAVATION	SY	0	\$7.50	\$0
			SUBTOTAL	\$137,347
PAVEMENT REMOVAL				
AREA	SY	2084	\$4.50	\$9,378
			SUBTOTAL	\$9,378
DRAINAGE (INCLUDING EROSION CONTROL)				
RCBC	SF	1880	\$60.00	\$112,800
RCP	LF	100	\$65.00	\$6,500
SIDE DRAINS	LF	175	\$40.00	\$7,000
SILT FENCE	LF	9700	\$1.40	\$13,580
SILT FENCE WITH BACKING	LF	500	\$3.40	\$1,700
SEDIMENT REMOVAL	CY	100	\$4.40	\$440
CATCH BASIN PROTECTION	EACH	0	\$500.00	\$0
CHECK DAMS	EACH	50	\$325.00	\$16,250
SEDIMENT FILTER BAGS	EACH	2	\$900.00	\$1,800
EROSION CONTROL BLANKET	SY	17000	\$2.00	\$34,000
			SUBTOTAL	\$194,070
STRUCTURES				
BRIDGES OVER PEYTON CREEK	SF	0	\$85.00	\$0
			SUBTOTAL	\$0
RAILROAD CROSSING OR SEPARATION				
NONE	SF	0	\$85.00	\$0
			SUBTOTAL	\$0
PAVING (INCLUDES CURB, GUTTER & SIDEWALK)				
1.25" ASPHALTIC CONCRETE SURFACE (411-02.10)	TON	607	\$77.00	\$46,739
2" ASPHALT BASE BINDER (307-02.08)	TON	523	\$63.00	\$32,949
2" ASPHALT AGGREGATE BASE BINDER (307-02.01)	TON	534	\$59.00	\$31,506
8" MINERAL AGGREGATE BASE (303-01)	TON	7242	\$15.00	\$108,630
TACK COAT	TON	1.2	\$464.00	\$557
PRIME COAT	TON	15.5	\$500.00	\$7,750
UNDERDRAIN	LF	0	\$5.00	\$0
CURB AND GUTTER	CY	0	\$162.50	\$0
SIDEWALK	SF	0	\$2.50	\$0
			SUBTOTAL	\$228,131
RETAINING WALLS				
NONE	SF	0	\$45.00	\$0
			SUBTOTAL	\$0
MAINTENANCE OF TRAFFIC				
TRAFFIC CONTROL	LS	1	\$15,000.00	\$15,000
TRAFFIC CONTROL SIGNAGE	SF	150	\$8.50	\$1,275
PORTABLE BARRIER RAIL	LF	500	\$22.00	\$11,000
FLEXIBLE DRUMS	EACH	75	\$30.00	\$2,250
WARNING LIGHTS	EACH	75	\$22.00	\$1,650
ARROW BOARD	EACH	2	\$900.00	\$1,800
CHANGEABLE MESSAGE SIGN UNIT	EACH	2	\$4,400.00	\$8,800
TEMPORARY STRIPING	LF	9700	\$1.25	\$12,125
			SUBTOTAL	\$53,900
TOPSOIL				
TOPSOIL	CY	0	\$2.75	\$0
			SUBTOTAL	\$0
SEEDING				
SEEDING WITH MULCH	UNIT	34	\$21.00	\$714
WATER	M.G.	30	\$6.00	\$180
			SUBTOTAL	\$894
SODDING				
SODDING	SY	0	\$2.50	\$0
WATER	M.G.	0	\$8.00	\$0
			SUBTOTAL	\$0
SIGNING				
SIGNS	SF	100	\$11.50	\$1,150
STRIPING	LM	2	\$4,450.00	\$8,900
			SUBTOTAL	\$10,050
LIGHTING				
NONE	LS	0	\$0.00	\$0
			SUBTOTAL	\$0
SIGNALIZATION				
NONE	LS	0	\$0.00	\$0
			SUBTOTAL	\$0
FENCE				
NONE	LF	0	\$15.00	\$0
			SUBTOTAL	\$0
GUARDRAIL				
GUARDRAIL	LF	2450	\$18.50	\$45,325
END TERMINALS	EACH	2	\$2,000.00	\$4,000
GUARDRAIL AT BRIDGE ENDS	LF	0	\$56.00	\$0
			SUBTOTAL	\$49,325
RIP RAP OR SLOPE PROTECTION				
RIP RAP	TON	200	\$27.00	\$5,400
			SUBTOTAL	\$5,400

Summary of Detailed Cost Estimates

Spot Improvement D.7: LM 9.87 to LM 9.96

	UNIT	QUANTITY	UNIT COST	TOTAL
CLEAR AND GRUBBING				
125' x 475'	AC	1.4	\$2,000.00	\$2,800
			SUBTOTAL	\$2,800
EARTHWORK				
ROAD AND DRAINAGE UNCLASSIFIED	CY	750	\$4.00	\$3,000
BORROW EXCAVATION	CY	565	\$3.00	\$1,695
PRESPLITTING OF ROCK EXCAVATION	SY	0	\$7.50	\$0
			SUBTOTAL	\$4,695
PAVEMENT REMOVAL				
AREA	SY	0	\$4.50	\$0
			SUBTOTAL	\$0
DRAINAGE (INCLUDING EROSION CONTROL)				
RCBC	SF	0	\$60.00	\$0
RCP	LF	50	\$65.00	\$3,250
SIDE DRAINS	LF	25	\$40.00	\$1,000
SILT FENCE	LF	1900	\$1.40	\$2,660
SILT FENCE WITH BACKING	LF	200	\$3.40	\$680
SEDIMENT REMOVAL	CY	100	\$4.40	\$440
CATCH BASIN PROTECTION	EACH	0	\$500.00	\$0
CHECK DAMS	EACH	12	\$325.00	\$3,900
SEDIMENT FILTER BAGS	EACH	1	\$900.00	\$900
EROSION CONTROL BLANKET	SY	6700	\$2.00	\$13,400
			SUBTOTAL	\$26,230
STRUCTURES				
BRIDGES OVER PEYTON CREEK	SF	0	\$85.00	\$0
			SUBTOTAL	\$0
RAILROAD CROSSING OR SEPARATION				
NONE	SF	0	\$85.00	\$0
			SUBTOTAL	\$0
PAVING (INCLUDES CURB, GUTTER & SIDEWALK)				
1.25" ASPHALTIC CONCRETE SURFACE (411-02.10)	TON	114	\$77.00	\$8,778
2" ASPHALT BASE BINDER (307-02.08)	TON	63	\$63.00	\$3,969
2" ASPHALT AGGREGATE BASE BINDER (307-02.01)	TON	64	\$59.00	\$3,776
8" MINERAL AGGREGATE BASE (303-01)	TON	1154	\$15.00	\$17,310
TACK COAT	TON	0.5	\$464.00	\$232
PRIME COAT	TON	3	\$500.00	\$1,500
UNDERDRAIN	LF	0	\$5.00	\$0
CURB AND GUTTER	CY	0	\$162.50	\$0
SIDEWALK	SF	0	\$2.50	\$0
			SUBTOTAL	\$35,565
RETAINING WALLS				
NONE	SF	0	\$45.00	\$0
			SUBTOTAL	\$0
MAINTENANCE OF TRAFFIC				
TRAFFIC CONTROL	LS	1	\$5,000.00	\$5,000
TRAFFIC CONTROL SIGNAGE	SF	150	\$8.50	\$1,275
PORTABLE BARRIER RAIL	LF	0	\$22.00	\$0
FLEXIBLE DRUMS	EACH	25	\$30.00	\$750
WARNING LIGHTS	EACH	25	\$22.00	\$550
ARROW BOARD	EACH	2	\$900.00	\$1,800
CHANGEABLE MESSAGE SIGN UNIT	EACH	2	\$4,400.00	\$8,800
TEMPORARY STRIPING	LF	2000	\$1.25	\$2,500
			SUBTOTAL	\$20,675
TOPSOIL				
TOPSOIL	CY	0	\$2.75	\$0
			SUBTOTAL	\$0
SEEDING				
SEEDING WITH MULCH	UNIT	15	\$21.00	\$315
WATER	M.G.	12	\$6.00	\$72
			SUBTOTAL	\$387
SODDING				
SODDING	SY	0	\$2.50	\$0
WATER	M.G.	0	\$8.00	\$0
			SUBTOTAL	\$0
SIGNING				
SIGNS	SF	100	\$11.50	\$1,150
STRIPING	LM	1	\$4,450.00	\$4,450
			SUBTOTAL	\$5,600
LIGHTING				
NONE	LS	0	\$0.00	\$0
			SUBTOTAL	\$0
SIGNALIZATION				
NONE	LS	0	\$0.00	\$0
			SUBTOTAL	\$0
FENCE				
NONE	LF	0	\$15.00	\$0
			SUBTOTAL	\$0
GUARDRAIL				
GUARDRAIL	LF	500	\$18.50	\$9,250
END TERMINALS	EACH	2	\$2,000.00	\$4,000
GUARDRAIL AT BRIDGE ENDS	LF	0	\$56.00	\$0
			SUBTOTAL	\$13,250
RIP RAP OR SLOPE PROTECTION				
RIP RAP	TON	400	\$27.00	\$10,800
			SUBTOTAL	\$10,800

Summary of Detailed Cost Estimates

Spot Improvement D.8: Truck Climbing Lane

	UNIT	QUANTITY	UNIT COST	TOTAL
CLEAR AND GRUBBING				
6125' x 50'	AC	7.1	\$2,000.00	\$14,200
			SUBTOTAL	\$14,200
EARTHWORK				
ROAD AND DRAINAGE UNCLASSIFIED	CY	22700	\$4.00	\$90,800
BORROW EXCAVATION	CY	0	\$3.00	\$0
PRESPLITTING OF ROCK EXCAVATION	SY	2700	\$7.50	\$20,250
			SUBTOTAL	\$111,050
PAVEMENT REMOVAL				
AREA	SY	0	\$4.50	\$0
			SUBTOTAL	\$0
DRAINAGE (INCLUDING EROSION CONTROL)				
RCBC	SF	1000	\$60.00	\$60,000
RCP	LF	400	\$65.00	\$26,000
SIDE DRAINS	LF	100	\$40.00	\$4,000
SILT FENCE	LF	6000	\$1.40	\$8,400
SILT FENCE WITH BACKING	LF	0	\$3.40	\$0
SEDIMENT REMOVAL	CY	500	\$4.40	\$2,200
CATCH BASIN PROTECTION	EACH	0	\$500.00	\$0
CHECK DAMS	EACH	60	\$325.00	\$19,500
SEDIMENT FILTER BAGS	EACH	0	\$900.00	\$0
EROSION CONTROL BLANKET	SY	2500	\$2.00	\$5,000
			SUBTOTAL	\$125,100
STRUCTURES				
BRIDGES OVER PEYTON CREEK	SF	0	\$85.00	\$0
			SUBTOTAL	\$0
RAILROAD CROSSING OR SEPARATION				
NONE	SF	0	\$85.00	\$0
			SUBTOTAL	\$0
PAVING (INCLUDES CURB, GUTTER & SIDEWALK)				
1.25" ASPHALTIC CONCRETE SURFACE (411-02.10)	TON	905	\$77.00	\$69,685
2" ASPHALT BASE BINDER (307-02.08)	TON	1540	\$63.00	\$97,020
2" ASPHALT AGGREGATE BASE BINDER (307-02.01)	TON	1565	\$59.00	\$92,335
8" MINERAL AGGREGATE BASE (303-01)	TON	6140	\$15.00	\$92,100
TACK COAT	TON	3	\$464.00	\$1,392
PRIME COAT	TON	42	\$500.00	\$21,000
UNDERDRAIN	LF	5000	\$5.00	\$25,000
CURB AND GUTTER	CY	0	\$162.50	\$0
SIDEWALK	SF	0	\$2.50	\$0
			SUBTOTAL	\$398,532
RETAINING WALLS				
NONE	SF	0	\$45.00	\$0
			SUBTOTAL	\$0
MAINTENANCE OF TRAFFIC				
TRAFFIC CONTROL	LS	1	\$75,000.00	\$75,000
TRAFFIC CONTROL SIGNAGE	SF	500	\$8.50	\$4,250
PORTABLE BARRIER RAIL	LF	6000	\$22.00	\$132,000
FLEXIBLE DRUMS	EACH	50	\$30.00	\$1,500
WARNING LIGHTS	EACH	50	\$22.00	\$1,100
ARROW BOARD	EACH	2	\$900.00	\$1,800
CHANGEABLE MESSAGE SIGN UNIT	EACH	2	\$4,400.00	\$8,800
TEMPORARY STRIPING	LF	6000	\$1.25	\$7,500
			SUBTOTAL	\$231,950
TOPSOIL				
TOPSOIL	CY	0	\$2.75	\$0
			SUBTOTAL	\$0
SEEDING				
SEEDING WITH MULCH	UNIT	306	\$21.00	\$6,426
WATER	M.G.	400	\$6.00	\$2,400
			SUBTOTAL	\$8,826
SODDING				
SODDING	SY	0	\$2.50	\$0
WATER	M.G.	0	\$8.00	\$0
			SUBTOTAL	\$0
SIGNING				
SIGNS	SF	50	\$11.50	\$575
STRIPING	LM	2	\$4,450.00	\$8,900
			SUBTOTAL	\$9,475
LIGHTING				
NONE	LS	0	\$0.00	\$0
			SUBTOTAL	\$0
SIGNALIZATION				
NONE	LS	0	\$0.00	\$0
			SUBTOTAL	\$0
FENCE				
NONE	LF	0	\$15.00	\$0
			SUBTOTAL	\$0
GUARDRAIL				
GUARDRAIL	LF	0	\$18.50	\$0
END TERMINALS	EACH	0	\$2,000.00	\$0
GUARDRAIL AT BRIDGE ENDS	LF	0	\$56.00	\$0
			SUBTOTAL	\$0
RIP RAP OR SLOPE PROTECTION				
RIP RAP	TON	100	\$27.00	\$2,700
			SUBTOTAL	\$2,700

Summary of Detailed Cost Estimates

Spot Improvement D.9: LM 1.22 to LM 1.40

	UNIT	QUANTITY	UNIT COST	TOTAL
CLEAR AND GRUBBING				
125' x 951'	AC	3	\$2,000.00	\$6,000
			SUBTOTAL	\$6,000
EARTHWORK				
ROAD AND DRAINAGE UNCLASSIFIED	CY	24085	\$4.00	\$96,340
BORROW EXCAVATION	CY	0	\$3.00	\$0
PRESPLITTING OF ROCK EXCAVATION	SY	0	\$7.50	\$0
			SUBTOTAL	\$96,340
PAVEMENT REMOVAL				
AREA	SY	2376	\$4.50	\$10,692
			SUBTOTAL	\$10,692
DRAINAGE (INCLUDING EROSION CONTROL)				
RCBC	SF	0	\$60.00	\$0
RCP	LF	50	\$65.00	\$3,250
SIDE DRAINS	LF	100	\$40.00	\$4,000
SILT FENCE	LF	3800	\$1.40	\$5,320
SILT FENCE WITH BACKING	LF	200	\$3.40	\$680
SEDIMENT REMOVAL	CY	100	\$4.40	\$440
CATCH BASIN PROTECTION	EACH	0	\$500.00	\$0
CHECK DAMS	EACH	20	\$325.00	\$6,500
SEDIMENT FILTER BAGS	EACH	1	\$900.00	\$900
EROSION CONTROL BLANKET	SY	7300	\$2.00	\$14,600
			SUBTOTAL	\$35,690
STRUCTURES				
BRIDGES OVER PEYTON CREEK	SF	0	\$85.00	\$0
			SUBTOTAL	\$0
RAILROAD CROSSING OR SEPARATION				
NONE	SF	0	\$85.00	\$0
			SUBTOTAL	\$0
PAVING (INCLUDES CURB, GUTTER & SIDEWALK)				
1.25" ASPHALTIC CONCRETE SURFACE (411-02.10)	TON	298	\$77.00	\$22,946
2" ASPHALT BASE BINDER (307-02.08)	TON	343	\$63.00	\$21,609
2" ASPHALT AGGREGATE BASE BINDER (307-02.01)	TON	348	\$59.00	\$20,532
8" MINERAL AGGREGATE BASE (303-01)	TON	3132	\$15.00	\$46,980
TACK COAT	TON	1	\$464.00	\$464
PRIME COAT	TON	9	\$500.00	\$4,500
UNDERDRAIN	LF	0	\$5.00	\$0
CURB AND GUTTER	CY	0	\$162.50	\$0
SIDEWALK	SF	0	\$2.50	\$0
			SUBTOTAL	\$117,031
RETAINING WALLS				
NONE	SF	0	\$45.00	\$0
			SUBTOTAL	\$0
MAINTENANCE OF TRAFFIC				
TRAFFIC CONTROL	LS	1	\$15,000.00	\$15,000
TRAFFIC CONTROL SIGNAGE	SF	150	\$8.50	\$1,275
PORTABLE BARRIER RAIL	LF	500	\$22.00	\$11,000
FLEXIBLE DRUMS	EACH	40	\$30.00	\$1,200
WARNING LIGHTS	EACH	40	\$22.00	\$880
ARROW BOARD	EACH	2	\$900.00	\$1,800
CHANGEABLE MESSAGE SIGN UNIT	EACH	2	\$4,400.00	\$8,800
TEMPORARY STRIPING	LF	5200	\$1.25	\$6,500
			SUBTOTAL	\$46,455
TOPSOIL				
TOPSOIL	CY	0	\$2.75	\$0
			SUBTOTAL	\$0
SEEDING				
SEEDING WITH MULCH	UNIT	15	\$21.00	\$315
WATER	M.G.	12	\$6.00	\$72
			SUBTOTAL	\$387
SODDING				
SODDING	SY	0	\$2.50	\$0
WATER	M.G.	0	\$8.00	\$0
			SUBTOTAL	\$0
SIGNING				
SIGNS	SF	12.5	\$11.50	\$144
STRIPING	LM	1	\$4,450.00	\$4,450
			SUBTOTAL	\$4,594
LIGHTING				
NONE	LS	0	\$0.00	\$0
			SUBTOTAL	\$0
SIGNALIZATION				
NONE	LS	0	\$0.00	\$0
			SUBTOTAL	\$0
FENCE				
NONE	LF	0	\$15.00	\$0
			SUBTOTAL	\$0
GUARDRAIL				
GUARDRAIL	LF	500	\$18.50	\$9,250
END TERMINALS	EACH	2	\$2,000.00	\$4,000
GUARDRAIL AT BRIDGE ENDS	LF	0	\$66.00	\$0
			SUBTOTAL	\$13,250
RIP RAP OR SLOPE PROTECTION				
RIP RAP	TON	200	\$27.00	\$5,400
			SUBTOTAL	\$5,400

