STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
PROJECT PLANNING DIVISION
SUITE 1000, JAMES K. POLK BUILDING
505 DEADERICK STREET
NASHVILLE, TENNESSEE 37243-0334

Gerald F. Nicely
COMMISSIONER

Phil Bredesen
GOVERNOR

MEMORANDUM

TO: Don Ellis, Manager 2
Program Development and Scheduling Office

FROM: Steve Allen, Director
Project Planning Division

DATE: April 4, 2008

SUBJECT: Transportation Planning Report: **PIN # 110339.00**, State Route 33, from State Route 61 in Maynardville to State Route 32 (U.S. 25E) in Tazewell, Union and Claiborne Counties.

I am enclosing a copy of the subject Transportation Planning Report. In addition, a PDF file of the study is available via the TRANSPORTAL / Business Applications / Transportation Planning Reports / PROJS W/PDF'S.

This report is being provided for your use in determining priorities, establishing future scheduling, and initiating further development of the project.

If you need further information, please contact me.

SLA/pwl

Enclosure

Memo/enc: State Senator Tommy Kilby, State Representative Les Winningham, RPO Coordinator Jennifer Lehto, Leigh Ann Tribble (FHWA), FILE

Memo: Ed Cole, Paul Degges, Doug Delaney, Fred Corum, Chris Christianson, Jeff Jones, Jeanne Stevens, Ralph Comer, Teresa Estes, Paula Strauss, Ed Wasserman, Kelly Henshaw, Nancy Sartor, Jim Moore, Paul Beebe, Jeff Turner, Amanda Snowden, Nathan Vatter, Suzanne Herron, Harold Jackson, Charles Bush, Tom Love, Mwafaq Mohammed, Liz Smith, Steve Hylton, Rusty Staggs, Bill Hart, Terry Gladden

TRANSPORTATION PLANNING REPORT

STATE ROUTE 33

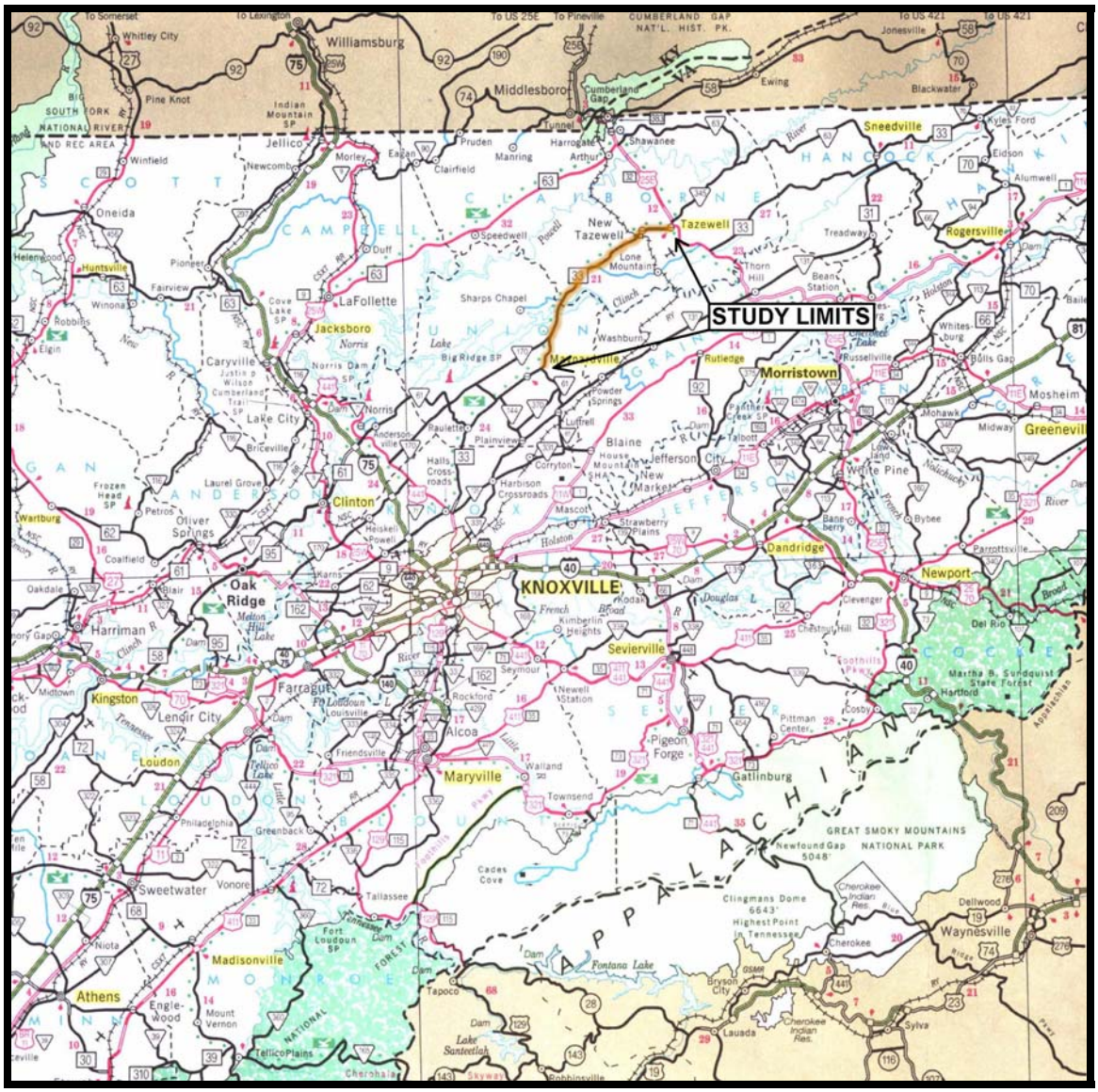
FROM STATE ROUTE 61 IN MAYNARDVILLE
TO STATE ROUTE 32 (U.S. 25E) IN TAZEWELL
UNION AND CLAIBORNE COUNTIES
PIN# 110339.00

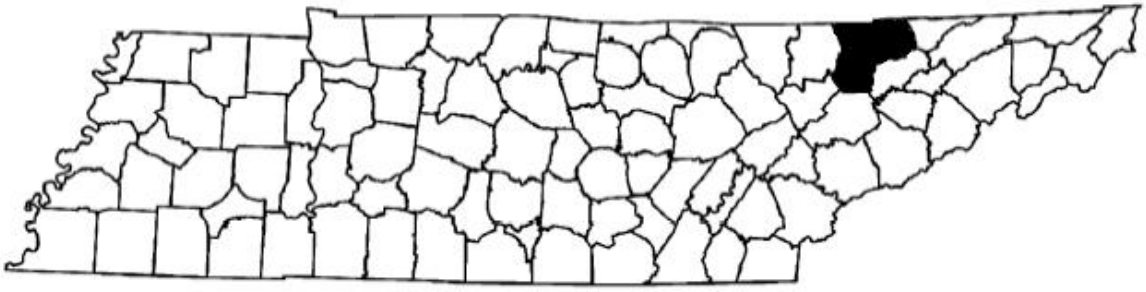
PREPARED BY THE
TENNESSEE DEPARTMENT OF TRANSPORTATION
PROJECT PLANNING DIVISION

Recommended by:	Signature	DATE
CHIEF OF ENVIRONMENT AND PLANNING	Ed Cole	4/3/08
TRANSPORTATION DIRECTOR PROJECT PLANNING DIVISION	Stan Sloan	4-3-08
TRANSPORTATION MANAGER 2 PROJECT PLANNING DIVISION	Bill Hart	4/3/08