Summary of Detailed Cost Estimates

Spot Improvement D.10: LM 1.89 to LM 2.23

	UNIT	QUANTITY	UNIT COST	TOTAL
CLEAR AND GRUBBING				
125' x 1796'	AC	6	\$2,000.00	\$12,000
			SUBTOTAL	\$12,000
EARTHWORK				
ROAD AND DRAINAGE UNCLASSIFIED	CY	1742	\$4.00	\$6,968
BORROW EXCAVATION	CY	29071	\$3.00	\$87,213
PRESPLITTING OF ROCK EXCAVATION	SY	0	\$7.50	\$0
			SUBTOTAL	\$94,181
PAVEMENT REMOVAL				
AREA	SY	2989	\$4.50	\$13,451
			SUBTOTAL	\$13,451
DRAINAGE (INCLUDING EROSION CONTROL)				
RCBC	SF	1000	\$60.00	\$60,000
RCP	LF	100	\$65.00	\$6,500
SIDE DRAINS	LF	125	\$40.00	\$5,000
SILT FENCE	LF	7200	\$1.40	\$10,080
SILT FENCE WITH BACKING	LF	1000	\$3.40	\$3,400
SEDIMENT REMOVAL	CY	100	\$4.40	\$440
CATCH BASIN PROTECTION	EACH	0	\$500.00	\$0
CHECK DAMS	EACH	36	\$325.00	\$11,700
SEDIMENT FILTER BAGS	EACH	3	\$900.00	\$2,700
EROSION CONTROL BLANKET	SY	14500	\$2.00	\$29,000
			SUBTOTAL	\$128,820
STRUCTURES				
BRIDGES OVER PEYTON CREEK	SF	0	\$85.00	\$0
			SUBTOTAL	\$0
RAILROAD CROSSING OR SEPARATION				
NONE	SF	0	\$85.00	\$0
			SUBTOTAL	\$0
PAVING (INCLUDES CURB, GUTTER & SIDEWALK)				
1.25" ASPHALTIC CONCRETE SURFACE (411-02.10)	TON	425	\$77.00	\$32,725
2" ASPHALT BASE BINDER (307-02.08)	TON	356	\$63.00	\$22,428
2" ASPHALT AGGREGATE BASE BINDER (307-02.01)	TON	363	\$59.00	\$21,417
8" MINERAL AGGREGATE BASE (303-01)	TON	5042	\$15.00	\$75,630
TACK COAT	TON	1	\$464.00	\$464
PRIME COAT	TON	12	\$500.00	\$6,000
UNDERDRAIN	LF	0	\$5.00	\$0
CURB AND GUTTER	CY	0	\$162.50	\$0
SIDEWALK	SF	0	\$2.50	\$0
			SUBTOTAL	\$158,664
RETAINING WALLS				
NONE	SF	0	\$45.00	\$0
			SUBTOTAL	\$0
MAINTENANCE OF TRAFFIC				
TRAFFIC CONTROL	LS	1	\$15,000.00	\$15,000
TRAFFIC CONTROL SIGNAGE	SF	150	\$8.50	\$1,275
PORTABLE BARRIER RAIL	LF	500	\$22.00	\$11,000
FLEXIBLE DRUMS	EACH	55	\$30.00	\$1,650
WARNING LIGHTS	EACH	55	\$22.00	\$1,210
ARROW BOARD	EACH	2	\$900.00	\$1,800
CHANGEABLE MESSAGE SIGN UNIT	EACH	2	\$4,400.00	\$8,800
TEMPORARY STRIPING	LF	7200	\$1.25	\$9,000
			SUBTOTAL	\$49,735
TOPSOIL				
TOPSOIL	CY	0	\$2.75	\$0
			SUBTOTAL	\$0
SEEDING				
SEEDING WITH MULCH	UNIT	29	\$21.00	\$609
WATER	M.G.	26	\$6.00	\$156
			SUBTOTAL	\$765
SODDING				
SODDING	SY	0	\$2.50	\$0
WATER	M.G.	0	\$8.00	\$0
			SUBTOTAL	\$0
SIGNING				
SIGNS	SF	12.5	\$11.50	\$144
STRIPING	LM	1.4	\$4,450.00	\$6,230
			SUBTOTAL	\$6,374
LIGHTING				
NONE	LS	0	\$0.00	\$0
			SUBTOTAL	\$0
SIGNALIZATION				
NONE	LS	0	\$0.00	\$0
			SUBTOTAL	\$0
FENCE				
NONE	LF	0	\$15.00	\$0
			SUBTOTAL	\$0
GUARDRAIL				
GUARDRAIL	LF	500	\$18.50	\$9,250
END TERMINALS	EACH	2	\$2,000.00	\$4,000
GUARDRAIL AT BRIDGE ENDS	LF	0	\$56.00	\$0
			SUBTOTAL	\$13,250
RIP RAP OR SLOPE PROTECTION				
RIP RAP	TON	1500	\$27.00	\$40,500
			SUBTOTAL	\$40,500

Summary of Detailed Cost Estimates

Spot Improvement D.11: LM 2.36 to LM 2.94

	UNIT	QUANTITY	UNIT COST	TOTAL
CLEAR AND GRUBBING				
125' x 3063'	AC	9	\$2,000.00	\$18,000
			SUBTOTAL	\$18,000
EARTHWORK				
ROAD AND DRAINAGE UNCLASSIFIED	CY	5134	\$4.00	\$20,536
BORROW EXCAVATION	CY	11038	\$3.00	\$33,114
PRESPLITTING OF ROCK EXCAVATION	SY	0	\$7.50	\$0
			SUBTOTAL	\$53,650
PAVEMENT REMOVAL				
AREA	SY	1303	\$4.50	\$5,864
			SUBTOTAL	\$5,864
DRAINAGE (INCLUDING EROSION CONTROL)				
RCBC	SF	0	\$60.00	\$0
RCP	LF	100	\$65.00	\$6,500
SIDE DRAINS	LF	375	\$40.00	\$15,000
SILT FENCE	LF	12200	\$1.40	\$17,080
SILT FENCE WITH BACKING	LF	1000	\$3.40	\$3,400
SEDIMENT REMOVAL	CY	100	\$4.40	\$440
CATCH BASIN PROTECTION	EACH	0	\$500.00	\$0
CHECK DAMS	EACH	60	\$325.00	\$19,500
SEDIMENT FILTER BAGS	EACH	2	\$900.00	\$1,800
EROSION CONTROL BLANKET	SY	22000	\$2.00	\$44,000
			SUBTOTAL	\$107,720
STRUCTURES				
BRIDGES OVER PEYTON CREEK	SF	0	\$85.00	\$0
			SUBTOTAL	\$0
RAILROAD CROSSING OR SEPARATION				
NONE	SF	0	\$85.00	\$0
			SUBTOTAL	\$0
PAVING (INCLUDES CURB, GUTTER & SIDEWALK)				
1.25" ASPHALTIC CONCRETE SURFACE (411-02.10)	TON	884	\$77.00	\$68,068
2" ASPHALT BASE BINDER (307-02.08)	TON	483	\$63.00	\$30,429
2" ASPHALT AGGREGATE BASE BINDER (307-02.01)	TON	491	\$59.00	\$28,969
8" MINERAL AGGREGATE BASE (303-01)	TON	7861	\$15.00	\$117,915
TACK COAT	TON	1.5	\$464.00	\$696
PRIME COAT	TON	20	\$500.00	\$10,000
UNDERDRAIN	LF	0	\$5.00	\$0
CURB AND GUTTER	CY	0	\$162.50	\$0
SIDEWALK	SF	0	\$2.50	\$0
			SUBTOTAL	\$256,077
RETAINING WALLS				
NONE	SF	0	\$45.00	\$0
			SUBTOTAL	\$0
MAINTENANCE OF TRAFFIC				
TRAFFIC CONTROL	LS	1	\$15,000.00	\$15,000
TRAFFIC CONTROL SIGNAGE	SF	150	\$8.50	\$1,275
PORTABLE BARRIER RAIL	LF	500	\$22.00	\$11,000
FLEXIBLE DRUMS	EACH	50	\$30.00	\$1,500
WARNING LIGHTS	EACH	50	\$22.00	\$1,100
ARROW BOARD	EACH	2	\$900.00	\$1,800
CHANGEABLE MESSAGE SIGN UNIT	EACH	2	\$4,400.00	\$8,800
TEMPORARY STRIPING	LF	12250	\$1.25	\$15,313
			SUBTOTAL	\$55,788
TOPSOIL				
TOPSOIL	CY	0	\$2.75	\$0
			SUBTOTAL	\$0
SEEDING				
SEEDING WITH MULCH	UNIT	44	\$21.00	\$924
WATER	M.G.	41	\$6.00	\$246
			SUBTOTAL	\$1,170
SODDING				
SODDING	SY	0	\$2.50	\$0
WATER	M.G.	0	\$8.00	\$0
			SUBTOTAL	\$0
SIGNING				
SIGNS	SF	12.5	\$11.50	\$144
STRIPING	LM	2.5	\$4,450.00	\$11,125
			SUBTOTAL	\$11,269
LIGHTING				
NONE	LS	0	\$0.00	\$0
			SUBTOTAL	\$0
SIGNALIZATION				
NONE	LS	0	\$0.00	\$0
			SUBTOTAL	\$0
FENCE				
NONE	LF	0	\$15.00	\$0
			SUBTOTAL	\$0
GUARDRAIL				
GUARDRAIL	LF	500	\$18.50	\$9,250
END TERMINALS	EACH	2	\$2,000.00	\$4,000
GUARDRAIL AT BRIDGE ENDS	LF	0	\$56.00	\$0
			SUBTOTAL	\$13,250
RIP RAP OR SLOPE PROTECTION				
RIP RAP	TON	200	\$27.00	\$5,400
			SUBTOTAL	\$5,400

Summary of Detailed Cost Estimates

Spot Improvement D.12: LM 3.01 to LM 3.12

	UNIT	QUANTITY	UNIT COST	TOTAL
CLEAR AND GRUBBING				
125' x 580'	AC	2	\$2,000.00	\$4,000
			SUBTOTAL	\$4,000
EARTHWORK				
ROAD AND DRAINAGE UNCLASSIFIED	CY	917	\$4.00	\$3,668
BORROW EXCAVATION	CY	1437	\$3.00	\$4,311
PRESPLITTING OF ROCK EXCAVATION	SY	0	\$7.50	\$0
			SUBTOTAL	\$7,979
PAVEMENT REMOVAL				
AREA	SY	892	\$4.50	\$4,014
			SUBTOTAL	\$4,014
DRAINAGE (INCLUDING EROSION CONTROL)				
RCBC	SF	0	\$60.00	\$0
RCP	LF	50	\$65.00	\$3,250
SIDE DRAINS	LF	150	\$40.00	\$6,000
SILT FENCE	LF	2320	\$1.40	\$3,248
SILT FENCE WITH BACKING	LF	500	\$3.40	\$1,700
SEDIMENT REMOVAL	CY	100	\$4.40	\$440
CATCH BASIN PROTECTION	EACH	0	\$500.00	\$0
CHECK DAMS	EACH	15	\$325.00	\$4,875
SEDIMENT FILTER BAGS	EACH	2	\$900.00	\$1,800
EROSION CONTROL BLANKET	SY	5000	\$2.00	\$10,000
			SUBTOTAL	\$31,313
STRUCTURES				
BRIDGES OVER PEYTON CREEK	SF	0	\$85.00	\$0
			SUBTOTAL	\$0
RAILROAD CROSSING OR SEPARATION				
NONE	SF	0	\$85.00	\$0
			SUBTOTAL	\$0
PAVING (INCLUDES CURB, GUTTER & SIDEWALK)				
1.25" ASPHALTIC CONCRETE SURFACE (411-02.10)	TON	217	\$77.00	\$16,709
2" ASPHALT BASE BINDER (307-02.08)	TON	80	\$63.00	\$5,040
2" ASPHALT AGGREGATE BASE BINDER (307-02.01)	TON	82	\$59.00	\$4,838
8" MINERAL AGGREGATE BASE (303-01)	TON	1411	\$15.00	\$21,165
TACK COAT	TON	1	\$464.00	\$464
PRIME COAT	TON	9	\$500.00	\$4,500
UNDERDRAIN	LF	0	\$5.00	\$0
CURB AND GUTTER	CY	0	\$162.50	\$0
SIDEWALK	SF	0	\$2.50	\$0
			SUBTOTAL	\$52,716
RETAINING WALLS				
NONE	SF	0	\$45.00	\$0
			SUBTOTAL	\$0
MAINTENANCE OF TRAFFIC				
TRAFFIC CONTROL	LS	1	\$5,000.00	\$5,000
TRAFFIC CONTROL SIGNAGE	SF	150	\$8.50	\$1,275
PORTABLE BARRIER RAIL	LF	100	\$22.00	\$2,200
FLEXIBLE DRUMS	EACH	30	\$30.00	\$900
WARNING LIGHTS	EACH	30	\$22.00	\$660
ARROW BOARD	EACH	2	\$900.00	\$1,800
CHANGEABLE MESSAGE SIGN UNIT	EACH	0	\$4,400.00	\$0
TEMPORARY STRIPING	LF	2500	\$1.25	\$3,125
			SUBTOTAL	\$14,960
TOPSOIL				
TOPSOIL	CY	0	\$2.75	\$0
			SUBTOTAL	\$0
SEEDING				
SEEDING WITH MULCH	UNIT	10	\$21.00	\$210
WATER	M.G.	8	\$6.00	\$48
			SUBTOTAL	\$258
SODDING				
SODDING	SY	0	\$2.50	\$0
WATER	M.G.	0	\$8.00	\$0
			SUBTOTAL	\$0
SIGNING				
SIGNS	SF	19	\$11.50	\$219
STRIPING	LM	0.5	\$4,450.00	\$2,225
			SUBTOTAL	\$2,444
LIGHTING				
NONE	LS	0	\$0.00	\$0
			SUBTOTAL	\$0
SIGNALIZATION				
NONE	LS	0	\$0.00	\$0
			SUBTOTAL	\$0
FENCE				
NONE	LF	0	\$15.00	\$0
			SUBTOTAL	\$0
GUARDRAIL				
GUARDRAIL	LF	250	\$18.50	\$4,625
END TERMINALS	EACH	2	\$2,000.00	\$4,000
GUARDRAIL AT BRIDGE ENDS	LF	0	\$66.00	\$0
			SUBTOTAL	\$8,625
RIP RAP OR SLOPE PROTECTION				
RIP RAP	TON	100	\$27.00	\$2,700
			SUBTOTAL	\$2,700

Summary of Detailed Cost Estimates

Option B: Widening for Entire corridor to correct substandard geometry: 12.02 Miles

	UNIT	QUANTITY	UNIT COST	TOTAL
CLEAR AND GRUBBING				
125' x 63466'	AC	182	\$2,000.00	\$364,000
			SUBTOTAL	\$364,000
EARTHWORK				
ROAD AND DRAINAGE UNCLASSIFIED	CY	1001071	\$4.00	\$4,004,284
BORROW EXCAVATION	CY	0	\$3.00	\$0
PRESPLITTING OF ROCK EXCAVATION	SY	103936	\$7.50	\$779,520
			SUBTOTAL	\$4,783,804
PAVEMENT REMOVAL				
AREA	SY	26129	\$4.50	\$117,581
			SUBTOTAL	\$117,581
DRAINAGE (INCLUDING EROSION CONTROL)				
RCBC	SF	5840	\$60.00	\$350,400
RCP	LF	1200	\$65.00	\$78,000
SIDE DRAINS	LF	2880	\$40.00	\$115,200
SILT FENCE	LF	100000	\$1.40	\$140,000
SILT FENCE WITH BACKING	LF	50000	\$3.40	\$170,000
SEDIMENT REMOVAL	CY	550	\$4.40	\$2,420
CATCH BASIN PROTECTION	EACH	0	\$500.00	\$0
CHECK DAMS	EACH	500	\$325.00	\$162,500
SEDIMENT FILTER BAGS	EACH	30	\$900.00	\$27,000
EROSION CONTROL BLANKET	SY	285000	\$2.00	\$570,000
			SUBTOTAL	\$1,615,520
STRUCTURES				
BRIDGES OVER PEYTON CREEK	SF	31316	\$85.00	\$2,661,860
			SUBTOTAL	\$2,661,860
RAILROAD CROSSING OR SEPARATION				
NONE	SF	0	\$85.00	\$0
			SUBTOTAL	\$0
PAVING (INCLUDES CURB, GUTTER & SIDEWALK)				
1.25" ASPHALTIC CONCRETE SURFACE (411-02.10)	TON	17697	\$77.00	\$1,362,669
2" ASPHALT BASE BINDER (307-02.08)	TON	10254	\$63.00	\$646,002
2" ASPHALT AGGREGATE BASE BINDER (307-02.01)	TON	10435	\$59.00	\$615,665
8" MINERAL AGGREGATE BASE (303-01)	TON	184893	\$15.00	\$2,773,395
TACK COAT	TON	30	\$464.00	\$13,920
PRIME COAT	TON	403	\$500.00	\$201,500
UNDERDRAIN	LF	0	\$5.00	\$0
CURB AND GUTTER	CY	0	\$162.50	\$0
SIDEWALK	SF	0	\$2.50	\$0
			SUBTOTAL	\$5,613,151
RETAINING WALLS				
NONE	SF	0	\$45.00	\$0
			SUBTOTAL	\$0
MAINTENANCE OF TRAFFIC				
TRAFFIC CONTROL	LS	1	\$200,000.00	\$200,000
TRAFFIC CONTROL SIGNAGE	SF	1200	\$8.50	\$10,200
PORTABLE BARRIER RAIL	LF	1000	\$22.00	\$22,000
FLEXIBLE DRUMS	EACH	950	\$30.00	\$28,500
WARNING LIGHTS	EACH	950	\$22.00	\$20,900
ARROW BOARD	EACH	6	\$900.00	\$5,400
CHANGEABLE MESSAGE SIGN UNIT	EACH	4	\$4,400.00	\$17,600
TEMPORARY STRIPING	LF	380000	\$1.25	\$475,000
			SUBTOTAL	\$779,600
TOPSOIL				
TOPSOIL	CY	0	\$2.75	\$0
			SUBTOTAL	\$0
SEEDING				
SEEDING WITH MULCH	UNIT	880	\$21.00	\$18,480
WATER	M.G.	669	\$6.00	\$4,014
			SUBTOTAL	\$22,494
SODDING				
SODDING	SY	0	\$2.50	\$0
WATER	M.G.	0	\$8.00	\$0
			SUBTOTAL	\$0
SIGNING				
SIGNS	SF	1600	\$11.50	\$18,400
STRIPING	LM	48	\$4,450.00	\$213,600
			SUBTOTAL	\$232,000
LIGHTING				
NONE	LS	0	\$0.00	\$0
			SUBTOTAL	\$0
SIGNALIZATION				
NONE	LS	0	\$0.00	\$0
			SUBTOTAL	\$0
FENCE				
NONE	LF	0	\$15.00	\$0
			SUBTOTAL	\$0
GUARDRAIL				
GUARDRAIL	LF	5900	\$18.50	\$109,150
END TERMINALS	EACH	40	\$2,000.00	\$80,000
GUARDRAIL AT BRIDGE ENDS	LF	540	\$66.00	\$30,240
			SUBTOTAL	\$219,390
RIP RAP OR SLOPE PROTECTION				
RIP RAP	TON	25000	\$27.00	\$675,000
			SUBTOTAL	\$675,000

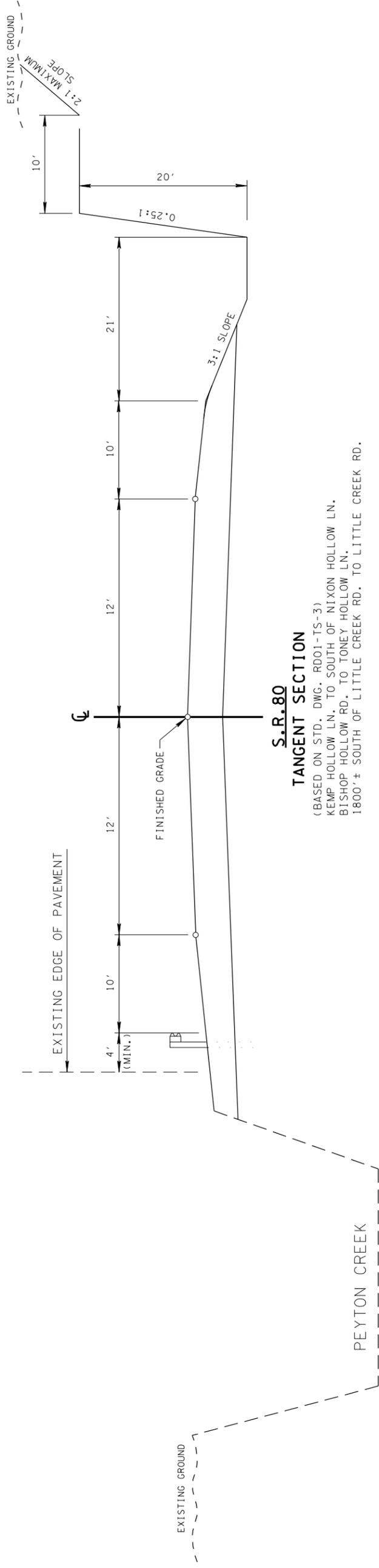
Summary of Detailed Cost Estimates

New Alignment Option C: LM 2.62 to LM 3.73 (Smith Co.)

	UNIT	QUANTITY	UNIT COST	TOTAL
CLEAR AND GRUBBING				
125' x 6283'	AC	18	\$2,000.00	\$36,000
			SUBTOTAL	\$36,000
EARTHWORK				
ROAD AND DRAINAGE UNCLASSIFIED	CY		\$4.00	\$0
BORROW EXCAVATION	CY	311532	\$3.00	\$934,596
PRESPLITTING OF ROCK EXCAVATION	SY	0	\$7.50	\$0
			SUBTOTAL	\$934,596
PAVEMENT REMOVAL				
AREA	SY	1000	\$4.50	\$4,500
			SUBTOTAL	\$4,500
DRAINAGE (INCLUDING EROSION CONTROL)				
RCBC	SF	800	\$60.00	\$48,000
RCP	LF	200	\$65.00	\$13,000
SIDE DRAINS	LF	150	\$40.00	\$6,000
SILT FENCE	LF	25000	\$1.40	\$35,000
SILT FENCE WITH BACKING	LF	5000	\$3.40	\$17,000
SEDIMENT REMOVAL	CY	100	\$4.40	\$440
CATCH BASIN PROTECTION	EACH	0	\$500.00	\$0
CHECK DAMS	EACH	125	\$325.00	\$40,625
SEDIMENT FILTER BAGS	EACH	8	\$900.00	\$7,200
EROSION CONTROL BLANKET	SY	25000	\$2.00	\$50,000
			SUBTOTAL	\$217,265
STRUCTURES				
BRIDGES OVER PEYTON CREEK	SF	28800	\$85.00	\$2,448,000
			SUBTOTAL	\$2,448,000
RAILROAD CROSSING OR SEPARATION				
NONE	SF	0	\$85.00	\$0
			SUBTOTAL	\$0
PAVING (INCLUDES CURB, GUTTER & SIDEWALK)				
1.25" ASPHALTIC CONCRETE SURFACE (411-02.10)	TON	2035	\$77.00	\$156,695
2" ASPHALT BASE BINDER (307-02.08)	TON	1894	\$63.00	\$119,322
2" ASPHALT AGGREGATE BASE BINDER (307-02.01)	TON	1927	\$59.00	\$113,693
8" MINERAL AGGREGATE BASE (303-01)	TON	26170	\$15.00	\$392,550
TACK COAT	TON	3	\$464.00	\$1,392
PRIME COAT	TON	40	\$500.00	\$20,000
UNDERDRAIN	LF	0	\$5.00	\$0
CURB AND GUTTER	CY	0	\$162.50	\$0
SIDEWALK	SF	0	\$2.50	\$0
			SUBTOTAL	\$803,652
RETAINING WALLS				
NONE	SF	0	\$45.00	\$0
			SUBTOTAL	\$0
MAINTENANCE OF TRAFFIC				
TRAFFIC CONTROL	LS	1	\$10,000.00	\$10,000
TRAFFIC CONTROL SIGNAGE	SF	150	\$8.50	\$1,275
PORTABLE BARRIER RAIL	LF	100	\$22.00	\$2,200
FLEXIBLE DRUMS	EACH	50	\$30.00	\$1,500
WARNING LIGHTS	EACH	50	\$22.00	\$1,100
ARROW BOARD	EACH	0	\$900.00	\$0
CHANGEABLE MESSAGE SIGN UNIT	EACH	0	\$4,400.00	\$0
TEMPORARY STRIPING	LF	0	\$1.25	\$0
			SUBTOTAL	\$16,075
TOPSOIL				
TOPSOIL	CY	0	\$2.75	\$0
			SUBTOTAL	\$0
SEEDING				
SEEDING WITH MULCH	UNIT	700	\$21.00	\$14,700
WATER	M.G.	500	\$6.00	\$3,000
			SUBTOTAL	\$17,700
SODDING				
SODDING	SY	0	\$2.50	\$0
WATER	M.G.	0	\$8.00	\$0
			SUBTOTAL	\$0
SIGNING				
SIGNS	SF	200	\$11.50	\$2,300
STRIPING	LM	0.5	\$4,450.00	\$2,225
			SUBTOTAL	\$4,525
LIGHTING				
NONE	LS	0	\$0.00	\$0
			SUBTOTAL	\$0
SIGNALIZATION				
NONE	LS	0	\$0.00	\$0
			SUBTOTAL	\$0
FENCE				
NONE	LF	0	\$15.00	\$0
			SUBTOTAL	\$0
GUARDRAIL				
GUARDRAIL	LF	500	\$18.50	\$9,250
END TERMINALS	EACH	12	\$2,000.00	\$24,000
GUARDRAIL AT BRIDGE ENDS	LF	210	\$56.00	\$11,760
			SUBTOTAL	\$45,010
RIP RAP OR SLOPE PROTECTION				
RIP RAP	TON	400	\$27.00	\$10,800
			SUBTOTAL	\$10,800

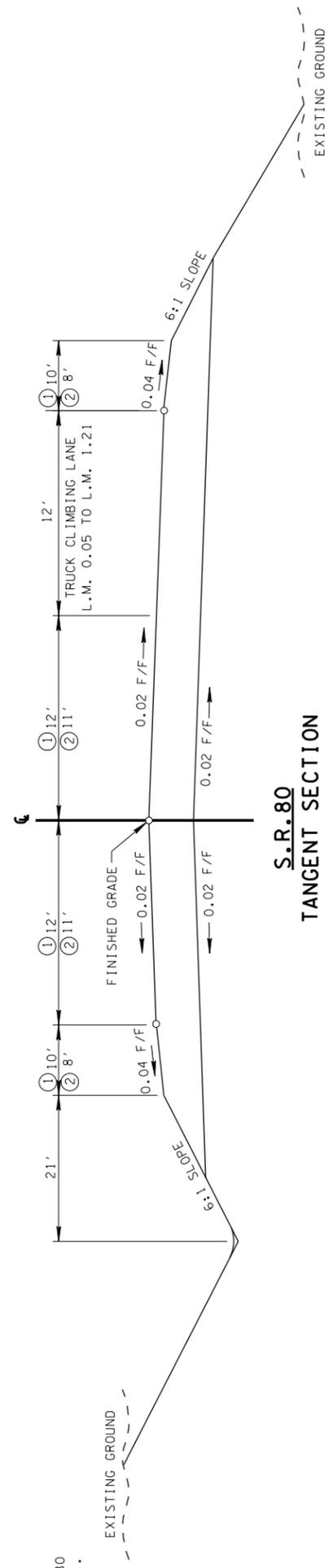
**AERIAL AND USGS MAP
(CONCEPT LAYOUT)**

SHEET NO.	PROJECT NO.	YEAR	TYPE
1	99108-7018-04	2010	TPR



S.R.80
TANGENT SECTION

(BASED ON STD. DWG. RD01-TS-3)
 KEMP HOLLOW LN. TO SOUTH OF NIXON HOLLOW LN.
 BISHOP HOLLOW RD. TO TONEY HOLLOW LN.
 1800'± SOUTH OF LITTLE CREEK RD. TO LITTLE CREEK RD.

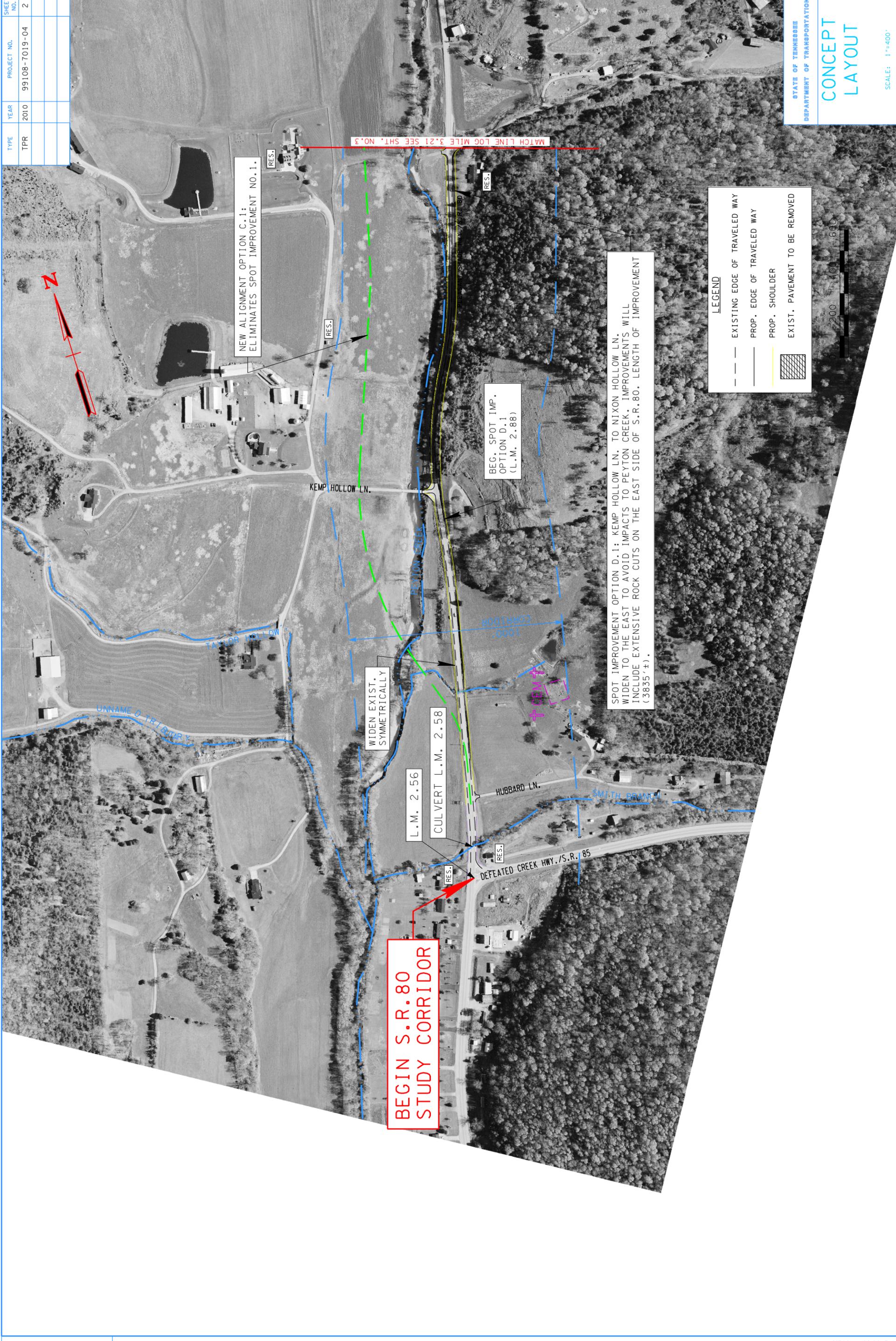


S.R.80
TANGENT SECTION

(BASED ON STD. DWG. RD01-TS-3)
 HUBBARD LN. TO KEMP HOLLOW LN.
 SOUTH OF NIXON HOLLOW LN. TO BISHOP HOLLOW RD.
 TONEY HOLLOW LN. TO 1800'± SOUTH OF LITTLE CREEK RD.
 LITTLE CREEK RD. TO S.R.56

NOTES:
 ROCK CUT SECTION AS SHOWN IN ABOVE TYPICAL
 WILL BE REQUIRED FOR SOME SECTIONS OF S.R.80
 BETWEEN L.M. 0.00 AND L.M. 1.22 (MACON CO.).