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

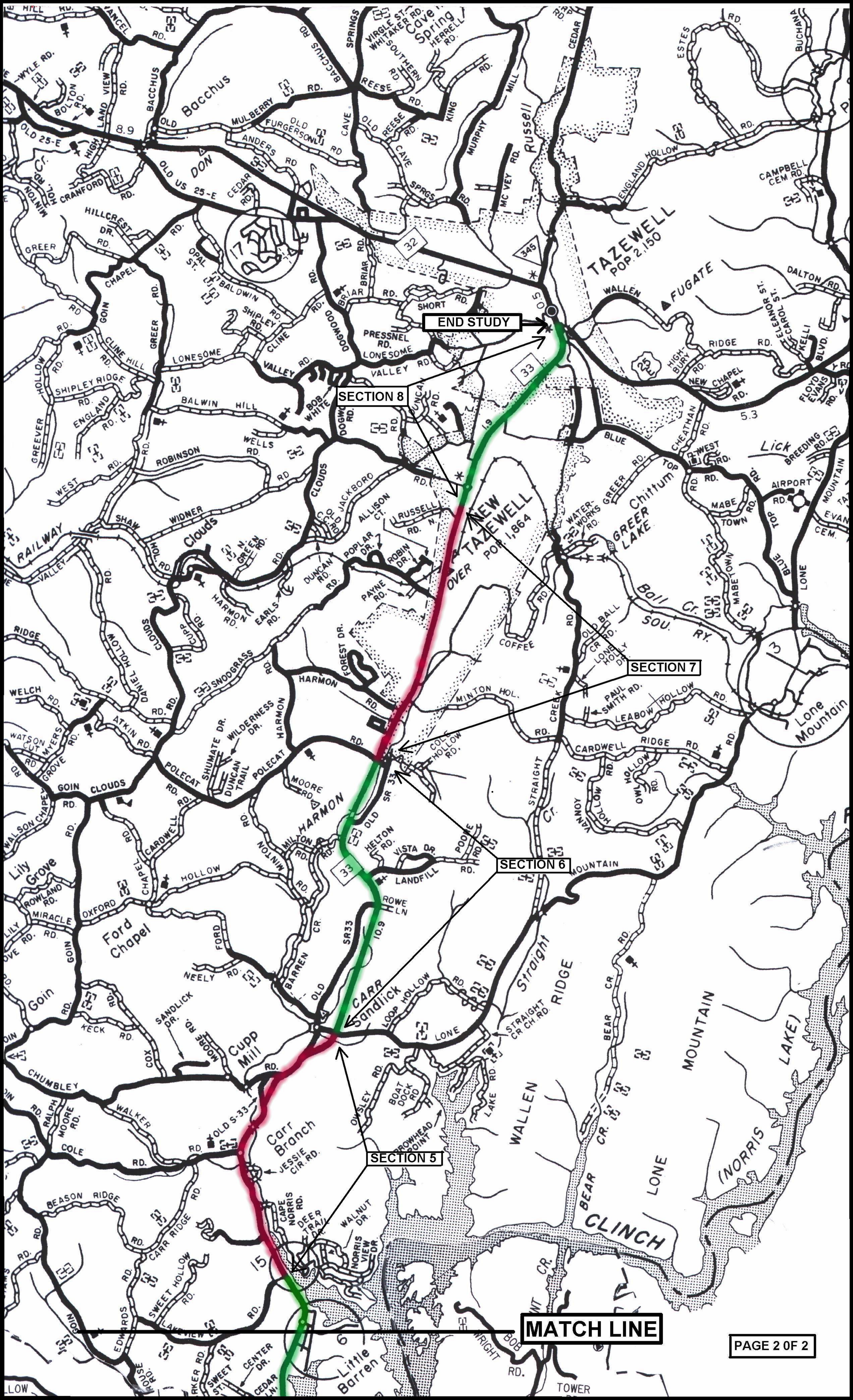
VICINITY MAP





UNION AND CLAIBORNE COUNTIES

LOCATION MAP
STATE ROUTE 33
FROM STATE ROUTE 61 IN MAYNARDVILLE
TO STATE ROUTE 32 (U.S. 25E) IN TAZEWELL
UNION AND CLAIBORNE COUNTIES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Lily Grove
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Carr Branch
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Straight Ridge
Lone Mountain
Little Barren
Chittum
GREER LAKE
Ball Cr.
SOU. RY.
CLINCH
LAKE
MOUNTAIN
WALLEN
FUGATE
Russell
Cave Spring
OVER
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RAILWAY
BACCHUS RD.
OLD US 25-E
MULBERRY RD.
REESE RD.
CAVE SPRGS RD.
MURPHY RD.
MC VEY RD.
ENGLAND HOLLOW
CAMPBELL CEM. RD.
ESTES RD.
BUCHANAN
CEDAR RD.
HILLCREST DR.
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CHAPEL
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SHIPLEY RD.
CLINE
LONESOME VALLEY RD.
PRESSNEL RD.
SHORT RD.
BRIAR RD.
DOGWOOD RD.
WALLEN
DALTON RD.
RIDGE RD.
NEW CHAPEL RD.
FLOYD EVANS RD.
CHEATHAN RD.
BLUE
WEST RD.
BREEDING RD.
AIRPORT RD.
MABE TOWN RD.
GREER RD.
WATER-WORKS RD.
BALWIN HILL
BOB WHITE
DUNCAN RD.
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OLD BALL CR. RD.
LONE HOLLY DR.
PAUL SMITH RD.
LEABOW HOLLOW RD.
MINTON HOL.
COLE HOLLOW RD.
CARDWELL RIDGE RD.
STRAIGHT CR.
VANNOY HOLLOW
OWL HOLLOW RD.
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ATKIN RD.
WATSON CUT
MYERS GROVE RD.
SHUMATE DR.
WILDERNESS DR.
DUNCAN TRAIL
POLECAT
MOORE RD.
SNODGRASS RD.
DANIEL HOLLOW
CLOUDS
CHAPEL
CARDWELL
MILTON RD.
HELTON RD.
VISTA DR.
POOLE RD.
LANDFILL
ROWE LN
OXFORD
MIRACLE
ROWLAND RD.
FORD
NEELY RD.
BARREN CR.
SR 33
OLD S-33
SANDLICK DR.
KECK RD.
COX
CHUMBLEY
WALKER
RALPH MOORE RD.
COLE RD.
BEASON RIDGE
CARR RIDGE RD.
SWEET HOLLOW RD.
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LAKEVIEW
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CENTER DR.
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LOOP HOLLOW RD.
LONE
STRAIGHT CR CH. RD.
BOAT DOCK RD
OWSLEY RD.
LAKE RD.
BROWHEAD POINT
JESSIE CIR. RD.
CAPE NORRIS RD.
DEER TRAIL DR.
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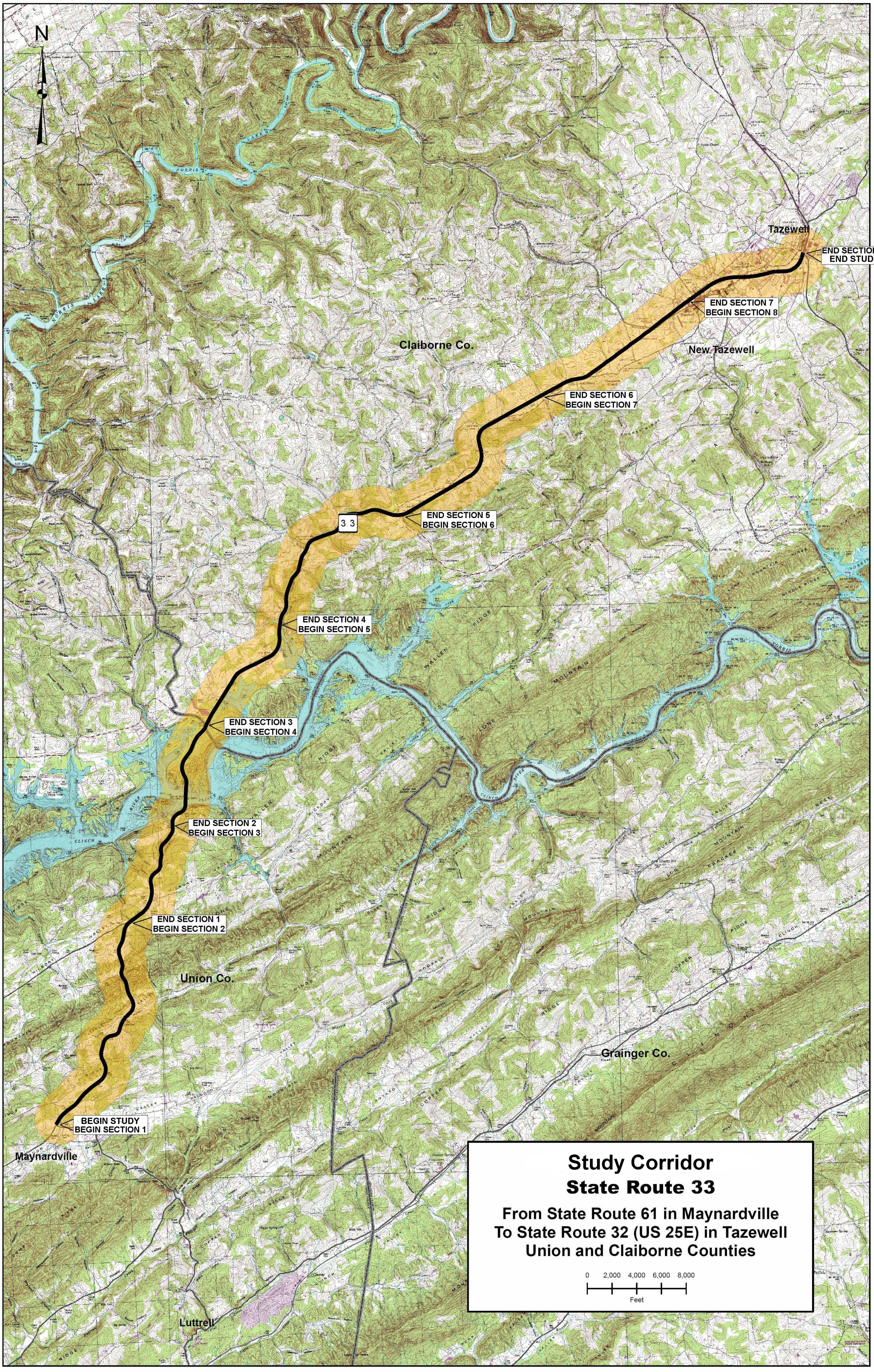
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New Tazewell
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33
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END SECTION 4
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END SECTION 3
BEGIN SECTION 4
END SECTION 2
BEGIN SECTION 3
END SECTION 1
BEGIN SECTION 2
Union Co.
Grainger Co.
BEGIN STUDY
BEGIN SECTION 1
Maynardville
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Study Corridor
State Route 33
From State Route 61 in Maynardville
To State Route 32 (US 25E) in Tazewell
Union and Claiborne Counties
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BACKGROUND INFORMATION

This Transportation Planning Report (TPR) will assess various options for improving the State Route 33 corridor from State Route 61 in Maynardville to State Route 32 (U.S. 25E) in Tazewell. This route was prioritized by the East Tennessee North Rural Planning Organization (RPO) representing their prime corridor for study. As a result, the Tennessee Department of Transportation's (TDOT's) Long Range Planning Division conducted a "Preliminary Purpose and Needs Statement". This document evaluated geometric deficiencies, congestion, safety, and access (system linkage) and determined the corridor qualified for further study. The existing route bisects both Union and Claiborne Counties and spans Norris Lake near the county line. As depicted on the Location Map, the study corridor has been divided into eight sections. The section breaks were selected at logical points for funding and planning evaluations. Section 8 is currently a five lane roadway and therefore excluded from any improvements. It was added at the request of TDOT's Environmental Division to provide a logical terminus (State Route 32 – U.S. 25E) to the study.