TYPE	YEAR	PROJECT NO.	SHEET NO.
TPR	2010	99108-7019-04	2



**BEGIN S.R. 80
 STUDY CORRIDOR**

NEW ALIGNMENT OPTION C.1:
 ELIMINATES SPOT IMPROVEMENT NO. 1.

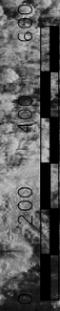
WIDEN EXIST.
 SYMMETRICALLY

BEG. SPOT IMP.
 OPTION D.1
 (L.M. 2.88)

SPOT IMPROVEMENT OPTION D.1: KEMP HOLLOW LN. TO NIXON HOLLOW LN. WIDEN TO THE EAST TO AVOID IMPACTS TO PEYTON CREEK. IMPROVEMENTS WILL INCLUDE EXTENSIVE ROCK CUTS ON THE EAST SIDE OF S.R. 80. LENGTH OF IMPROVEMENT (3835'+±).

LEGEND

- EXISTING EDGE OF TRAVELED WAY
- PROP. EDGE OF TRAVELED WAY
- PROP. SHOULDER
- EXIST. PAVEMENT TO BE REMOVED

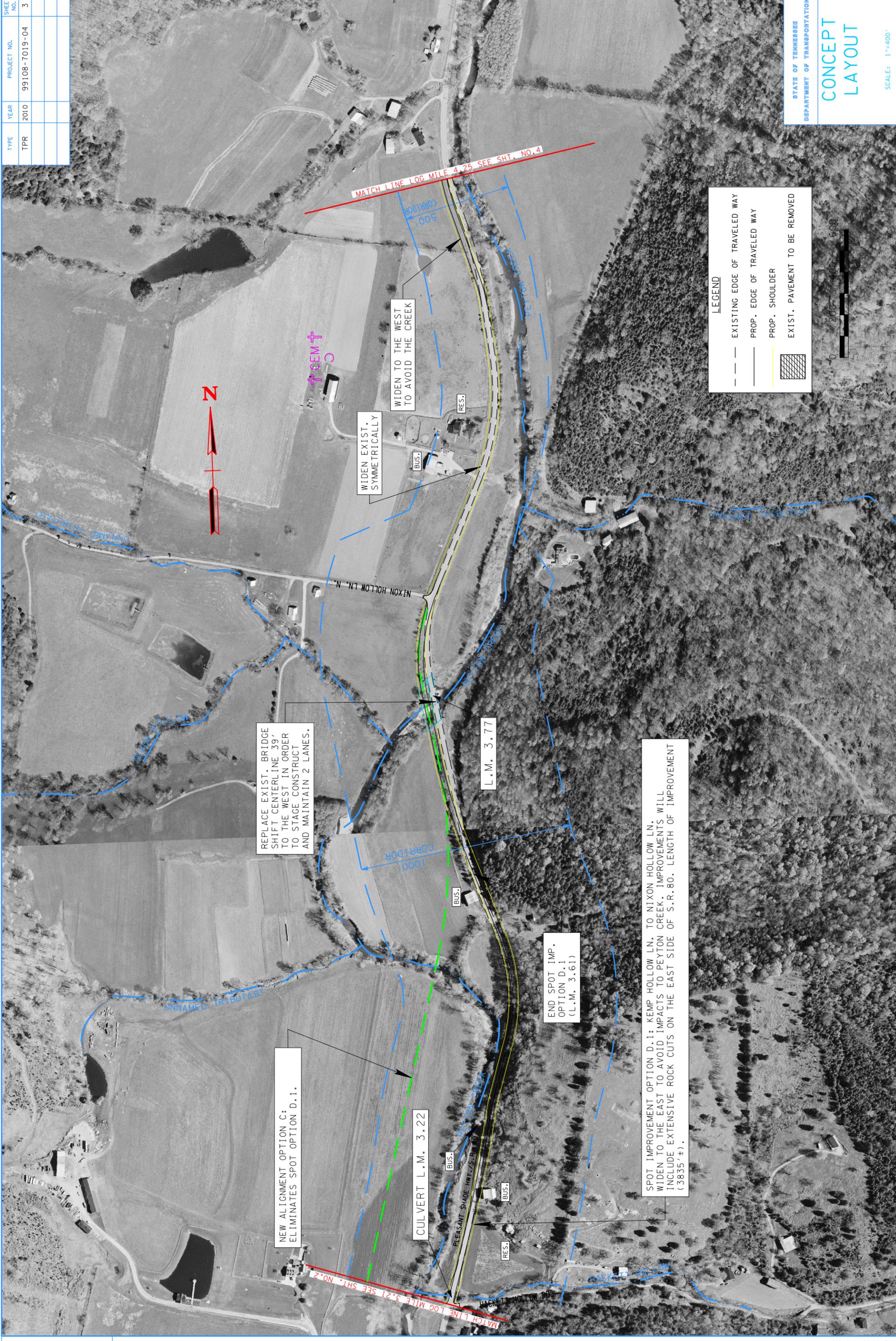


SHEET NO.	PROJECT NO.	YEAR	TYPE
3	99108-7019-04	2010	TPR

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

CONCEPT LAYOUT

SCALE: 1"=400'



REPLACE EXIST. BRIDGE
SHIFT CENTERLINE 39'
TO THE WEST IN ORDER
TO STAGE CONSTRUCT
AND MAINTAIN 2 LANES.

NEW ALIGNMENT OPTION C:
ELIMINATES SPOT OPTION D.1.

CULVERT L.M. 3.22

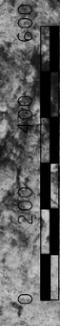
L.M. 3.77

END SPOT IMP.
OPTION D.1
(L.M. 3.61)

SPOT IMPROVEMENT OPTION D.1: KEMP HOLLOW LN. TO NIXON HOLLOW LN.
WIDEN TO THE EAST TO AVOID IMPACTS TO PEYTON CREEK. IMPROVEMENTS WILL
INCLUDE EXTENSIVE ROCK CUTS ON THE EAST SIDE OF S.R.80. LENGTH OF IMPROVEMENT
(3835' ±).

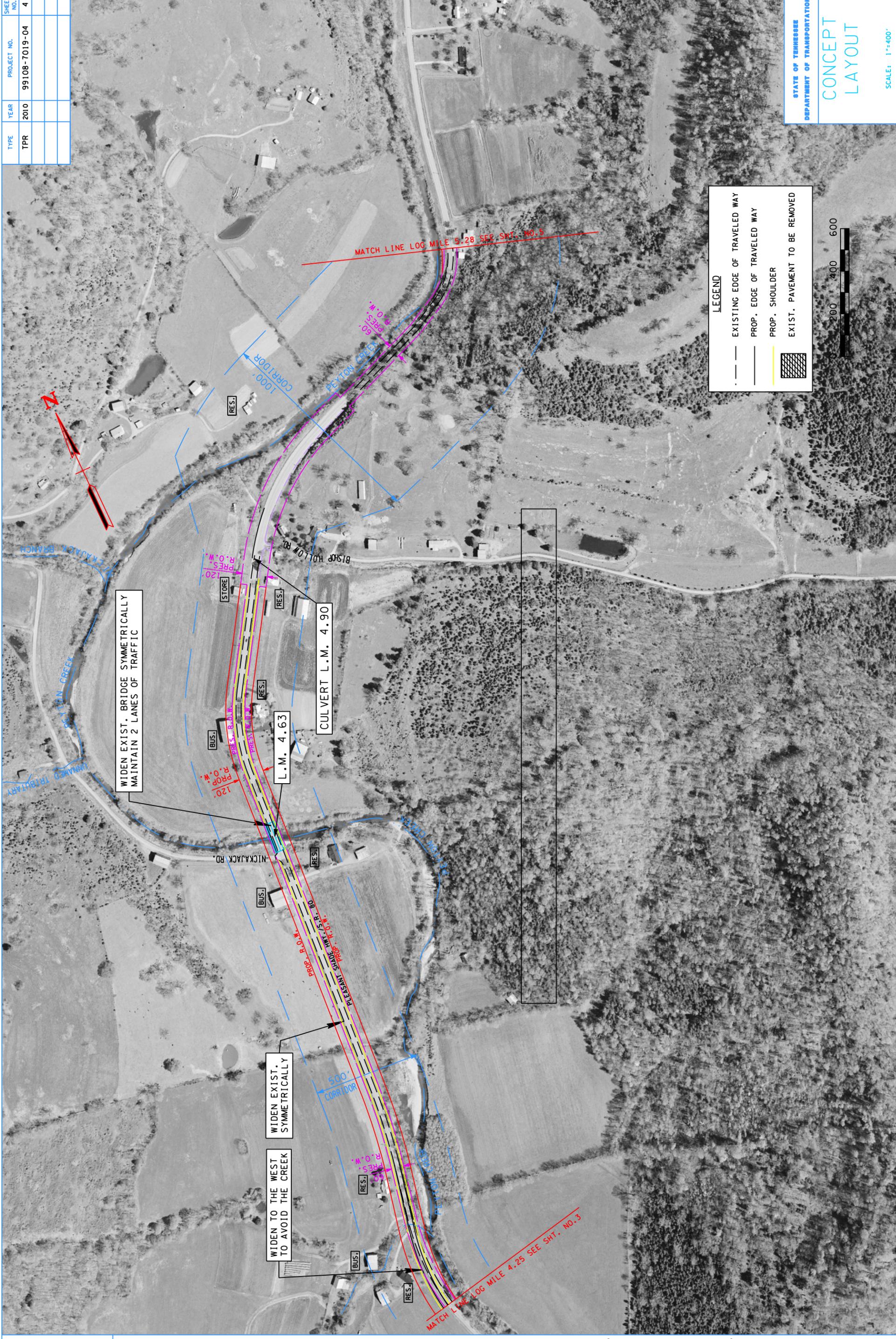
LEGEND

- EXISTING EDGE OF TRAVELED WAY
- PROP. EDGE OF TRAVELED WAY
- PROP. SHOULDER
- EXIST. PAVEMENT TO BE REMOVED



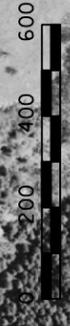
FILE NO.
DESIGN DIVISION
TENNESSEE D.O.T.

SHEET NO.	PROJECT NO.	YEAR	TYPE
4	99108-7019-04	2010	TPR



LEGEND

- EXISTING EDGE OF TRAVELED WAY
- PROP. EDGE OF TRAVELED WAY
- PROP. SHOULDER
- EXIST. PAVEMENT TO BE REMOVED



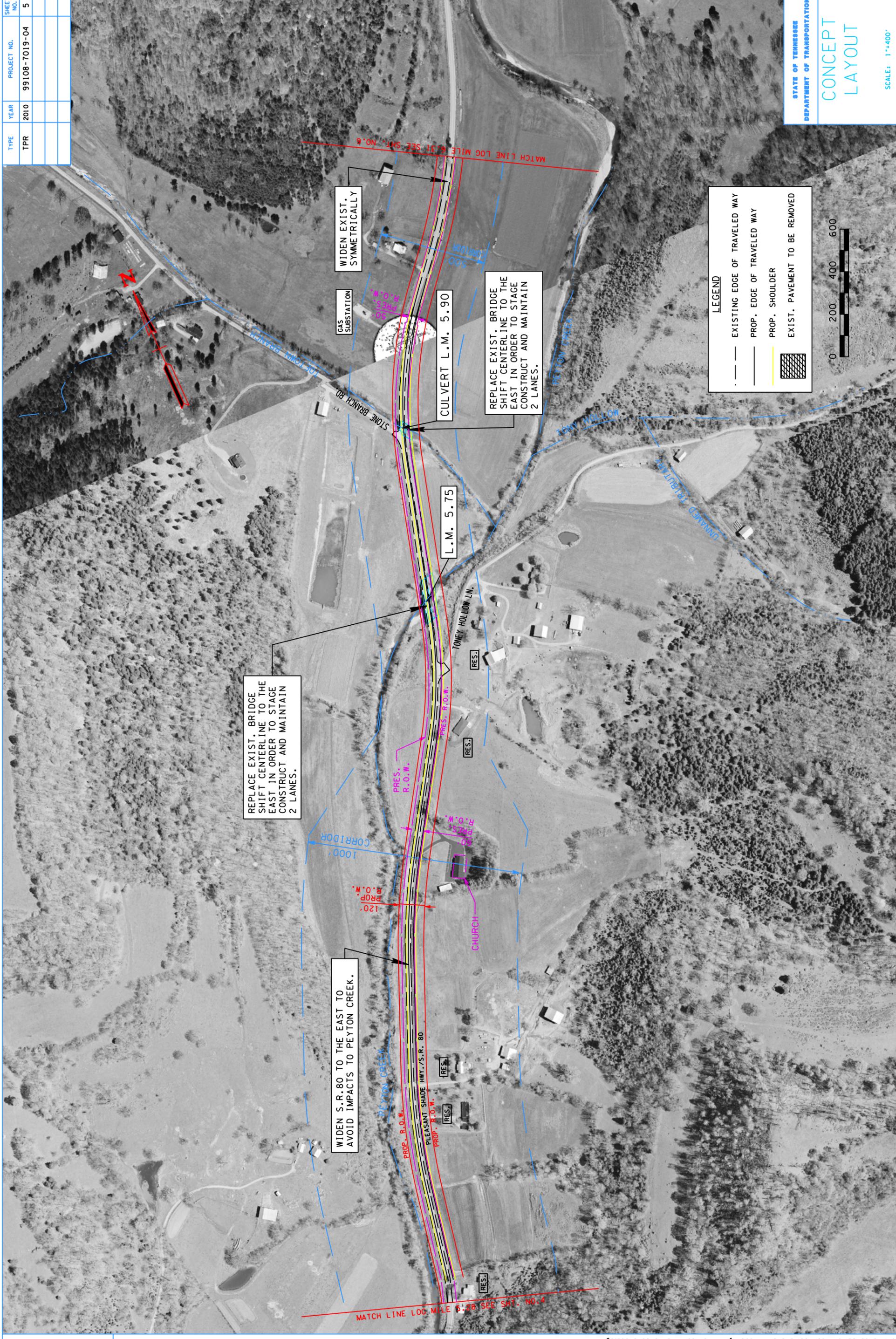
FILE NO.
DESIGN DIVISION
TENNESSEE D.O.T.

SHEET NO.	PROJECT NO.	YEAR	TYPE
5	99108-7019-04	2010	TPR

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

CONCEPT LAYOUT

SCALE: 1"=400'



REPLACE EXIST. BRIDGE
SHIFT CENTERLINE TO THE
EAST IN ORDER TO STAGE
CONSTRUCT AND MAINTAIN
2 LANES.

WIDEN S.R. 80 TO THE EAST TO
AVOID IMPACTS TO PEYTON CREEK.

WIDEN EXIST.
SYMMETRICALLY

CULVERT L.M. 5.90

REPLACE EXIST. BRIDGE
SHIFT CENTERLINE TO THE
EAST IN ORDER TO STAGE
CONSTRUCT AND MAINTAIN
2 LANES.

L.M. 5.75

TONY HOLLOW LN.

[RES.]

[RES.]

[RES.]

[RES.]

[RES.]

[RES.]

[RES.]

[RES.]

LEGEND

- EXISTING EDGE OF TRAVELED WAY
- PROP. EDGE OF TRAVELED WAY
- PROP. SHOULDER
- EXIST. PAVEMENT TO BE REMOVED



MATCH LINE LOG MILE 6.28 SEE SHEET 00-4

MATCH LINE LOG MILE 6.31 SEE SHEET NO. 6

FILE NO.
DESIGN DIVISION
TENNESSEE D.O.T.