A field review of the corridor was conducted in December of 2007. This review was attended by representatives from TDOT Design, Geotech, Environmental, Planning Offices, the Federal Highway Administration and the Rural Planning Organization. This review concentrated on the feasibility of widening the entire route to four lanes. A second field review, in January of 2008, was conducted by representatives from TDOT Design, Traffic Engineering, and Planning Offices to examine specific locations along the route which may benefit from safety improvements. Improvement options determined as a result of these reviews are evaluated in the report. In addition, the No-Build Option will be discussed. An examination of the existing conditions, purpose and need for action, preliminary environmental considerations, and cost estimates are also included in the report.

COMMUNITY PROFILE

Claiborne County was established in 1801 from segments of Grainger and Hawkins Counties. Approximately 50 years later, Union County was formed utilizing portions of Anderson, Claiborne, Grainger, and Knox Counties. The town of Liberty was selected as the County Seat of Union County and later renamed Maynardville. Tazewell became the County Seat of Claiborne County at its inception in 1801.

Farming, mining and logging were the primary occupations for early residents of the area. The completion of Norris Dam in 1936 had a huge impact on the tourism and recreational industries of the region. Norris Reservoir provides 809 miles of shoreline and 33,840 acres of water surface. It is the largest reservoir on a tributary of the Tennessee River. The recreational use of Norris Reservoir exceeds that of any other tributary reservoir in the TVA river system. Big Ridge

State Park is located on the shores of Norris Lake and is within the borders of Union County. Cumberland Gap National Historical Park, dedicated on July 4, 1959, is located in northern Claiborne County and parts of Kentucky and Virginia. The park attracts thousands of visitors every year and is a boon to the tourism industry of the area. The park is centered on the Cumberland Gap, the gateway through the Appalachian Mountains. Animals, Native Americans, trappers, and pioneers used this gap to access the pristine lands in Kentucky. It is estimated between 1775 and 1810, 200,000 to 300,000 people traveled through the gap.

Located near the Cumberland Gap in Harrogate, Tennessee is Lincoln Memorial University, founded on February 12, 1897 as a living memorial to Abraham Lincoln. The historic 1,000-acre campus includes 35 academic, administrative, and residential buildings. There were 3,255 students, both undergraduate and graduate, enrolled at the University in the Fall of 2007.

Although farming continues to be a large contributor to the regional economy, manufacturing also employs a large percentage of area workers. Companies involved in the manufacture of furniture, textiles, and medical supplies are some of the principal employers in the region. A large portion of the workforce also commutes to the Knoxville area job market.

The 2006 estimated population for Union and Claiborne Counties was 19,086 and 31,347 respectively. According to the 2000 census, the population growth rate from 1990 to 2000 was 30% in Union County and 14.3 % in Claiborne County. This compares to a growth rate of 16.7% for Tennessee as a whole. The 2004 per capita personal income averaged $29,844 for Tennessee, compared to $18,296 for Union County and $21,473 for Claiborne County. Tennessee had a 5.2% unemployment rate in 2006, while Union and Claiborne Counties recorded a respective 4.8% and 5.4% rate.

PURPOSE AND NEED

The East Tennessee North Rural Planning Organization (RPO) is comprised of Union, Claiborne, Grainger, Campbell, Scott, and Morgan Counties. Consultation with the RPO is a formal and documented planning procedure to involve rural local officials in the planning and development of regional and statewide transportation plans and investment decisions. This process is designed to give local officials a seat at the statewide transportation planning table and allows them to prioritize transportation needs in their multi-county region. As a result of this process, the East Tennessee North RPO has designated State Route 33 between Maynardville and Tazewell as the prime corridor for study within their six county district. State Senator Tommy Kilby and State Representative Les Winningham, the elected representatives of the region, are members of the RPO Executive Board which has endorsed the improvement of State Route 33. This is in addition to the Executive Board’s county and municipal members representing the six county RPO.

In the selection of State Route 33, the RPO employed the following evaluation criteria: Congestion, Access, and Mobility; Safety and Security; Economic Opportunity; Public and Community Support; Environmental Impact; and Funding. Within these criteria the RPO provided the following list of primary justifications and issues for improving the route:

- Traffic counts: more than 30,000/day, with the highest concentrations from Hwy 144 to Maynardville city limits. (This section is just outside the study's' project limits).
- The smallest community in the county produces more than 2100 AADT.
- Heavily traveled route between the communities in Union County.
- Heavily traveled route servicing SE Kentucky and SW Virginia.
- Heavily traveled by industrial vehicles and trucks, which exacerbates congestion.
- Majority of crashes, including fatalities, in Union County occur on this route; 11 in 2003 and 2004, and already at least one in 2006.
- Community member's note obstructed views that contribute to crashes, as well as dips in the road and heavy traffic.
- Trucks carrying hazardous material have overturned along the narrow, hilly road, contaminating wells, which necessitated that Maynardville UD spend $2 million for public utilities.
- In its present condition, bike/ped facilities would be impossible.
- Ambulances routinely carry patients from Union County, other TN counties, and KY counties to major hospitals in Knoxville.
- SR 33 is a major corridor for several counties in East Tennessee, as well as counties in SE Kentucky and SW Virginia.
- SR 33 leads directly to county seats of Maynardville in Union County and Tazewell in Claiborne County, which is integral for economic development.
- Improvements to the route will make the area much more attractive to new business and industry, because there will be greater access to hospitals, schools, and other commercial centers.
- Improvements to the route will make the area much more attractive to existing business and industry seeking to expand.
- Improvements would complement existing infrastructure such as water and sewer lines.
- Improvements to the route would increase the area's infrastructure that's necessary for a strong labor force.
- College students heavily travel the route to Lincoln Memorial Univ, UTK, Pellissippi State, and other smaller institutions.
- Improvements would make the interstates more accessible to industry.
- The county is growing at almost double the state average, which necessitates infrastructure improvements.
- Improvements are necessary for access to new upscale residential developments such as Hickory Pointe, North Shores, and Sunset Bay.
- Improvements would stimulate other such development.
- Per capita income should increase with better access to employment.
- Improvements to SR 33 would provide a stimulus to the tourism industry in Union and surrounding counties.
- Improvements would be a positive factor in tourism development in the region.
- Improvements would complement other tourism initiatives ongoing in Union and surrounding counties.
- Improvements to the route are critical to implement the county's five-year strategic plan, created by Union County elected officials, University of TN, and TVA.

- Improvements to the route are consistent with the Nine Counties-One Vision initiative, which addresses many issues related to Knox County and eight surrounding counties in East TN.
- Project endorsed by local officials and stakeholders in the strategic plan.
- Project endorsed by the Chamber of Commerce, Business and Professional Association, and Joint Economic and Community Development Board (JECDB).
- Local consensus that improvements to SR 33 would facilitate economic growth.
- Air quality should improve with congestion relief.
- Cultural sites would be more easily accessible.
- TDOT oversight will ensure minimal environmental issues.
- Local governments are committed to fulfilling their financial obligations assuming funds can be obtained.
- Local governments are committed to working together to obtain funding if necessary.
- A new four-lane bridge over Norris Lake on SR 33 is critical because the existing bridge is only two lanes with no shoulder.
- The current bridge over the Norris Lake contributes to many crashes.
- The Norris Lake Bridge is heavily traveled by those in Union County, Claiborne County, SE Kentucky, and SW Virginia.
- Replacing the Norris Lake Bridge would provide continuity of the route and traffic flow.
- Replacing the Norris Lake Bridge would facilitate easier movement of goods and freight.
- The current Norris Lake Bridge restricts truck and larger vehicle access.

It should be noted many of these issues were documented in the initial "Preliminary Purpose and Needs Statement" compiled by TDOT's Long Range Planning Division. As the TPR involves a more comprehensive investigation into existing data and projected traffic conditions, there will be some variations in results from the "Preliminary Purpose and Needs Statement".

There are currently two other on-going highway improvements planned in the vicinity of this project: a bridge replacement project over Norris Lake (Clinch River) and a widening project of the highway through Maynardville. Both of these projects are in the right-of-way acquisition phase but no estimated letting date has been confirmed. In addition, plans to widen State Route 33 from the Knox County Line to Maynardville and from the Halls Crossroads Community in Knox County to the Union County Line are also underway. Therefore, if a widening option is pursued (including a new parallel bridge over Norris Lake) along with the completion of these proposed projects, it would provide continuity of width between Knoxville and the existing five lane section in New Tazewell. Another project, now under construction, will widen State Route 32 (U.S. 25E) from Tazewell into Grainger County. When completed, this will provide the County Seat of Tazewell a four lane connection to Interstate 81. This complies with intent of legislation passed by the General Assembly to connect all county seats by a four-lane highway to the interstate system (TCA § 54- 5-102). Widening State Route 33 will provide a second four lane connection from Tazewell to the interstate system (I-640 in Knoxville). A widening project may also be expected to improve safety for vehicles, bicyclists, and pedestrians, reduce travel delays, stimulate tourism, and enhance regional and local economic development opportunities.

Utilizing the annual average daily traffic acquired from TDOT's Tennessee Roadway Information Management System (TRIMS) database for years 2003 through 2005 and the calculated vehicle miles of travel, a crash rate (crashes per one million vehicle miles) was determined by TDOT's Safety Planning Office for the existing route. From State Route 61 in Union County to the New Tazewell City Limits near Mountain Road in Claiborne County (Sections 1 through 6), the calculated crash rate averaged 1.35. Within the New Tazewell City Limit to near Pine Avenue (Section 7), the calculated crash rate increased to 2.41. This can be compared to the statewide average rate of 1.70 for a rural two-lane highway. As the amount of traffic increases, it is expected these crash rates will also increase without improvements to the route. Specific intersections along the route which recorded a high number of crashes and/or a fatality during the same three year time period were also evaluated. Improvements to these spots will be addressed later in this report and included the following:

- S.R. 33 at Kettle Hollow/Little Valley Roads
- S.R. 33 at S.R. 170
- S.R. 33 along both approaches to the Norris Lake / Clinch River Bridge
- S.R. 33 at Lone Mountain Road

LEVEL OF SERVICE

The base year (2013) and design year (2033) "Level of Service" (LOS) for each section of the proposed corridor was analyzed for this report. The proficiencies of roads are described by their LOS, a measure of the ability of roads to accommodate motor vehicle traffic and the subsequent physical and psychological comfort levels of drivers. The LOS analysis incorporates several factors including traffic volumes, number and width of lanes, terrain, percent no passing zones, directional split, heavy vehicles, and shoulder widths. The LOS is a qualitative measure that describes traffic conditions related to speed and travel time, freedom to maneuver, traffic interruptions, etc. There are six levels ranging from "A" to "F" with "F" being the worst. Each level represents a range of operating conditions. General descriptions of operating conditions for each of the levels of service are as follows:

LOS	Traffic Flow Conditions
A	Free flow operations. Vehicles are almost completely unimpeded in their ability to maneuver within the traffic stream. The general level of physical and psychological comfort provided to the driver is high.
B	Reasonably free flow operations. The ability to maneuver within the traffic stream is only slightly restricted and the general level of physical and psychological comfort provided to the driver is still high.
C	Flow with speeds at or near free flow speeds. Freedom to maneuver within the

traffic stream is noticeably restricted and lane changes require more vigilance on the part of the driver. The driver notices an increase in tension because of the additional vigilance required for safe operation.

D Speeds decline with increasing traffic. Freedom to maneuver within the traffic stream is more noticeably limited. The driver experiences reduced physical and psychological comfort levels.

E At lower boundary, the facility is at capacity. Operations are volatile because there are virtually no gaps in the traffic stream. There is little room to maneuver. The driver experiences poor levels of physical and psychological comfort.

F Breakdowns in traffic flow. The number of vehicles entering the highway section exceed the capacity or ability of the highway to accommodate that number of vehicles. There is little or no room to maneuver. The driver experiences poor levels of physical and psychological comfort.

The following LOS table represents the results of the calculations for each section.

				LEVEL OF SERVICE			
				EXISTING ROUTE NO-BUILD OPTION		PROPOSED ROUTE 5 LANE ROADWAY OPTION 1	
	LENGTH	PROJECTED AADT		2013	2033	2013	2033
*SECTION	(MILES)	2013	2033	AADT	AADT	AADT	AADT
1	3.7	9,370	12,940	C	C	A	A
2	1.7	9,030	12,490	C	C	A	A
3	1.8	9,030	12,490	C	C	A	A
4	2.0	9,190	11,450	C	C	A	A
5	3.0	9,190	11,450	C	C	A	A
6	3.0	11,790	15,390	C	C	A	A
7	2.6	19,010	25,830	D	D	B	B

*Section 8 excluded

These LOS calculations will be discussed in the IMPROVEMENT OPTIONS segment of this report.

EXISTING CONDITIONS

The 17.8± mile segment of State Route 33 under study in this report is classified as a Rural Minor Arterial. The majority of the existing roadway consists of two 12' lanes with 5' to 10' shoulders. The existing right-of-way width ranges from 80' near the Union/Claiborne County Line to 200' just south of New Tazewell with the majority of the right-of-way width ranging between 100' and 120'. Passing lanes (truck climbing lanes) are provided along the route at several locations in both directions. The projected base year (2013) Annual Average Daily Traffic (AADT) ranges from 9,030 between State Route 170 and the Union/Claiborne County Line to 19,010 in New Tazewell. This AADT range is projected to increase to 12,490 and 25,830 respectively by the design year of 2033. The percentage of trucks of the total AADT ranges from 4 to 8 in both the base and design years. A traffic schematic depicting this information is included with this report. For planning purposes, the 17.8± mile segment under study has been divided into eight sections. Section 8 is an existing five lane roadway and is therefore excluded from any improvements. It was added to this study at the request of TDOT's Environmental Division to provide a logical terminus (State Route 32/ U.S. 25E) to the project. As shown on the Location Map, the 8 sections are as follows:

1. State Route 61 in Maynardville to State Route 170 (3.7 miles).
2. State Route 170 to Lewis Green Hollow Road (1.7 miles).
3. Lewis Green Hollow Road to Sharps Chapel Road (Norris Lake Bridge and Approaches – 1.8 miles).
4. Sharps Chapel Road to Lakeview Road (2.0 miles).
5. Lakeview Road to Lone Mountain Road (3.0 miles).
6. Lone Mountain Road to Mountain Road (at the New Tazewell City Limits – 3.0 miles).
7. Mountain Road to Pine Avenue (where the 5 lane roadway begins – 2.6 miles).
8. Pine Avenue to State Route 32 (U.S. 25E) in Tazewell (Excluded from improvements – 2.5 miles).

State Route 33 extends through an area of rolling to mountainous topography. Due to deficient vertical and horizontal alignments, much of the existing route has deficient sight distance, particularly on Sections 1 through 5. This sight distance issue worsens at select intersections where higher mainline speeds are involved. Despite a number of existing truck climbing lanes, the overall no-passing zones averaged 85 percent throughout Sections 1 through 5.

IMPROVEMENT OPTIONS

Two improvement options were developed in this report. A No-Build Option was also included in the assessment of options. The No-Build Option, as the name implies, denotes that only minor improvements (safety improvements and normal maintenance) would be made to the existing road and/or intersection areas. The two Build Options are designated Option 1 and Option 2. Although these two options are compared as separate proposals for this report, a combination of either option may be utilized as funding becomes available.

Option 1 would upgrade the existing two-lane roadway to a four-lane facility with a continuous center turn lane. Option 1 also includes a proposed parallel structure over Norris Lake adjacent to the planned replacement bridge. This will provide continuity of width between the proposed five lane segment in Maynardville and the existing five lanes in New Tazewell. Due to large cuts and earthwork necessary to traverse the rolling to mountainous topography, it is not prudent to consider a four lane divided highway. In addition, the topography and potential negative impact of relocating the route precluded shifting onto a new alignment. A more practical approach would be to improve the highway within the 4000' corridor (illustrated on the Study Corridor Map), shifting from side to side along the existing alignment where necessary to minimize impacts to homes, businesses, and/or environmental resources. The 4000' corridor limits are also depicted on the Environmental Corridor Map. Improving the route to five lanes will also include wider paved shoulders for safer pedestrian and bicycle use. Estimated costs by section for Option 1 are summarized in the following table. Detailed construction cost sheets are attached to this report.

OPTION 1 ESTIMATED COSTS (IN MILLIONS)

*SECTION	CONST.	ROW	TOTAL
1	$38.0	$5.5	$43.5
2	$16.7	$2.5	$19.2
3	$30.3	$2.6	$32.9
4	$14.7	$3.0	$17.7
5	$111.5	$4.4	$115.9
6	$32.8	$4.5	$37.3
7	$17.6	$3.8	$21.4
**TOTAL	$261.6	$26.3	$287.9

*Section 8 excluded
**Total estimated cost does not include utility adjustments

Option 2 proposes to upgrade only Section 7 to a four-lane facility with a continuous center turn lane. This section has relatively high traffic numbers, a higher crash rate, and a lower level of service than the rest of the route. In addition to the Section 7 widening, it is proposed to improve specific spot locations along the route which recorded a high number of crashes and/or a fatality. These spot locations and associated solutions as detailed on the aerial photographs are as follows:

1. *Union County - Little Valley / Kettle Hollow Roads*

   Issues:

   - Intersections skewed and offset. An earthen embankment on the southeast quadrant restricts sight distance.
   - State Route 33 has turn lanes and an intersection warning sign is provided in the northbound direction.

   Solutions:

   Interim:

   - Install intersection warning signs (showing offset int.) north and southbound.
   - Continue maintenance of vegetation on embankment.
   - Refresh double yellow and stop bars on the side streets.

   Ultimate:

   - Realign intersections at a 90 degree angle just south of their current location.

2. *Union County – State Route 170*

   Issues:

   - Intersection is skewed and has two ingress/egress points with a channelized separation island.
   - Substantial difference in the approach grade on State Route 170 and the grade of the travel lane on State Route 33.
   - Intersection sight distance is limited and there is a substantial drop-off between the paved and gravel shoulder on the northbound lane.
   - There are turn lanes on State Route 33, but the configuration creates additional conflict points and creates additional sight distance issues.

   Solutions:

   Interim:

   - Improve/maintain intersection signage and add stone to the northbound shoulder.

   Ultimate:

   - Reconstruct intersection, consolidating access/conflict points and improve approach grade.
   - Construct dedicated left and right-turn lanes on the State Route 170 approach.

3. *Union County- Approaches to Bridge over Norris Lake / Clinch River*

Issues:

- Bridge approaches northbound and southbound are at a down grade and are in horizontal curves.
- Visibility is frequently reduced due to foggy conditions in the Clinch River area.

Solutions:

Interim:

- Upgrade warning signs and delineators on approaches.
- Install snow plowable centerline Raised Pavement Markers (RPM's) in advance to the bridge.
- RPMs should be placed at a 40 ft spacing beginning 750 ft from the bridge joint.
- No RPMs are proposed to be installed on bridge deck.

Ultimate:

- Bridge replacement project slated to be let in 2008.

4. *Claiborne County - Lone Mountain Road*

Issues:

- Lone Mountain Road west approach has low amount of traffic.
- Limited sight distance looking north due to an earthen embankment.
- Lone Mountain Road to the east provides a connection to U.S. 25E (significant amount of traffic utilizes this approach).

Solutions:

- Cul-de-sac Lone Mountain Road on the west approach. Traffic can utilize New Hope Road to the south which has adequate sight distance. This will reduce conflicts for the east approach and will allow the transformation of the northbound left-turn lane into an acceleration lane for left-turning traffic from Lone Mountain Road east approach.
- Install a northbound right-turn lane on State Route 33.