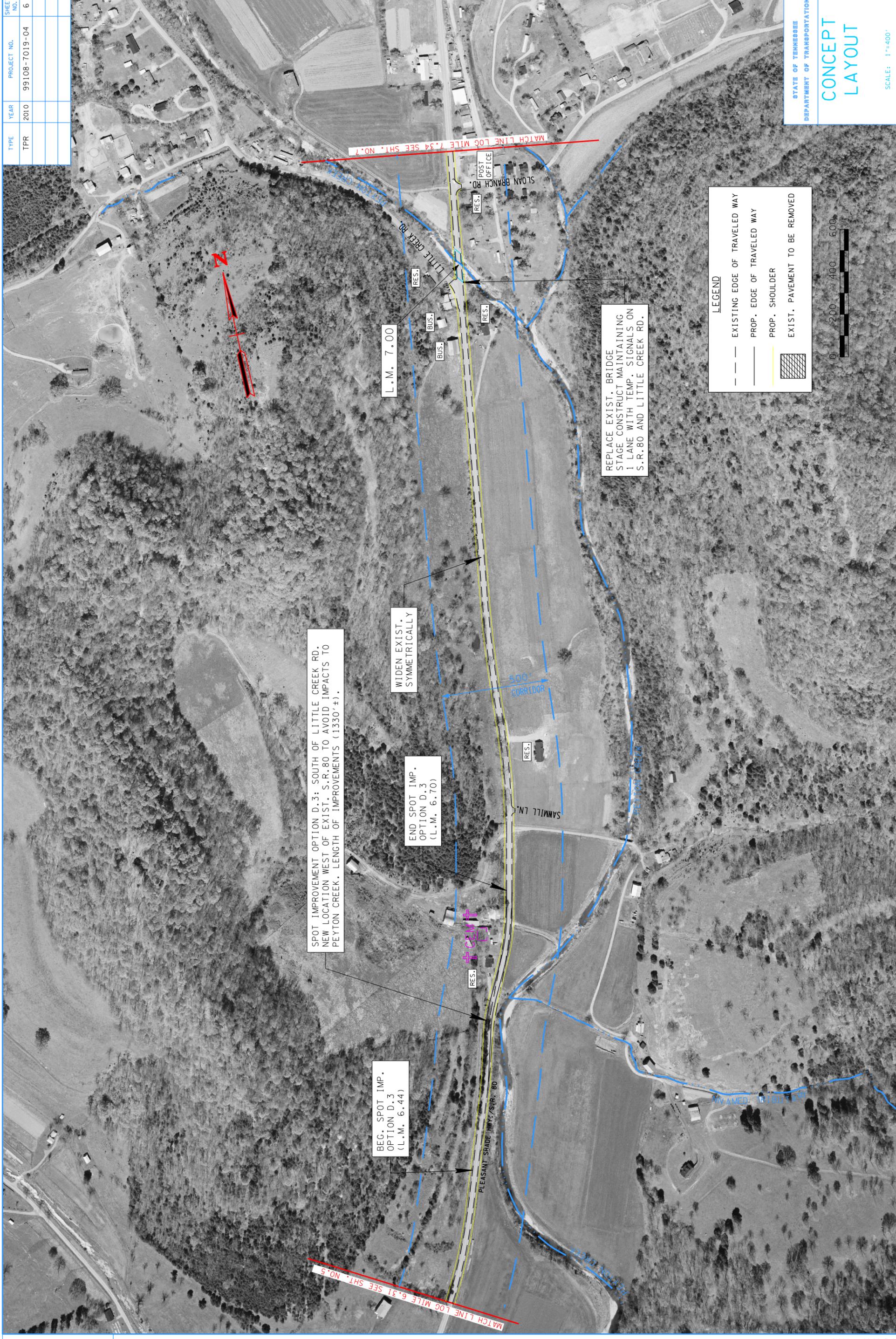
SHEET NO.	PROJECT NO.	YEAR	TYPE
6	99108-7019-04	2010	TPR

FILE NO.	DESIGN DIVISION	TENNESSEE D.O.T.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

CONCEPT LAYOUT

SCALE: 1"=400'



SPOT IMPROVEMENT OPTION D.3: SOUTH OF LITTLE CREEK RD. NEW LOCATION WEST OF EXIST. S.R. 80 TO AVOID IMPACTS TO PEYTON CREEK. LENGTH OF IMPROVEMENTS (1330' ±).

WIDEN EXIST. SYMMETRICALLY

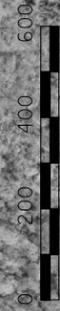
END SPOT IMP. OPTION D.3 (L.M. 6.70)

BEG. SPOT IMP. OPTION D.3 (L.M. 6.44)

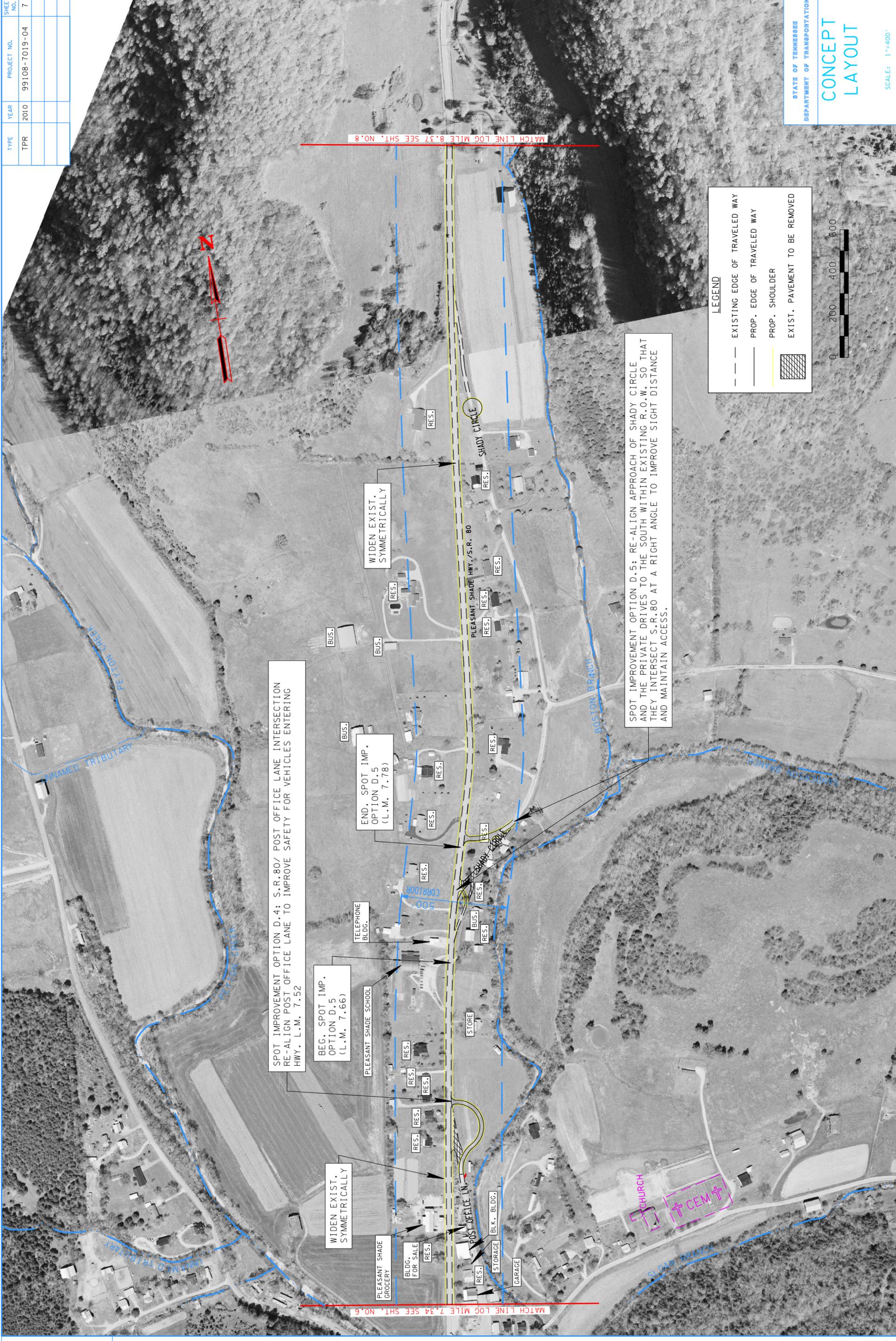
REPLACE EXIST. BRIDGE STAGE CONSTRUCT MAINTAINING 1 LANE WITH TEMP. SIGNALS ON S.R. 80 AND LITTLE CREEK RD.

LEGEND

- EXISTING EDGE OF TRAVELED WAY
- PROP. EDGE OF TRAVELED WAY
- PROP. SHOULDER
- EXIST. PAVEMENT TO BE REMOVED



SHEET NO.	PROJECT NO.	YEAR	TYPE
7	99108-7019-04	2010	TPR



SPOT IMPROVEMENT OPTION D.4: S.R.80/ POST OFFICE LANE INTERSECTION RE-ALIGN POST OFFICE LANE TO IMPROVE SAFETY FOR VEHICLES ENTERING HWY. L.M. 7.52

BEG. SPOT IMP. OPTION D.5 (L.M. 7.66)

WIDEN EXIST. SYMMETRICALLY

END. SPOT IMP. OPTION D.5 (L.M. 7.78)

WIDEN EXIST. SYMMETRICALLY

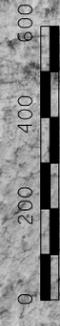
SPOT IMPROVEMENT OPTION D.5: RE-ALIGN APPROACH OF SHADY CIRCLE AND THE PRIVATE DRIVES TO THE SOUTH WITHIN EXISTING R.O.W. SO THAT THEY INTERSECT S.R.80 AT A RIGHT ANGLE TO IMPROVE SIGHT DISTANCE AND MAINTAIN ACCESS.

MATCH LINE LOG MILE 7.34 SEE SHT. NO.6

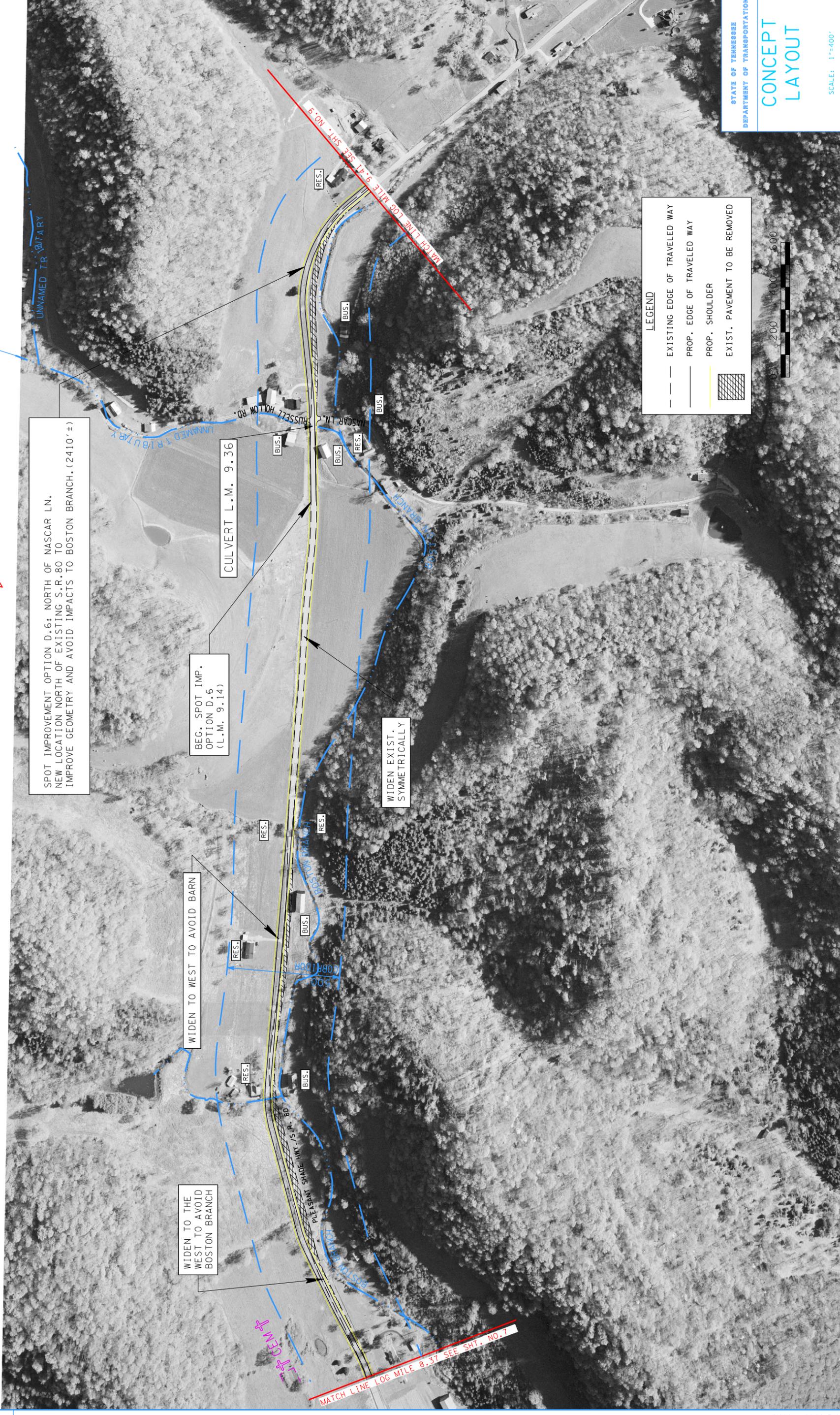
MATCH LINE LOG MILE 8.37 SEE SHT. NO.8

LEGEND

- EXISTING EDGE OF TRAVELED WAY
- PROP. EDGE OF TRAVELED WAY
- PROP. SHOULDER
- EXIST. PAVEMENT TO BE REMOVED



TYPE	YEAR	PROJECT NO.	SHEET NO.
TPR	2010	99108-7019-04	8



SPOT IMPROVEMENT OPTION D.6: NORTH OF NASCAR LN. NEW LOCATION NORTH OF EXISTING S.R. 80 TO IMPROVE GEOMETRY AND AVOID IMPACTS TO BOSTON BRANCH. (2410'±)

WIDEN TO THE WEST TO AVOID BARN

WIDEN TO THE WEST TO AVOID BOSTON BRANCH

BEG. SPOT IMP. OPTION D.6 (L.M. 9.14)

CULVERT L.M. 9.36

WIDEN EXIST. SYMMETRICALLY

MATCH LINE LOG MILE 8.37 SEE SHT. NO. 7

MATCH LINE LOG MILE 9.41 SEE SHT. NO. 9

LEGEND

- EXISTING EDGE OF TRAVELED WAY
- PROP. EDGE OF TRAVELED WAY
- PROP. SHOULDER
- EXIST. PAVEMENT TO BE REMOVED



SHEET NO.	PROJECT NO.	YEAR	TYPE
9	99108-7019-04	2010	TPR

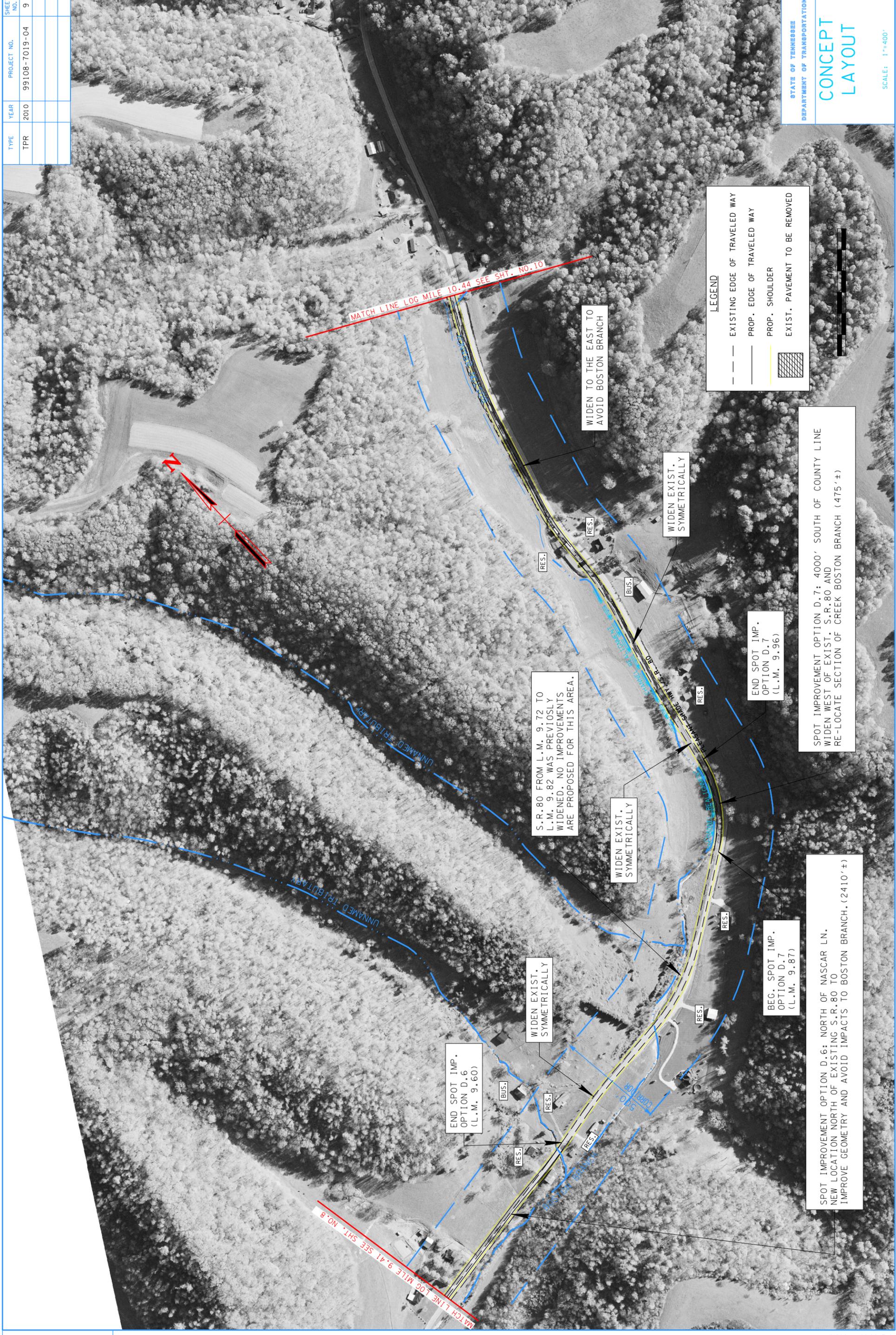
STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

CONCEPT LAYOUT

SCALE: 1"=400'

FILE NO.
DESIGN DIVISION
TENNESSEE D.O.T.

P:\2700108\1009.9h1
1/13/2011 10:23:28 AM



MATCH LINE LOG MILE 10.44 SEE SHI. NO.10

MATCH LINE LOG MILE 9.41 SEE SHI. NO.8

LEGEND

- EXISTING EDGE OF TRAVELED WAY
- PROP. EDGE OF TRAVELED WAY
- PROP. SHOULDER
- ▨ EXIST. PAVEMENT TO BE REMOVED



WIDEN TO THE EAST TO AVOID BOSTON BRANCH

WIDEN EXIST. SYMMETRICALLY

END SPOT IMP. OPTION D.7 (L.M. 9.96)

SPOT IMPROVEMENT OPTION D.7: 4000' SOUTH OF COUNTY LINE WIDEN WEST OF EXIST. S.R.80 AND RE-LOCATE SECTION OF CREEK BOSTON BRANCH (475'±)

S.R.80 FROM L.M. 9.72 TO L.M. 9.82 WAS PREVIOUSLY WIDENED. NO IMPROVEMENTS ARE PROPOSED FOR THIS AREA.

WIDEN EXIST. SYMMETRICALLY

BEG. SPOT IMP. OPTION D.7 (L.M. 9.87)

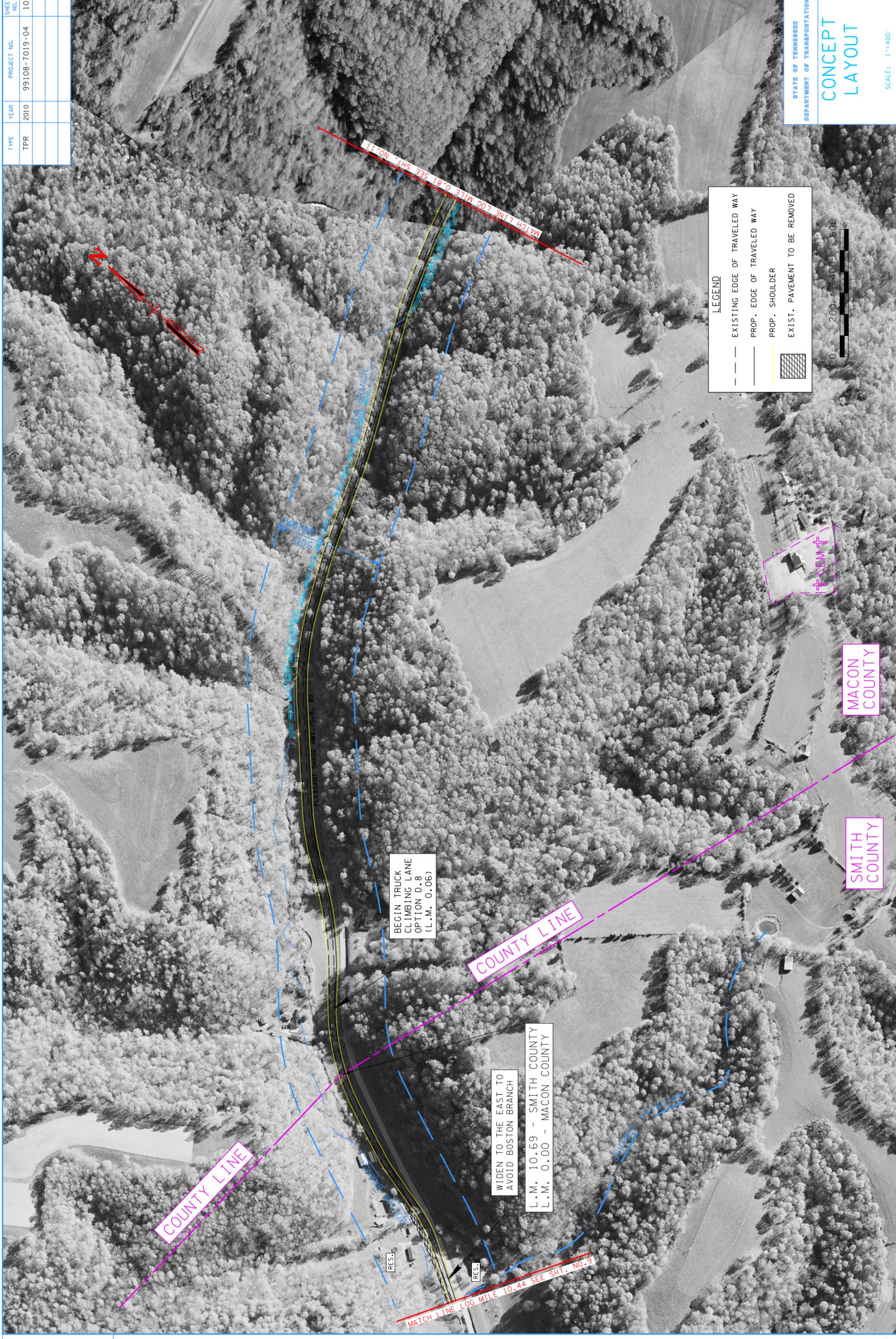
SPOT IMPROVEMENT OPTION D.6: NORTH OF NASCAR LN. NEW LOCATION NORTH OF EXISTING S.R.80 TO IMPROVE GEOMETRY AND AVOID IMPACTS TO BOSTON BRANCH. (2410'±)

END SPOT IMP. OPTION D.6 (L.M. 9.60)

WIDEN EXIST. SYMMETRICALLY

UNNAMED TRIBUTARY

SHEET NO.	PROJECT NO.	YEAR	TYPE
10	99108-7019-04	2010	TPR



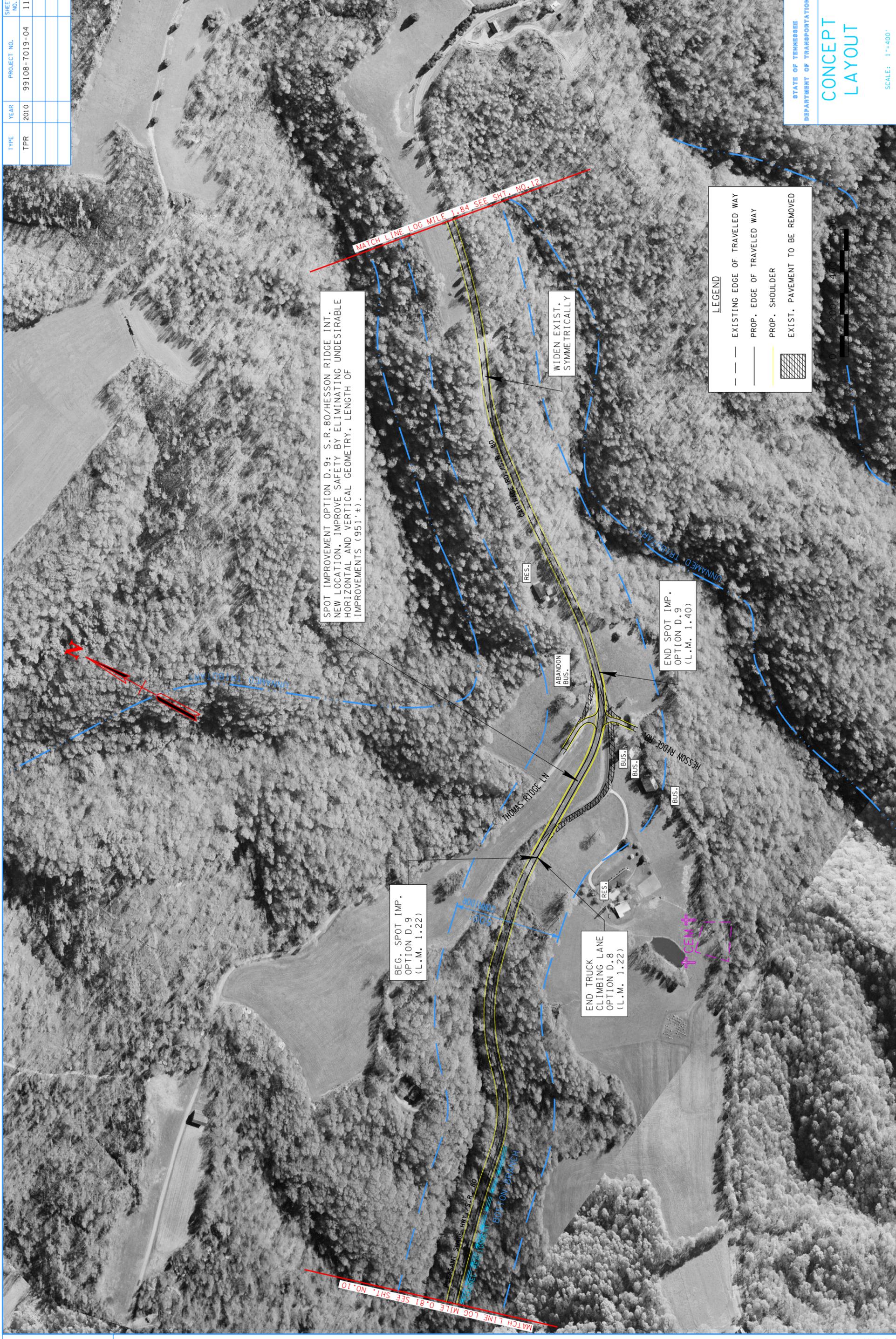
LEGEND

- EXISTING EDGE OF TRAVELED WAY
- PROP. EDGE OF TRAVELED WAY
- PROP. SHOULDER
- EXIST. PAVEMENT TO BE REMOVED



FILE NO.
DESIGN DIVISION
TENNESSEE D.O.T.

SHEET NO.	PROJECT NO.	YEAR	TYPE
11	99108-7019-04	2010	TPR



SPOT IMPROVEMENT OPTION D.9: S.-R.80/HESSEON RIDGE INT. NEW LOCATION. IMPROVE SAFETY BY ELIMINATING UNDESIRABLE HORIZONTAL AND VERTICAL GEOMETRY. LENGTH OF IMPROVEMENTS (951'+±).

BEG. SPOT IMP. OPTION D.9 (L.M. 1.22)

END TRUCK CLIMBING LANE OPTION D.8 (L.M. 1.22)

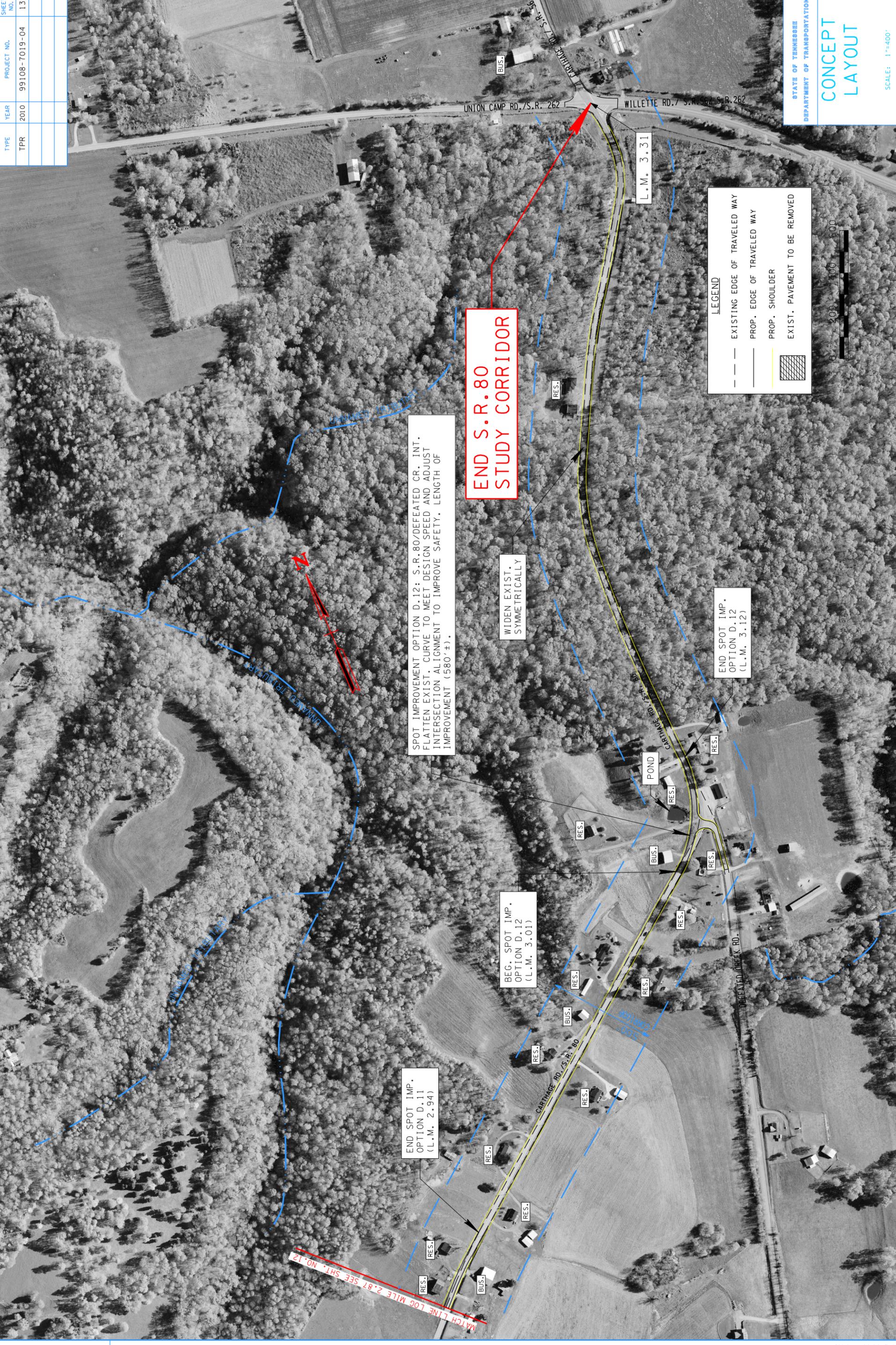
END SPOT IMP. OPTION D.9 (L.M. 1.40)