Estimated costs for Option 2 are summarized in the following table. Detailed construction cost sheets are attached to this report.

OPTION 2 ESTIMATED COSTS

Intersection at Kettle Hollow/Little Valley Roads	$ 764,700
Intersection at S.R. 170	$ 777,800
Along both approaches to the Norris Lake / Clinch River Bridge	$ 12,300
Intersection at Lone Mountain Road	$ 236,900
Section 7 Widening	$21,400,000
TOTAL	$23,191,700

The benefits of widening State Route 33 include improved sight distance as a result of reconstructing the deficient horizontal and vertical alignments. A multi-lane roadway will also improve access to and from all points along the route as well as provide the county seat of Tazewell an additional four-lane connection to an Interstate. It will also provide improved access to the Knoxville job market for Union and Claiborne County workers and would promote the potential for economic growth throughout the Union/Claiborne County region. Additional primary beneficial effects of Option 1 include: (1) improved safety and operating conditions along the study corridor; (2) increased traffic capacity; and (3) enhancement of future planned growth by local and/or regional land use planning agencies. Option 2 will also improve the safety and operating conditions where selected spot improvements are recommended. Option 2 would also increase the safety and capacity along the heavily traveled Section 7 in New Tazewell.

As depicted on the Level of Service (LOS) Table, utilizing the base year (2013) and design year (2033) projected traffic on the No-Build Option (existing route), the LOS was calculated to be C on Sections 1 through 6. This LOS is considered acceptable on Tennessee highways. The calculated LOS of D on Section 7 is less acceptable and therefore justifies additional lanes. Widening to 5 lanes will improve the Sections 1 through 6 to LOS A and Section 7 to LOS B. Although the spot safety improvements described in Option 2 may not improve the LOS beyond a C, both traffic operations and safety will benefit from their implementation.

The primary disadvantages of Build Option 1 and to a lesser extent Build Option 2 include: (1) the loss of land for right-of-way; (2) the possible displacement of residences and businesses; (3) temporary construction impacts (dust, siltation, equipment noise, etc.); and (4) impacts to the environment yet to be determined until the Environmental document is completed.

Advantages of the No-Build Option include less disruption of the existing land use patterns and no disruption of the area due to construction. Also, measures to mitigate environmental impacts would not be necessary.

The disadvantages of the No-Build Option include inferior operating conditions and safety concerns inherent with increased traffic volumes, inadequate roadway geometrics, and deficient roadway elevation and curvature.

PRELIMINARY ENVIRONMENTAL ANALYSES

A preliminary investigation into this project's possible environment impacts within the "Area of Potential Effects" (APE) is reflected on the attached "Preliminary Environmental Evaluation" checklist. The APE is the geographic area in which an undertaking may directly or indirectly impact the environment. Project Area Enviro-Maps are attached from the Environmental Protection Agency's Web-based mapping tool for viewing environmental information. A list of the recorded sites which may have environmental impacts is included on the Enviro-Maps. The Environmental

Corridor Map which accompanies this report spots the locations of schools, churches, cemeteries, surveyed historical sites, caves and protected species locations. It should be noted the surveyed historical sites were not available for the Claiborne County section of the report and do not appear on the map. However, Johnson's Mill in Section 5 may be eligible for the Historic Register and should be avoided. A field survey will be conducted as part of the environmental analysis and may identify heretofore additional unrecorded or undocumented resources. In addition, a city park and a roadside park are located in New Tazewell (Section 7) and should also be avoided. Flood maps attained from the Federal Emergency Management Agency (FEMA) web site are included in this report. A more comprehensive analysis of the impacts will be completed at a later date to comply with the National Environmental Policy Act (NEPA).

Hazardous Material spills on highways are a potential source of water quality degradation and a possible public health hazard. The Tennessee Emergency Management Agency (TEMA) has the responsibility and authority for coordination of all state and local agencies during crashes involving hazardous materials. The TEMA has demonstrated its ability to effectively manage such incidents. The project will be evaluated when preliminary right-of-way plans are completed to determine the impacts on any possible underground storage tank (UST) sites. TDOT has demonstrated its ability to deal with UST sites to minimize impacts on the environment. In the event hazardous substances/wastes are encountered within the proposed right-of-way, their disposition shall be subject to the applicable sections of the Federal Resource Conservation and Recovery Act, as amended; and the Comprehensive Environmental Response, Compensation, and Liability Act, as amended; and the Tennessee Hazardous Waste Management Act of 1983.

Alterations to streams or other aquatic sites designated as waters of the State or waters of the United States require either individual or general Aquatic Resource Alteration Permits (ARAP) from the State of Tennessee, individual or Nationwide 404 U.S. Army Corps of Engineers permits, and, where applicable, a TVA 26a permit or letter of no objection. Construction projects disturbing one or more acres of land require storm water control permits issued by the State of Tennessee pursuant to the National Pollutant Discharge Elimination System. For any project that affects water flowing into a sinkhole or cave, or for any impact that may affect the ground water via a sinkhole, a Class B Injection Well permit may be required. This process involves obtaining a permit before the project is let if sinkholes are known to exist. If other sinkholes are encountered after construction has begun, the appropriate TDOT offices will be notified and the appropriate steps taken to comply with laws, regulations, and permits. Permit requirements will be complied with for these or any others identified in the project development process.

All wetland impacts require confirmation by, and coordination with, permitting agencies. All require either general or individual Aquatic Resource Alteration Permits (ARAP) from the State of Tennessee. Almost all require either nationwide or individual permits from the U.S. Army Corps of

Engineers pursuant to Section 404 of the Clean water Act. Other agencies such as the U.S. Fish and Wildlife Service and the Environmental Protection Agency (EPA) may be involved in the permitting process. Wetland impacts which are subject to either State or Federal jurisdiction, and which do not meet criteria for either general or nationwide permits require individual permits; these typically require compensatory mitigation for impacts. In general, isolated wetlands with less than 0.25 acre impacts may come under the guidelines of a general permit issued by the State of Tennessee; no mitigation is required. This permit cannot be used, however, for a cumulative series of small impacts. Some wetland impacts of less than 0.5 acres qualify for Corps of Engineers nationwide permits. TDOT should carry out further coordination with the regulatory agencies before preparing mitigation plans and submitting permit applications. Permit requirements and mitigation plans will be based on these discussions.

SEVEN GUIDING PRINCIPLES

The Tennessee Department of Transportation has adopted seven guiding principles against which all transportation projects are to be evaluated. These guiding principles address concerns for system management, mobility, economic growth, safety, community, environmental stewardship, and fiscal responsibility. These principles clearly set the standards and values by which we will preserve and improve our transportation system.

Guiding Principle 1: Preserve and Manage the Existing Transportation System

Implementation of either of the Build Options would not undermine or disrupt any facet of the existing area transportation network. Option 1 would provide continuity of width for State Route 33 when other proposed widening projects in the Knoxville to Maynardville corridor are completed. Option 1, and to a lesser extent Option 2, would upgrade the deficient horizontal and vertical alignments and improve safety along the corridor. It is expected the completion of either Build Option would enhance the transportation system and improve traffic operations.

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

The No-Build Option does not address the need of the region for improved connectivity for the movement of both passenger and commercial vehicles. The Option 1 provides for this connectivity and improves access throughout Union and Claiborne Counties. An improved roadway will improve the prospects for economic expansion along the State Route 33 corridor. Agricultural resources should also benefit in conjunction with industrial and commercial enterprises in consideration of the farm vehicles which utilize the highway. Improved access for the residential population to job and commercial markets will also enhance the quality of life for area residents.

Guiding Principle 3: Support the State's Economy

The region's industries and commercial businesses require adequate transportation facilities to operate at their potential. State Route 33 serves as a major link to the economic hub of Knoxville and the converging interstate system in Knox County. State Route 33 provides the most direct link for Union and Claiborne County residents to travel to jobs in the Knoxville area. To attract new commercial and industrial employers, an enhanced regional transportation system would be expected to provide new jobs and therefore lower the unemployment rate. Typically, an adequate transportation system is directly correlated to economic viability and vitality. Therefore, to meet future transportation demands, and expand the economic base to support the state's economy, the improvement of the State Route 33 corridor is fundamental.

Guiding Principle 4: Maximize Safety and Security

During the three year period from 2003 through 2005, 275 crashes were reported along Sections 1 through 7 of the existing route. 98 of these crashes were in the boundary of Section 7 within the New Tazewell City Limits. Of the total of 275, 12 involved fatalities, 21 involved incapacitating injuries, and another 80 involved minor injuries. The statewide average crash rate for a rural two-lane highway is 1.70. The statewide average rate for a rural four-lane highway with a continuous turn lane is 1.11. As traffic volumes continue to increase, it is expected that without any improvements the crash rate will also continue to increase. In addition to an expected lower crash rate with the implementation of the Build Option 1 and improved intersections with Build Option 2, an improved roadway should facilitate safer travel for highway users including pedestrians and bicyclists, and increased response times for emergency vehicles.