LEGEND

- EXISTING EDGE OF TRAVELED WAY
- PROP. EDGE OF TRAVELED WAY
- PROP. SHOULDER
- ▨ EXIST. PAVEMENT TO BE REMOVED

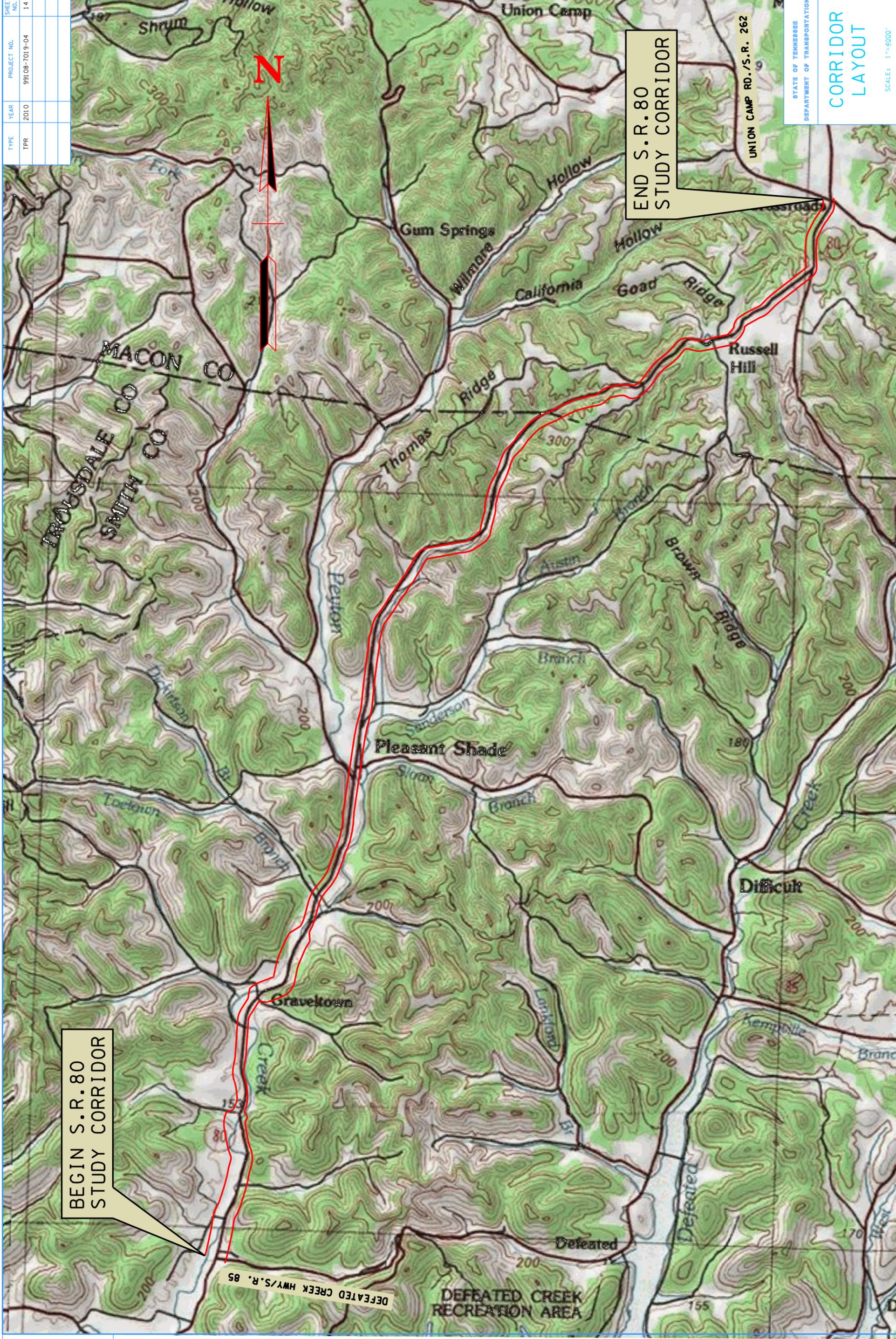


SHEET NO.	PROJECT NO.	YEAR	TYPE
13	99108-7019-04	2010	TPR



FILE NO.	DESIGN DIVISION	TENNESSEE D.O.T.
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SHEET NO.	PROJECT NO.	YEAR	TYPE
14	99108-7019-04	2010	TPR



BEGIN S.R. 80
STUDY CORRIDOR

END S.R. 80
STUDY CORRIDOR

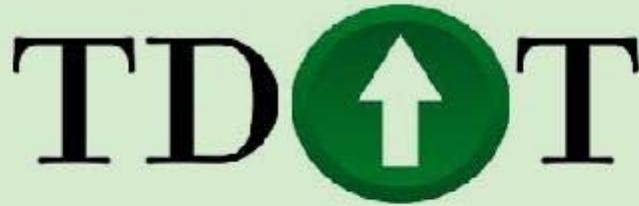
UNION CAMP RD./S.R. 262

DEFEATED CREEK HWY/S.R. 85

DEFEATED CREEK RECREATION AREA

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
CORRIDOR LAYOUT
SCALE: 1"=4000'

**EARLY ENVIRONMENTAL
SCREENING**



Tennessee Department of Transportation
 EARLY ENVIRONMENTAL SCREENING PROCESS (EES)
 PROJECT SCORING

Project Score Factors

	Total Impacts Evaluated	Total Impacts to Evaluate	EES Evaluation
Project Impact Areas:	15	15	Comp...
Date of Evaluation:	March 25, 2010		
Evaluation done by:	Gregory L. Horton		
	Transportation Planner 3		
County:	Smith and Macon County		
Route:	State Route 80		
PIN:	112954.00		
Termini:	SR-80/SR-56 from SR-25, Smith County to SR-52 , Red Boilings i...		

Impact Ranking of Features Evaluated: Total by Rank

Features with No Impact 8

- National Register Sites
- Aquatic Species
- Superfund Sites
- Pyritic Rock
- Railroads
- Tennessee Natural Areas Program
- Wildlife Management Areas
- TWRA Lakes & Other Public Lands

Features with Low Impact 1

- Caves

Features with Moderate Impact **4**

- Cemetery Sites & Cemetery Properties
- Terrestrial Species
- TDEC Conservation Sites & TDEC Scenic Waterwa...
- Large Wetland Impacts

Features with Substantial Impact **1**

- Bat

Community Impacts Present:

Institutions:

- School
- Church
- Public Building

Populations:

- No population present
- Linguistically isolated populations
- Populations below poverty - State average- 13%

EES Project Impact: **Complete**

Impacts Evaluated Within 1,000 Ft of Study Area

CEMETERY SITES & CEMETERY PROPERTIES

Impact

Project Impact (Environmental, Time, Cost, Design, and Maintenance)	<input checked="" type="checkbox"/> Moderate – Medium impact on environment is anticipated as there is a cemetery within the project study area or corridor. It is possible to avoid impacts to the cemetery. Although the cemetery site is present in the study area or corridor, it is possible to avoid impacts to the cemetery. An environmental impact may still result and necessitate an archaeological review as part of NEPA. A moderate level of environmental documentation and time will be required to proceed with development of the project, including steps reach ‘no adverse effect’ and/or <i>de minimus</i> impact determination on the impacts to the cemetery.
--	---

INSTITUTIONS & SENSITIVE COMMUNITY POPULATIONS

Sensitive Populations Project Impact: **Present** **Not Present**

Institutions:		
Hospital	<input type="checkbox"/>	<input checked="" type="checkbox"/>

School	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Church	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Public Building	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Populations:		
No population present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
65 and older populations	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Disability populations	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Households without a vehicle	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Minority populations 24%	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Linguistically isolated populations	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Populations below poverty - State average - 13%	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Populations below poverty - State average - 27%	<input type="checkbox"/>	<input checked="" type="checkbox"/>

BAT

Impact

Project Impact (Environment, Time, Cost, Design, and Maintenance)	<input checked="" type="checkbox"/> Substantial - A substantial impact on the project is probable as there is a known occurrence of Indiana or gray bats within 4 miles of the proposed transportation study area or corridor. It is anticipated that: a) avoidance/minimization of potential impacts to species will be needed, b) surveys for the species for the project may be required, c) coordination with USFWS and establish Section 7 biological conclusions for the project will be needed, and d) seasonal construction limitations will likely be necessary.
--	--

RAILROADS

Impact

Project Impact (Environment, Time, Cost, Design, and Maintenance)	<input checked="" type="checkbox"/> None – No impact on the project is anticipated. There are no railroads located within the project study area or corridor.
--	--

Impacts Evaluated Within 2,000 Ft of Study Area

NATIONAL REGISTER SITES

Impact

Project Impact (Environmental, Time, Cost, Design, and Maintenance)	<input checked="" type="checkbox"/> None – No project impact is anticipated as there are no National Register listed properties abutting or within the project study area or corridor.
--	---

SUPERFUND SITES

Impact

**Project Impact
(Environment,
Time, Cost, Design,
and Maintenance)**

- None** – No project impact is anticipated as there are no known contaminated land tracts abutting or within the project study area or corridor.

PYRITIC ROCK

Impact

**Project Impact
(Environment,
Time, Cost, Design,
and Maintenance)**

- None** – No project impact is anticipated. Pyritic rock is not known to occur in the study area/corridor or project does not involve excavation. Limestone (symbolized as dark green) and dolomite (symbolized as light green) are present.

TWRA LAKES & OTHER PUBLIC LANDS

Impact

**Project Impact
(Environment,
Time, Cost, Design,
and Maintenance)**

- None** – No impact on the project is anticipated as there are no parks located within or abutting the project study area or corridor.

Impacts Evaluated Within 4,000 Ft of Study Area

TERRESTRIAL SPECIES

Impact

**Project Impact
(Environment,
Time, Cost, Design,
and Maintenance)**

- Moderate** – Medium impact on the project is likely as there is a known federally-protected terrestrial species or a state protected species with a status of threatened or endangered located within the project study area or corridor, and it is possible to avoid any impacts to the species with additional design. Additional alternatives will likely eliminate impacts to the species. Additional design alternatives and minimizations may be required if additional populations are found during required field surveys.

TDEC CONSERVATION SITES & TDEC SCENIC WATERWAYS

Impact

Project Impact (Environment, Time, Cost, Design, Maintenance)	<input checked="" type="checkbox"/> Moderate – Medium impact on the project is anticipated as a scenic waterway or TDEC Conservation Site is within the project study area or corridor. Impacts to the scenic waterway or TDEC Conservation Site cannot be avoided but will likely be minor. Examples include replacing a bridge structure in its existing location. Project impact will include analysis, coordination, and negotiation to resolve Section 4(f) issue(s) associated with the crossing of a scenic waterway.
--	---

LARGE WETLAND IMPACTS

Impact

Project Impact (Environment, Time, Cost, Design, Maintenance)	<input checked="" type="checkbox"/> Moderate – Regions 1, 2, and 3: Moderate impact on the project is likely as there are greater than 0.5 but less than 2 acres of wetlands within project study area or corridor. Compensatory mitigation will be required. Design effort will be needed to avoid and minimize impacts to wetlands to the maximum extent practicable. If a floodplain is crossed by the project, floodplain culverts may be necessary.
--	---

TENNESSEE NATURAL AREAS PROGRAM

Impact

Project Impact (Environment, Time, Cost, Design, and Maintenance)	<input checked="" type="checkbox"/> None – No impact on the project is anticipated as the project study area or corridor does not include a Natural Area.
--	--

WILDLIFE MANAGEMENT AREAS

Impact

Project Impact (Environment, Time, Cost, Design, and Maintenance)	<input checked="" type="checkbox"/> None – No project impact is anticipated as a WMA does not abut nor is located within the project study area or corridor.
--	---

Impacts Evaluated Within 10,000 Ft of Study Area

AQUATIC SPECIES

Impact

Project Impact (Environment, Time, Cost, Design, and Maintenance)	<input checked="" type="checkbox"/> None - No impact to the project is anticipated. There is no known occurrence of a rare, state, or federally-protected aquatic species within the project study area or corridor.
--	---

CAVES

Impact

Project Impact (Environment, Time, Cost, Design, and Maintenance)	<input checked="" type="checkbox"/> Low – Minimal project impact is anticipated as there is a cave that abuts the project study area or corridor.
--	--

EES Report

PIN 112964.00

Option: 112964_5601V01

1,000 Foot Corridor

Version Date: September 23, 2009

Created by: CHARLES GILLIHAN

Cemetery Sites & Cemetery Properties

Cemetery Sites Total= 1

Brockett Cemetery

Cemetery Property None were found

Institutions & Sensitive Community Populations

Institutions: Total= 5

School Pleasant Shade Elementary

Church Russell Hill Baptist Church

Church Russell Hill Presbyterian Church

Church Upper Cumberland Church

Church Mount Tabor Church

Populations:

No population present Present

65 & older populations None were found

Disability populations None were found

Households without a vehicle None were found

Minority populations 24% None were found

Linguistically isolated populations Present

Populations below poverty-State average-13% Present

Populations below poverty-State average-27% None were found

Bat Total= 3 USESA SPROT

Myotis grisescens LE E

Myotis grisescens LE E

Myotis grisescens LE E

Railroads None were found

EES Report

PIN 112964.00
2,000 Foot Corridor

Option: 112964_5601V01
Version Date: September 23, 2009
Created by: CHARLES GILLIHAN

National Register Sites	None were found
Superfund Sites	None were found
Pyritic Rock	None were found
TWRA Lakes & Other Public Lands	
TWRA Lakes	None were found
Other Public Lands	None were found

EES Report

PIN 112964.00
4,000 Foot Corridor

Option: 112964_5601V01
Version Date: September 23, 2009
Created by: CHARLES GILLIHAN

Terrestrial Species	<u>Total</u> = 1	USESA	SPROT
Myotis grisescens		LE	E

TDEC Conservation Sites & TDEC Scenic Waterways

TDEC Conservation Sites	<u>Total</u> = 2
-------------------------	------------------

GIBBS CROSSROADS MESIC UPLAND FOREST
BRIDGEWATER CAVE PROTECTION PLANNING SITE

TDEC Scenic Waterways	None were found
-----------------------	-----------------

Large Wetland Impacts	<u>Total AVERAGE</u> = 30.21
-----------------------	------------------------------

PEM1Ax	0.19	acres
PEM1C	0.14	acres
PFO1A	1.91	acres
PFO1A	0.87	acres
POWfx	0.47	acres
POWfx	0.36	acres
POWH	1.39	acres
POWHh	0.39	acres
POWHh	0.27	acres
POWHh	0.25	acres
POWHh	0.64	acres
POWHh	0.33	acres
POWHh	0.54	acres
POWHh	0.16	acres
POWHh	0.21	acres
POWHh	2.92	acres
POWHh	0.32	acres
POWHh	1.31	acres
POWHh	0.30	acres
POWHh	0.33	acres
POWHh	0.27	acres
POWHh	0.25	acres
POWHh	0.39	acres
POWHh	0.33	acres
POWHh	0.83	acres
POWHh	0.35	acres
POWHh	0.41	acres
POWHh	0.68	acres
POWHh	0.32	acres

PIN 112964.00
4,000 Foot Corridor

Option: 112964_5601V01
Version Date: September 23, 2009
Created by: CHARLES GILLIHAN

POWHh	0.21	acres
POWHx	0.24	acres
POWHx	0.33	acres
POWHx	0.25	acres
POWHx	0.24	acres
POWHx	0.31	acres
POWHx	0.29	acres
POWHx	0.20	acres
POWHx	0.46	acres
POWHx	0.26	acres
POWHx	0.29	acres
POWHx	0.27	acres
POWHx	0.31	acres
POWHx	0.23	acres
POWHx	0.27	acres
POWHx	0.35	acres
POWHx	0.46	acres
POWHx	0.30	acres
POWHx	0.30	acres
POWHx	0.05	acres
POWHx	0.21	acres
POWHx	0.23	acres
POWHx	1.23	acres
POWHx	0.22	acres
POWHx	0.21	acres
POWHx	0.22	acres
POWHx	0.29	acres
POWHx	0.32	acres
POWHx	0.39	acres
POWHx	0.24	acres
POWHx	0.33	acres
POWHx	0.41	acres
POWHx	0.18	acres
POWHx	0.50	acres
POWHx	0.55	acres
POWHx	0.24	acres
POWHx	0.20	acres
POWHx	0.27	acres
PUSCh	0.25	acres
R2USC	0.33	acres

PIN 112964.00
4,000 Foot Corridor

Option: 112964_5601V01
Version Date: September 23, 2009
Created by: CHARLES GILLIHAN

R2USC 0.60 acres

Tennessee Natural Areas Program

None were found

Wildlife Management Areas

None were found

EES Report

PIN 112964.00

Option: 112964_5601V01

10,000 Foot Corridor

Version Date: September 23, 2009

Created by: CHARLES GILLIHAN

Aquatic Species

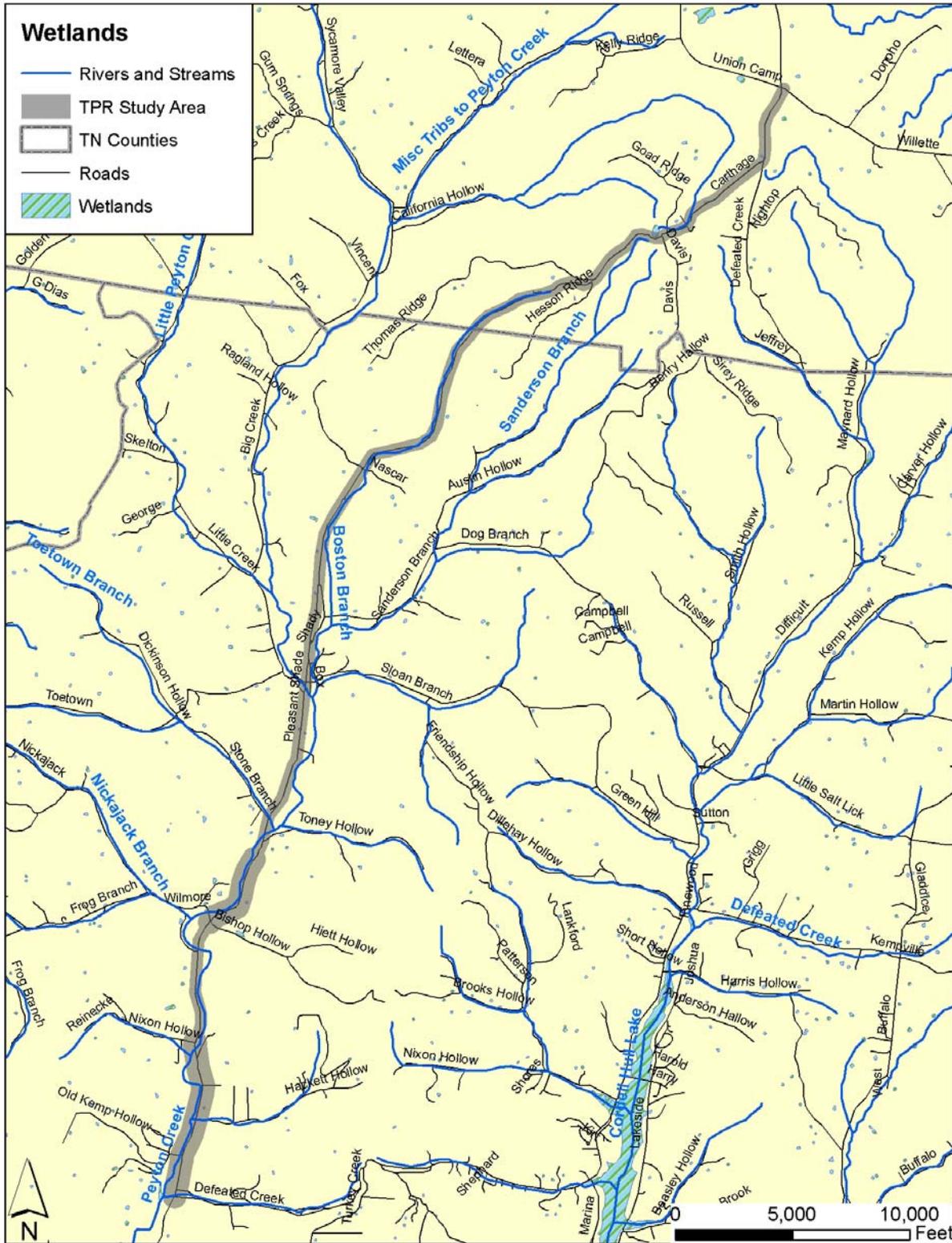
None were found

Caves

Total= 1

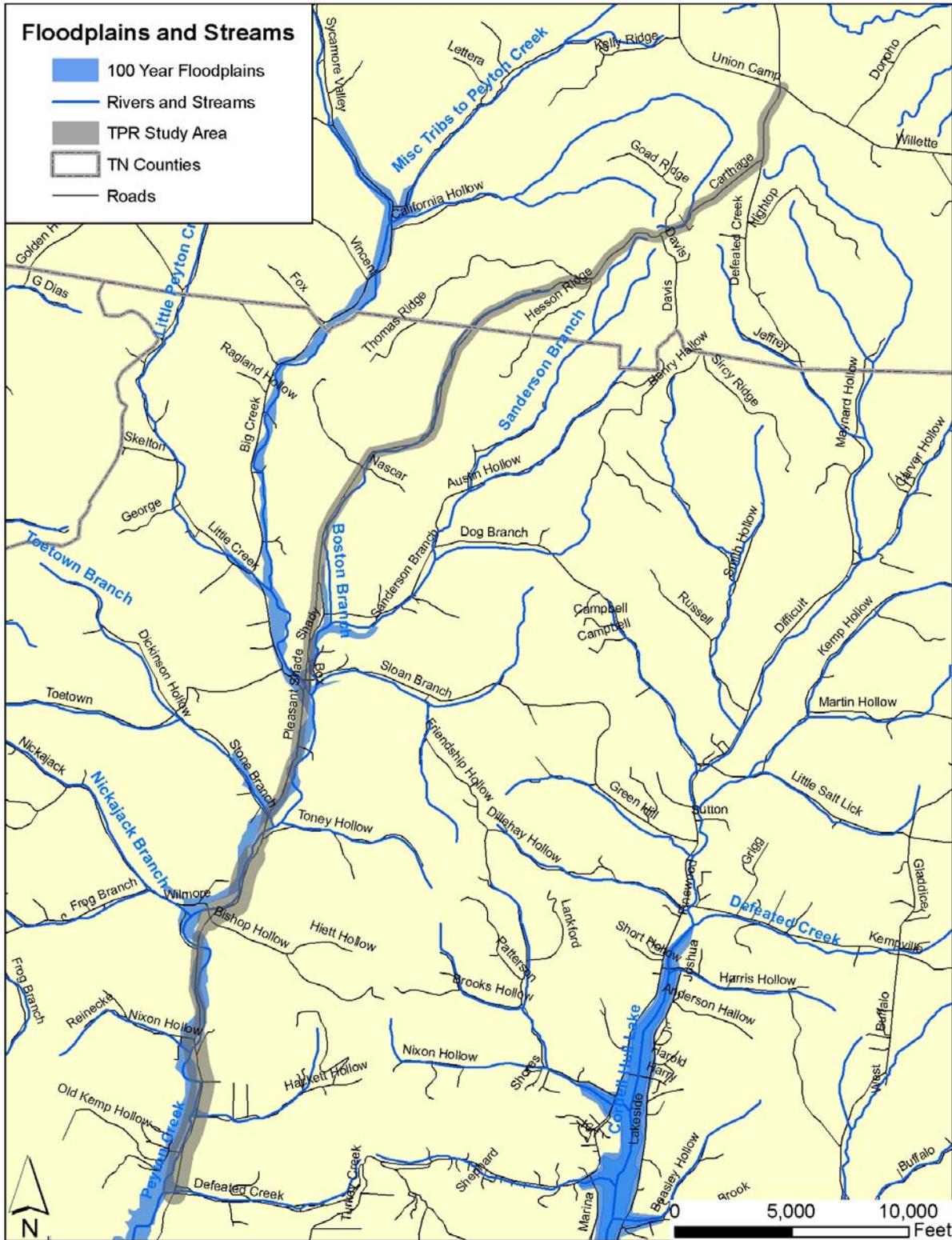
BRIDGEWATER CAVE

Appendix E: Environmental Screening Maps



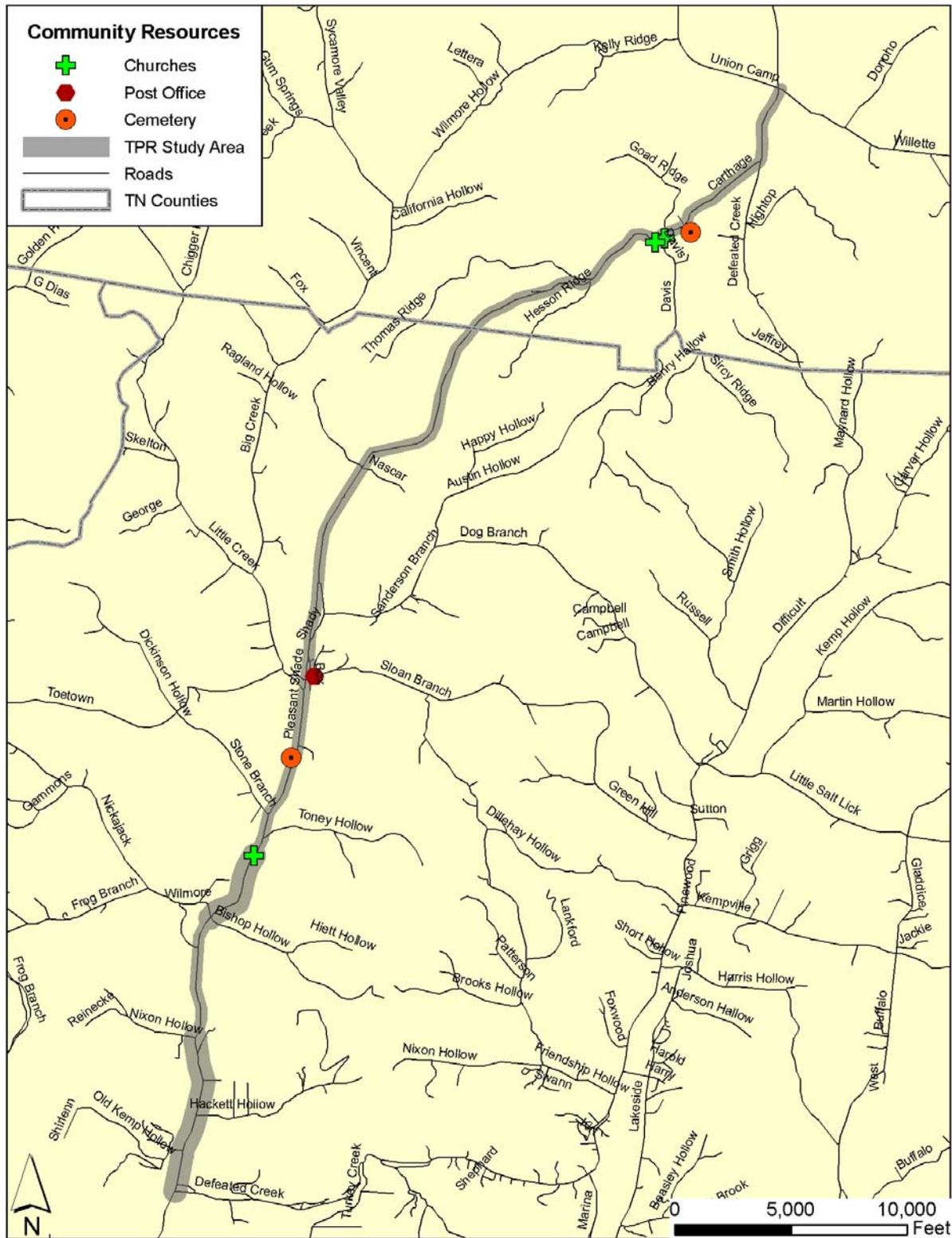
Sources: USFWS National Wetland Inventory

E-1: Wetlands



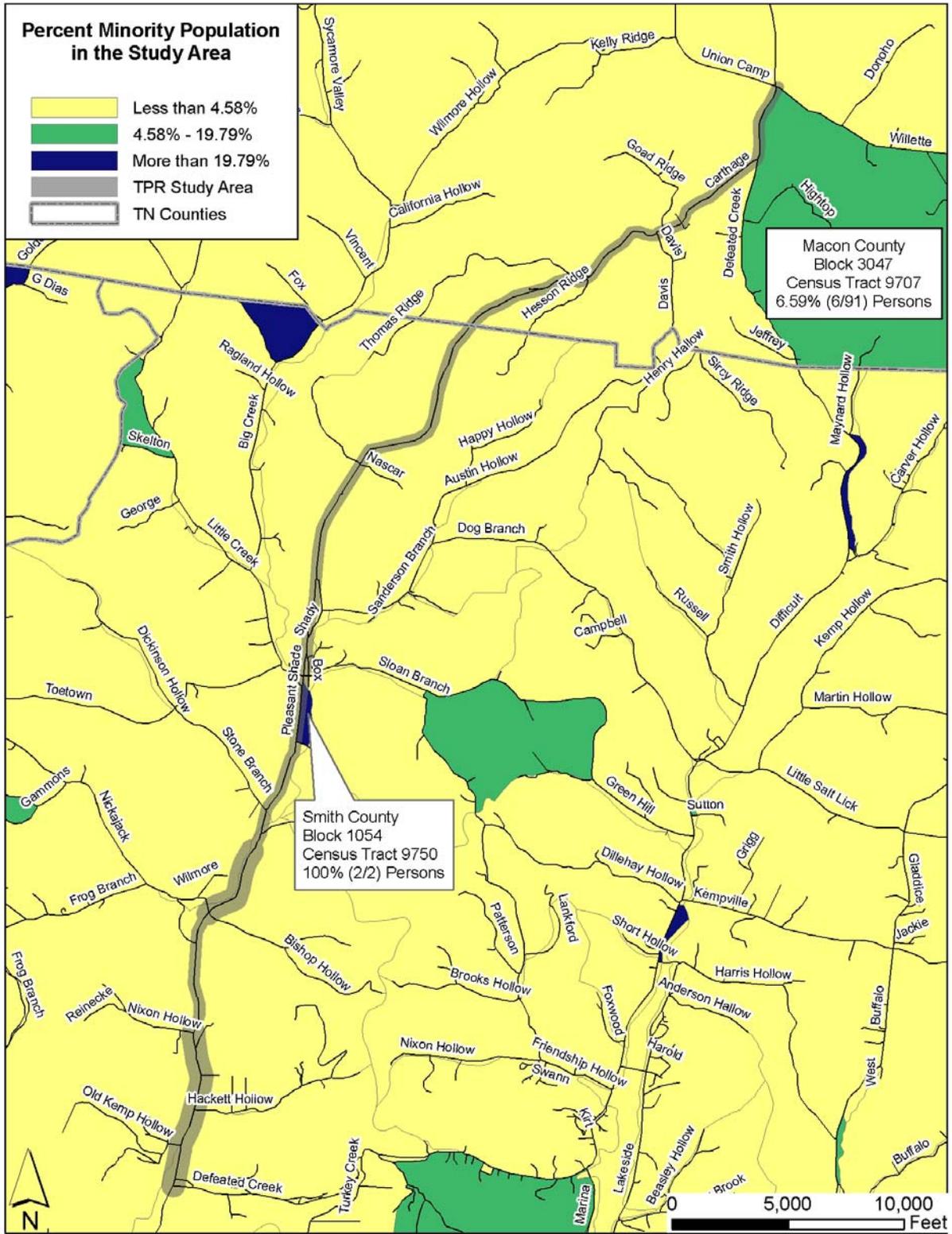
Source: FEMA FIRM, Tennessee Department of Environment and Conservation

E-2: Floodplains and Streams



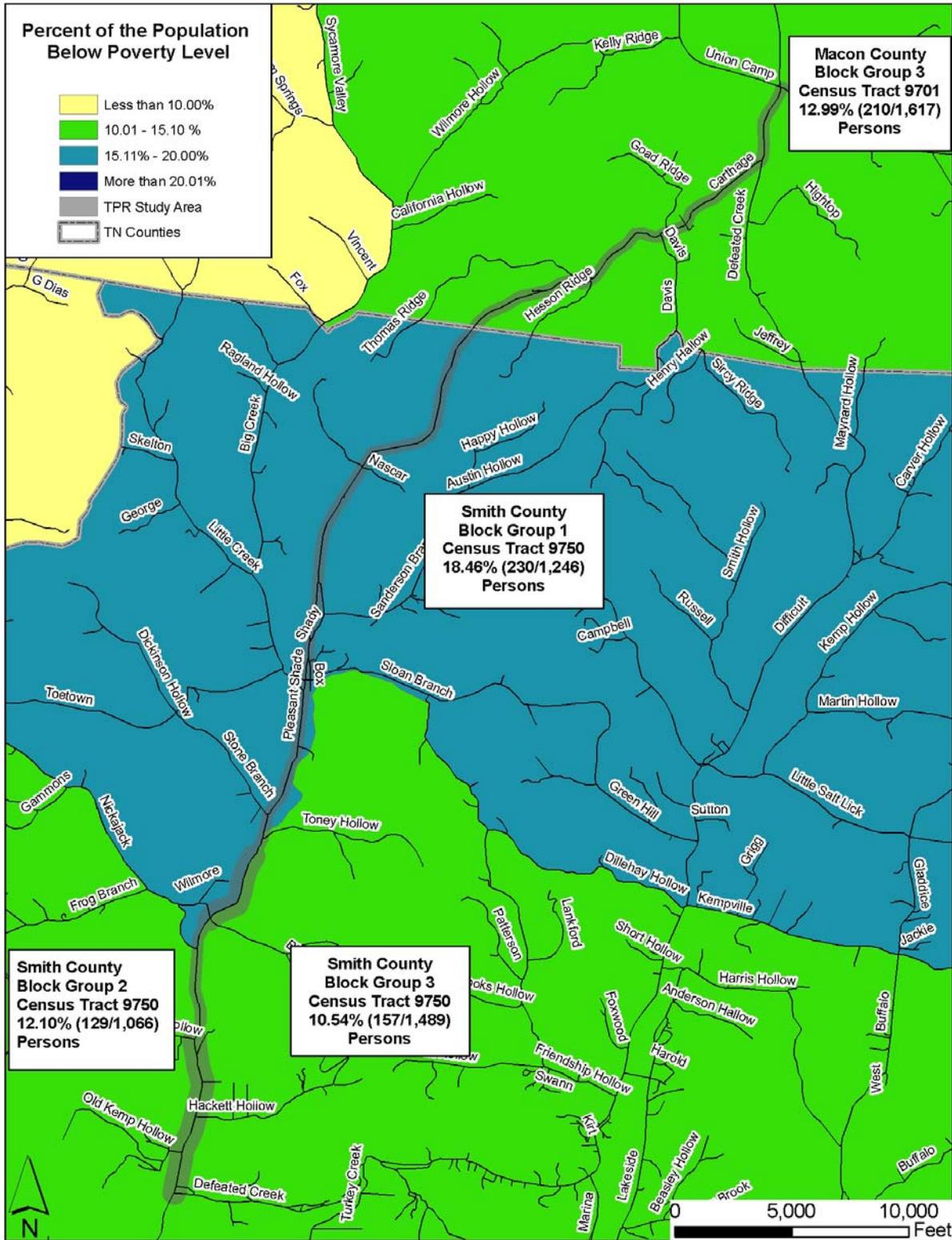
Source: Field review

E-3: Community Resources



Source: US Census 2000, Summary File 1

E-4: Percent Minority Population in the Study Area



Source: US Census 2000, Summary File 3

E-5: Percent of the Population Below Poverty Level