Guiding Principle 5: Build Partnerships for Livable Communities

The partnership with local officials throughout the Rural Planning Organization process allows these stakeholders to participate in the development and implementation of statewide transportation plans and investment decisions. This process allows local officials to prioritize transportation needs in their multi-county region. Representatives from all counties and towns within the East Tennessee North RPO have held several meetings which were advertised and open to the public to prioritize their transportation needs and recommend to TDOT corridors for study. As a result of this coordinated effort, State Route 33 between Maynardville and Tazewell was designated as the prime corridor for study within their RPO. In addition, the coordinator of the RPO and one of its representatives were involved in the initial field review conducted by TDOT and FHWA. As the project moves on beyond the Transportation Planning Report, public meetings will be conducted to involve the community in the environmental and design phases of the study. This will allow interested stakeholders to contribute their input into the development of an improved

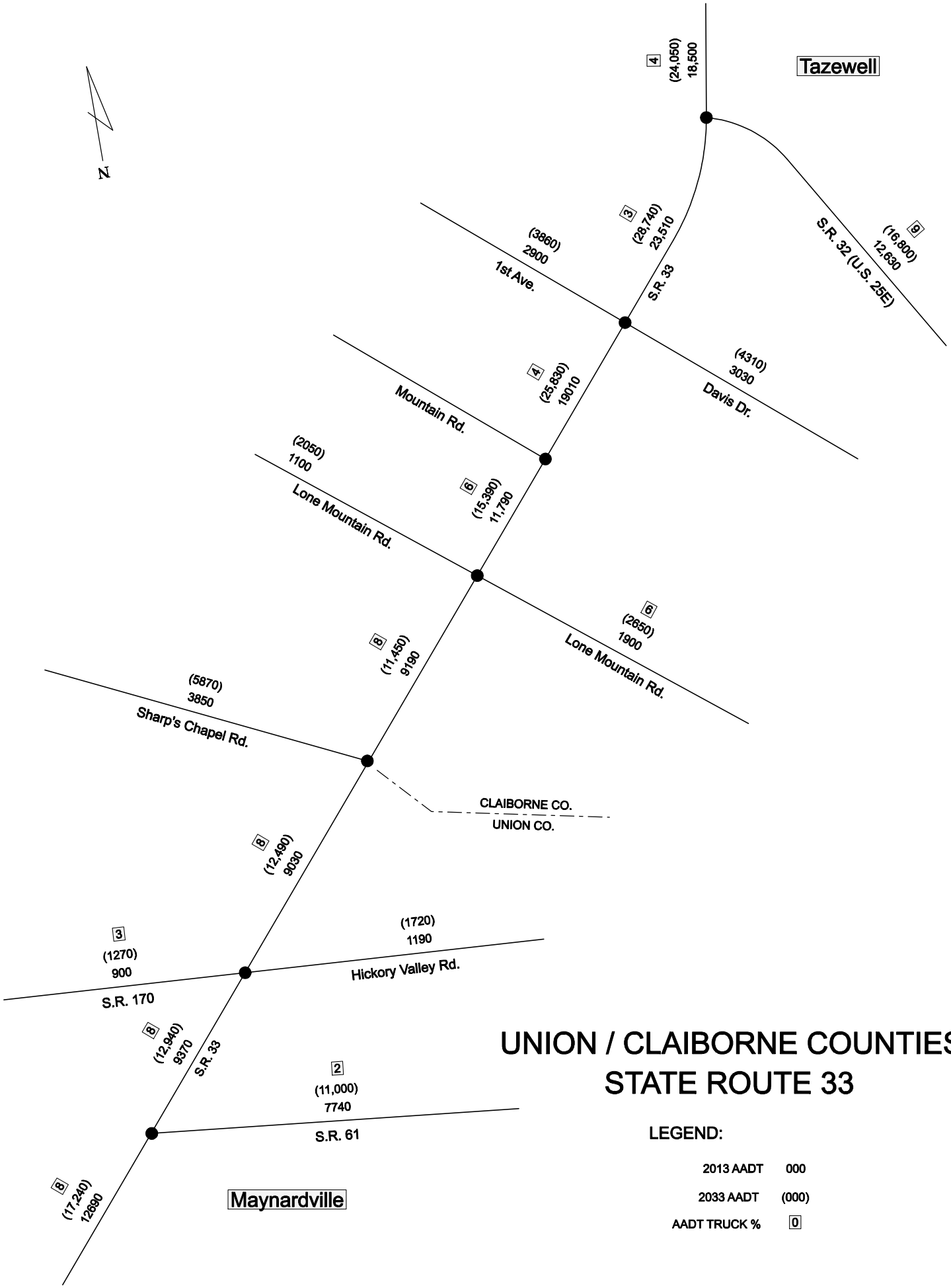
roadway with a minimum of adverse impacts while providing the optimal benefit. Every effort will be made to mitigate any negative impacts to the local citizenry during the implementation of the Build Options. An improved transportation corridor that benefits the community with as few disruptions as possible is essential in providing for future regional growth and quality of life.

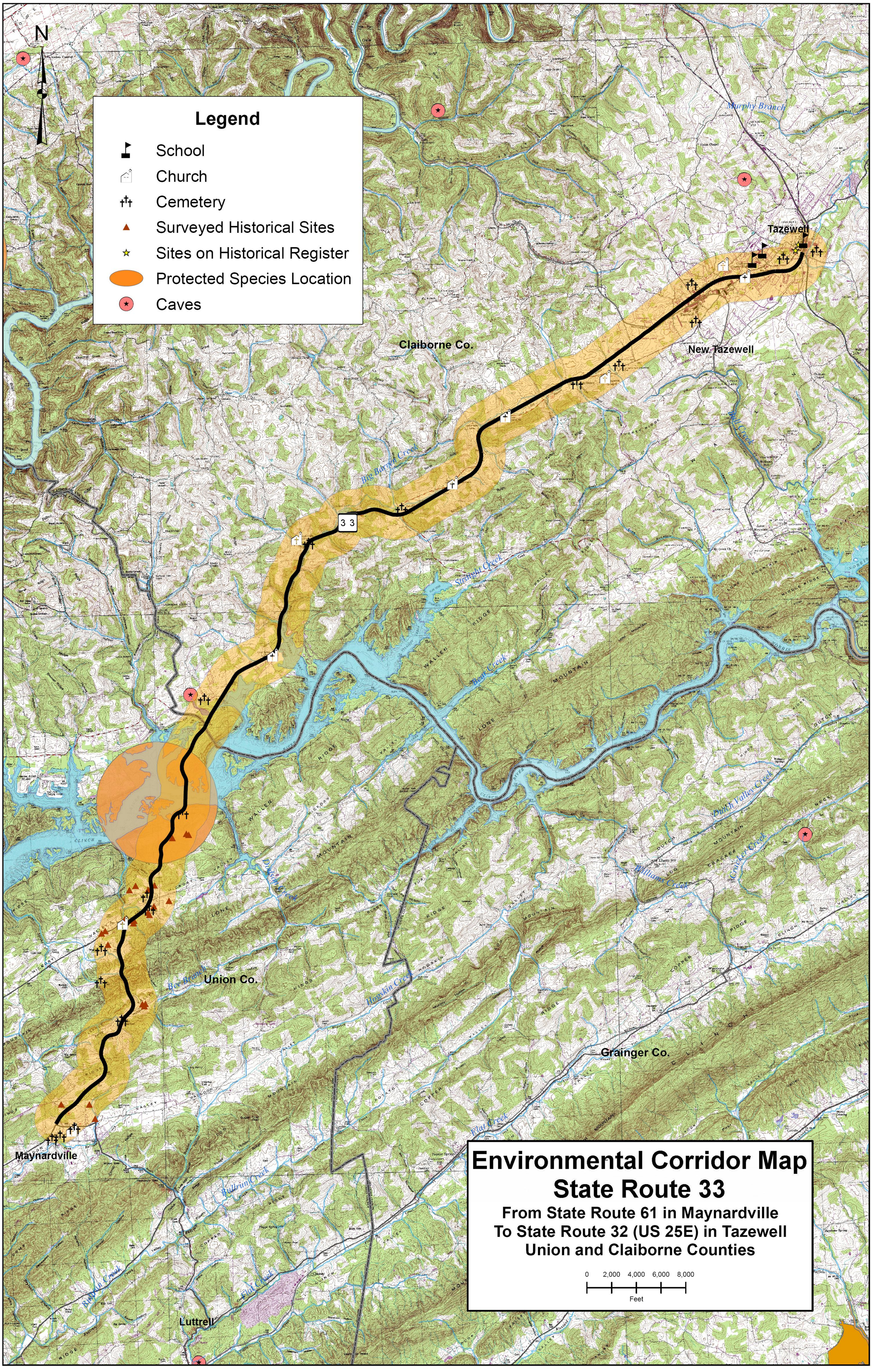
Guiding Principle 6: Promote Stewardship of the Environment

The United States Congress enacted the National Environmental Policy Act of 1969 (NEPA) to establish a national policy to protect the environment. NEPA requires federal agencies to consider environmental issues prior to making any major decisions on projects that have federal involvement (e.g., funding or permitting). To determine a project's potential benefit or harm to the environment, NEPA requires an assessment of environmental impacts and an evaluation of options to avoid any identified adverse impacts to the environment. The Council on Environmental Quality (CEQ) was created by NEPA to oversee the federal implementation of NEPA, by interpreting the law and developing regulations and guidance. NEPA procedures must ensure that environmental information is available to public officials and citizens before decisions are made and before actions are taken. The regulations also spell out the three categories of actions (Categorical Exclusions, Environmental Assessments, and Environmental Impact Statements), as well as documentation requirements and format, the commenting process and public involvement requirements, and document filing requirements. This project is subject to all of these regulations and the NEPA process will be enacted accordingly.

Guiding Principle 7: Promote Financial Responsibility

Cost estimates for both Options 1 and 2 were calculated for this report. The total estimated cost for widening the entire route (Option 1) is $287.9 million. The estimated cost for Option 2 which would widen Section 7 and improve the roadway at various high crash locations is $23.2 million. These are approximate calculations and will fluctuate with inflation and any unexpected setbacks. Option 2 was investigated to provide an alternative to widening the route, considering the financial constraints the Department is operating under at the present time. 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.


N
Tazewell
4
(24,050)
18,500
3
(28,740)
23,510
S.R. 33
(3860)
2900
1st Ave.
S.R. 32 (U.S. 25E)
9
(16,800)
12,630
(4310)
3030
Davis Dr.
4
(25,830)
19010
Mountain Rd.
(2050)
1100
Lone Mountain Rd.
6
(15,390)
11,790
6
(2650)
1900
Lone Mountain Rd.
8
(11,450)
9190
(5870)
3850
Sharp's Chapel Rd.
CLAIBORNE CO.
UNION CO.
8
(12,490)
9030
(1720)
1190
Hickory Valley Rd.
3
(1270)
900
S.R. 170
8
(12,940)
9370
S.R. 33
2
(11,000)
7740
S.R. 61
8
(17,240)
12690
Maynardville
UNION / CLAIBORNE COUNTIES
STATE ROUTE 33
LEGEND:
2013 AADT 000
2033 AADT (000)
AADT TRUCK % 0

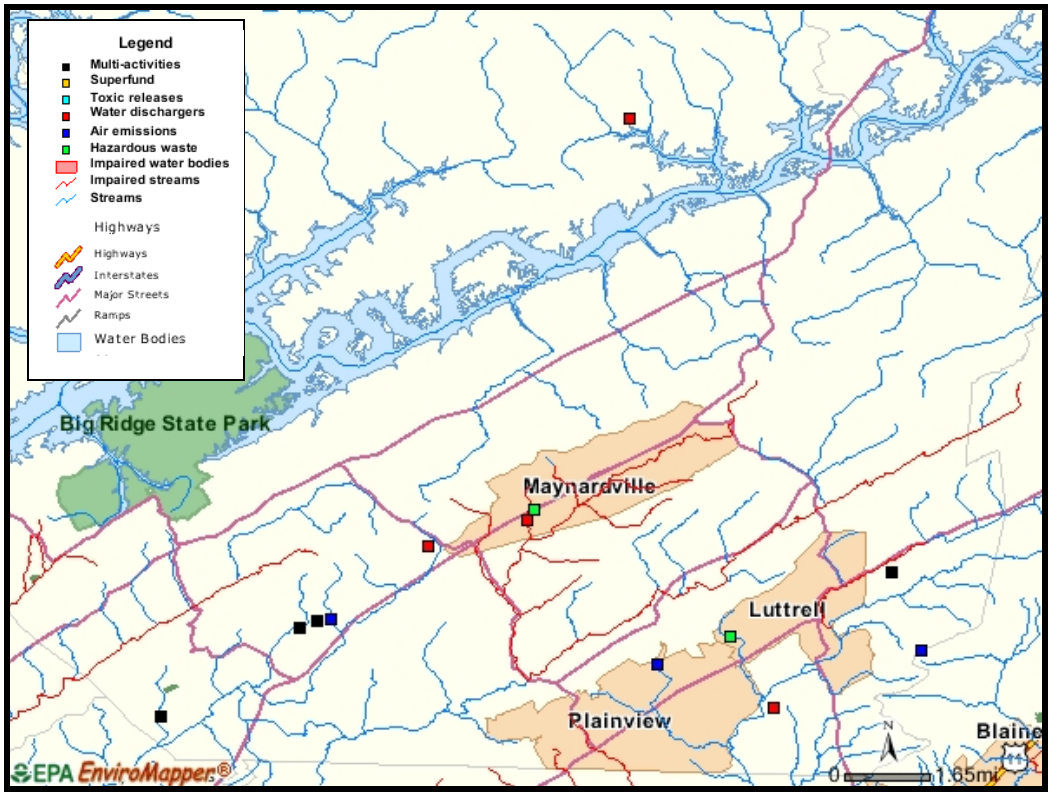

N
Legend
School
Church
Cemetery
Surveyed Historical Sites
Sites on Historical Register
Protected Species Location
Caves
Claiborne Co.
Union Co.
Grainger Co.
Tazewell
New Tazewell
Maynardville
Luttrell
33
Environmental Corridor Map
State Route 33
From State Route 61 in Maynardville
To State Route 32 (US 25E) in Tazewell
Union and Claiborne Counties
0 2,000 4,000 6,000 8,000
Feet

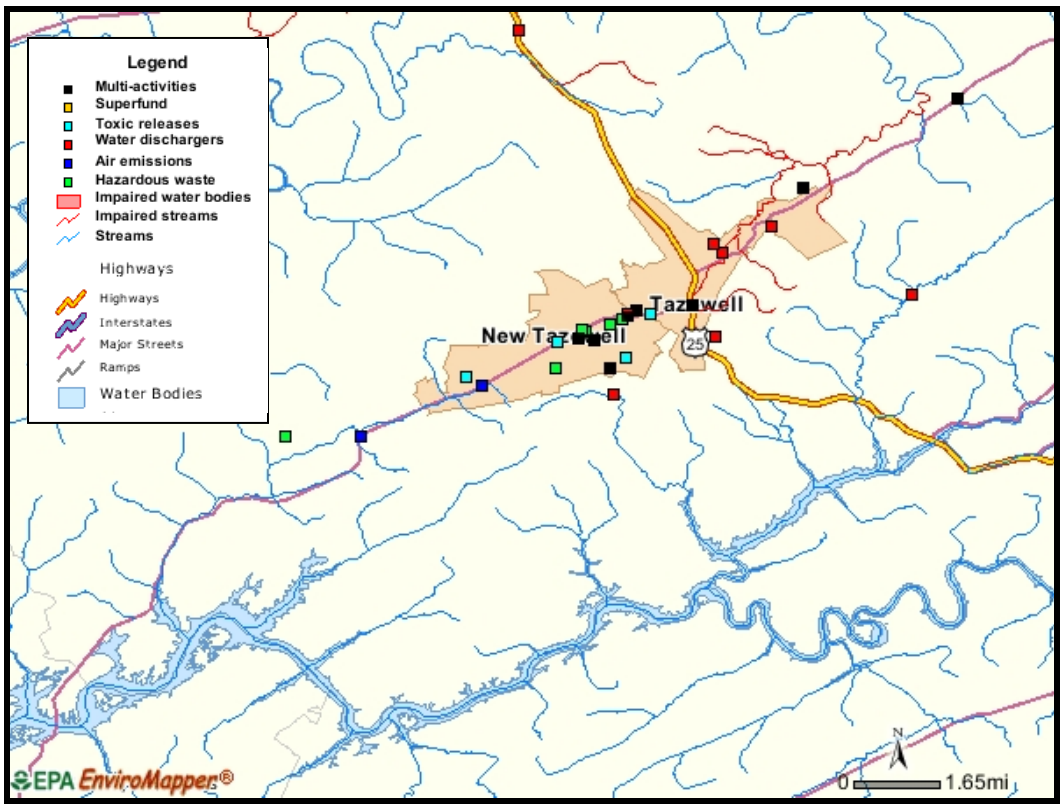
Preliminary Environmental Evaluation

If preliminary field reviews indicate the presence of any of the following facilities and/or Economic, Social, and Environmental categories (ESE), place an "X" in the blank opposite the item. Where more than one option is to be considered, place its number designation in the blank. A more comprehensive analysis of the impacts will be completed at a later date to comply with the National Environmental Policy Act (NEPA).

1.)	Hazardous Material Site or Underground Storage Tanks.....	1 2
2.)	Floodplains.....	1 2
3.)	Historical, archaeological, cultural or natural landmarks, or cemeteries.....	1 2
4.)	Airport.....	
5.)	Residential establishment.....	1 2
6.)	Urban area, city, town, or community..... (Maynardville, New Tazewell, Tazewell)	1 2
7.)	Commercial area, shopping center.....	1 2
8.)	Institutional usages:	
	a. School or other educational institution.....	
	b. Hospital or other medical facility.....	
	c. Church or other religious institution.....	1 2
	d. Public Building, e.g., fire station.....	
	e. Defense installation.....	
9.)	Agricultural land usage.....	1 2
10.)	Forested land.....	1 2
11.)	Industrial park, factory.....	1 2
12.)	Recreational usages:	
	a. Park or recreational area, State Natural Area.....	1 2
	b. Wildlife refuge or wildlife management area.....	
13.)	Waterway:	
	a. Lake.....	1 2
	b. Pond.....	
	c. River.....	1 2
	d. Stream.....	1 2
	e. Spring.....	
14.)	Railroad Crossings.....	1 2
15.)	Project coordinated with MPO/RPO and/or local officials.....	X
16.)	Other.....	

EPA ENVIRO-MAPS





Sites recorded adjacent to the existing route on these maps include the following businesses or industries:

Black Diamond

DeRoyal Industries

Royal Sterilization

Giles Industries

Union Concrete

Spotless Dry Cleaner

Dixie Fiberglass

England, Inc

Bennington Newport

Claiborne Co. Hospital

Tazewell-New Tazewell OBSV

FLOOD MAPS

LEGEND

SPECIAL FLOOD HAZARD AREAS INUNDATED BY 100-YEAR FLOOD

- **ZONE A** No base flood elevations determined.
- **ZONE AE** Base flood elevations determined.
- **ZONE AH** Flood depths of 1 to 3 feet (usually areas of ponding); base flood elevations determined.
- **ZONE AO** Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE A99** To be protected from 100-year flood by Federal flood protection system under construction; no base elevations determined.
- **ZONE V** Coastal flood with velocity hazard (wave action); no base flood elevations determined.
- **ZONE VE** Coastal flood with velocity hazard (wave action); base flood elevations determined.

FLOODWAY AREAS IN ZONE AE

OTHER FLOOD AREAS

- **ZONE X** Areas of 500-year flood; areas of 100-year flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 100-year flood.

OTHER AREAS

- **ZONE X** Areas determined to be outside 500-year flood plain.
- **ZONE D** Areas in which flood hazards are undetermined.

UNDEVELOPED COASTAL BARRIERS

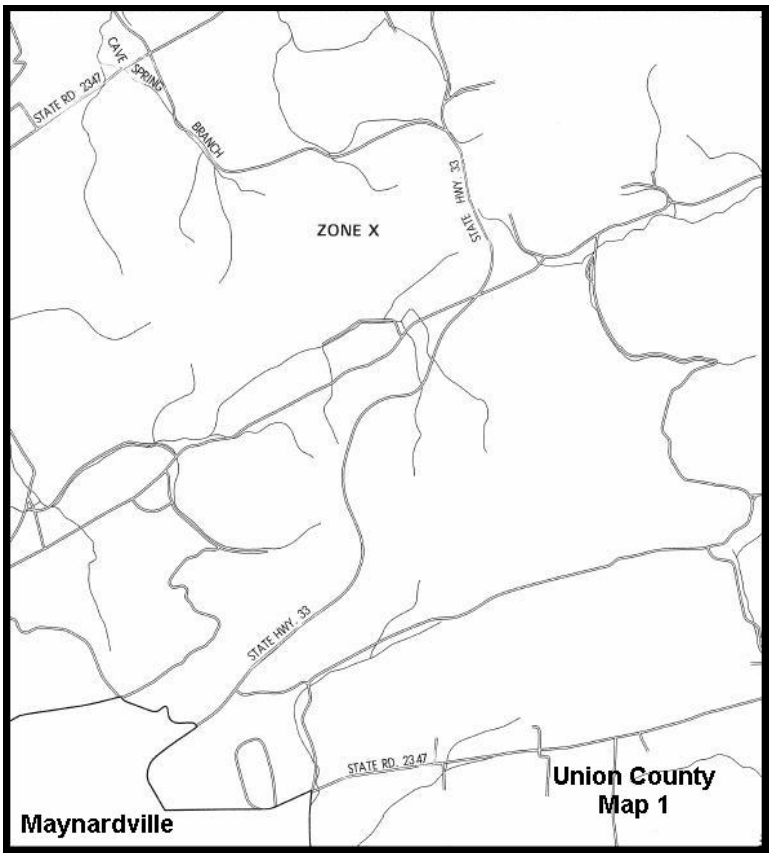
Flood Boundary

Floodway Boundary

Zone D Boundary

Boundary Dividing Special Flood Hazard Zones, and Boundary Dividing Areas of Different Coastal Base Flood Elevations Within Special Flood Hazard Zone.

~~~567~~~ Base Flood Elevation Line; Elevation in Feet*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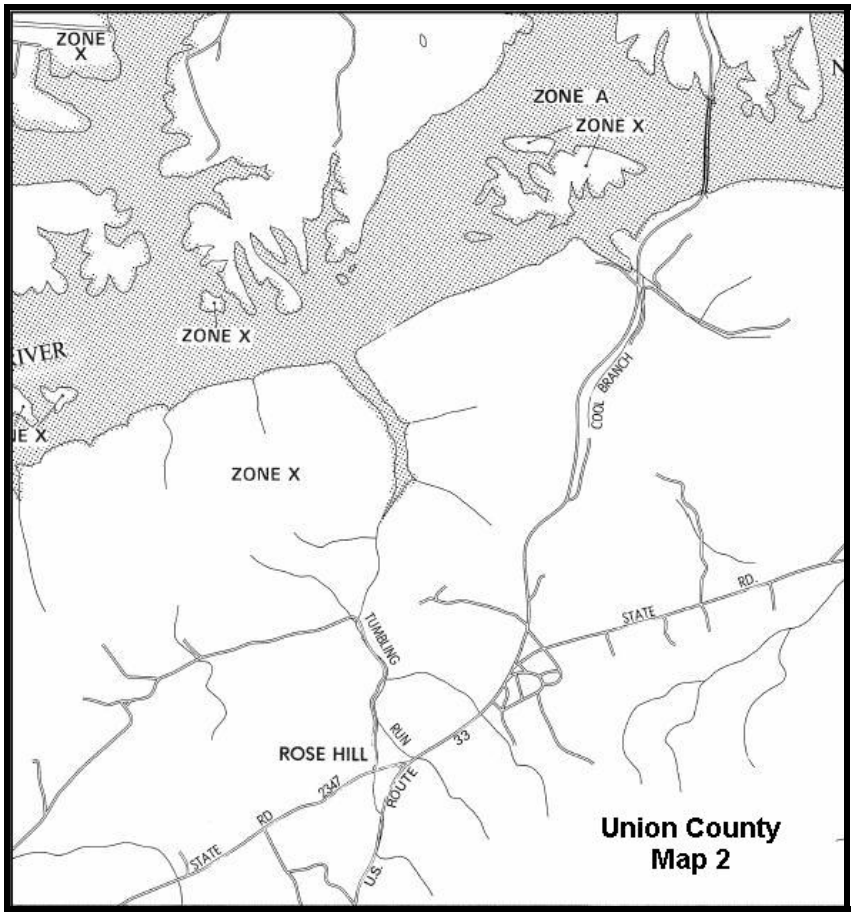
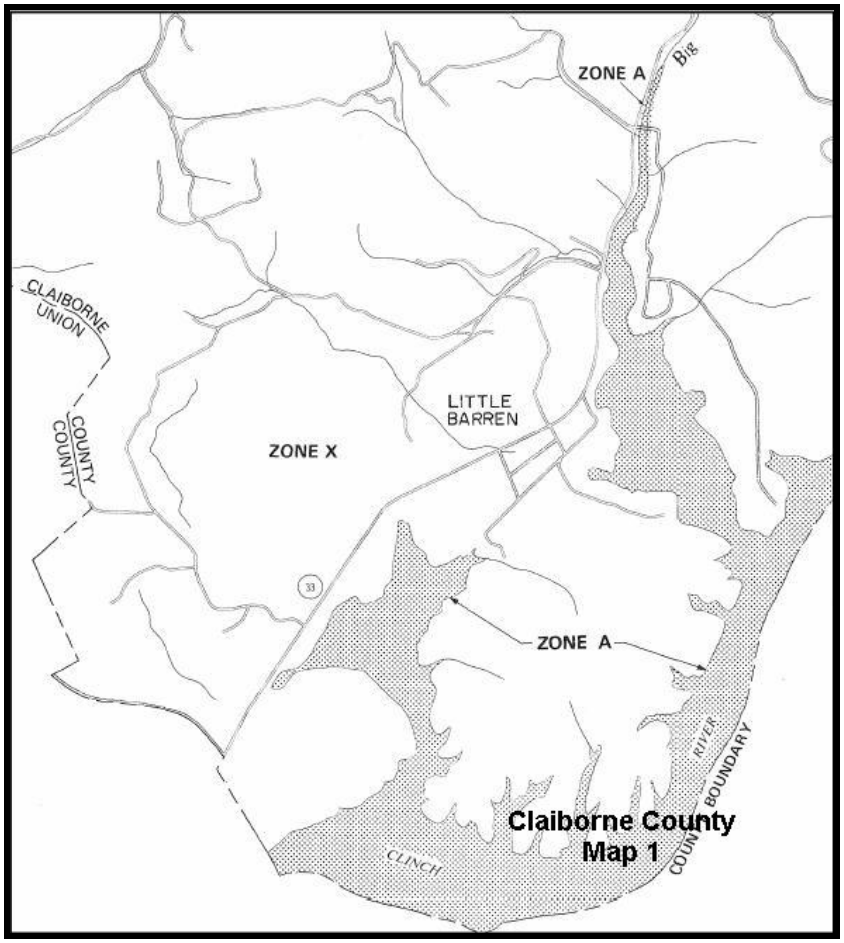
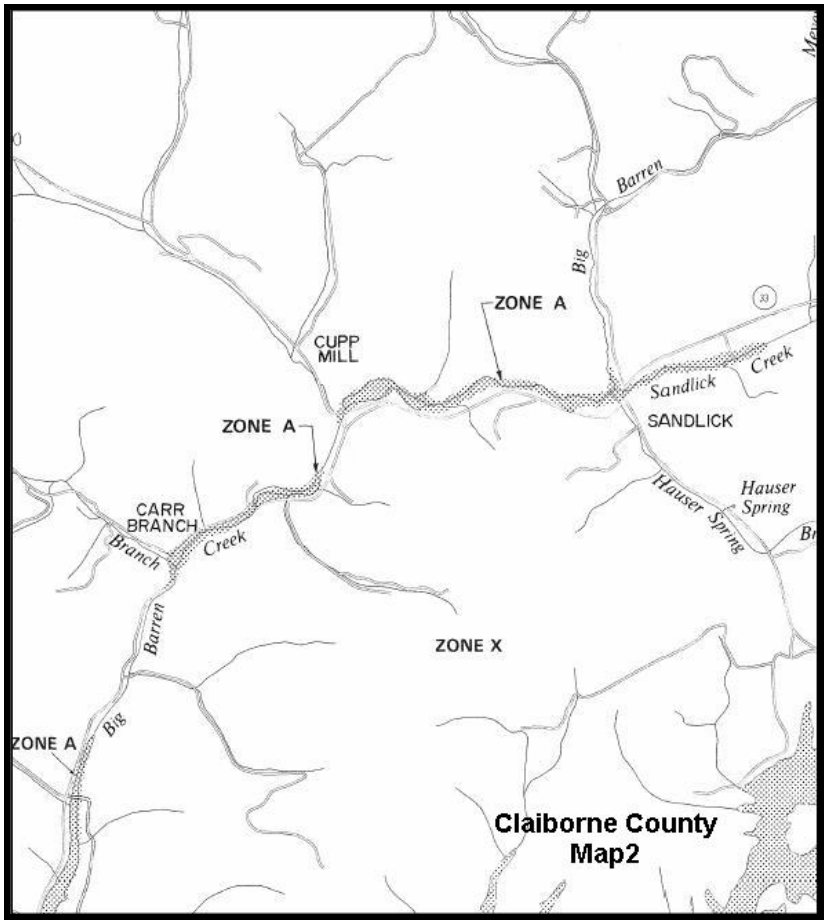
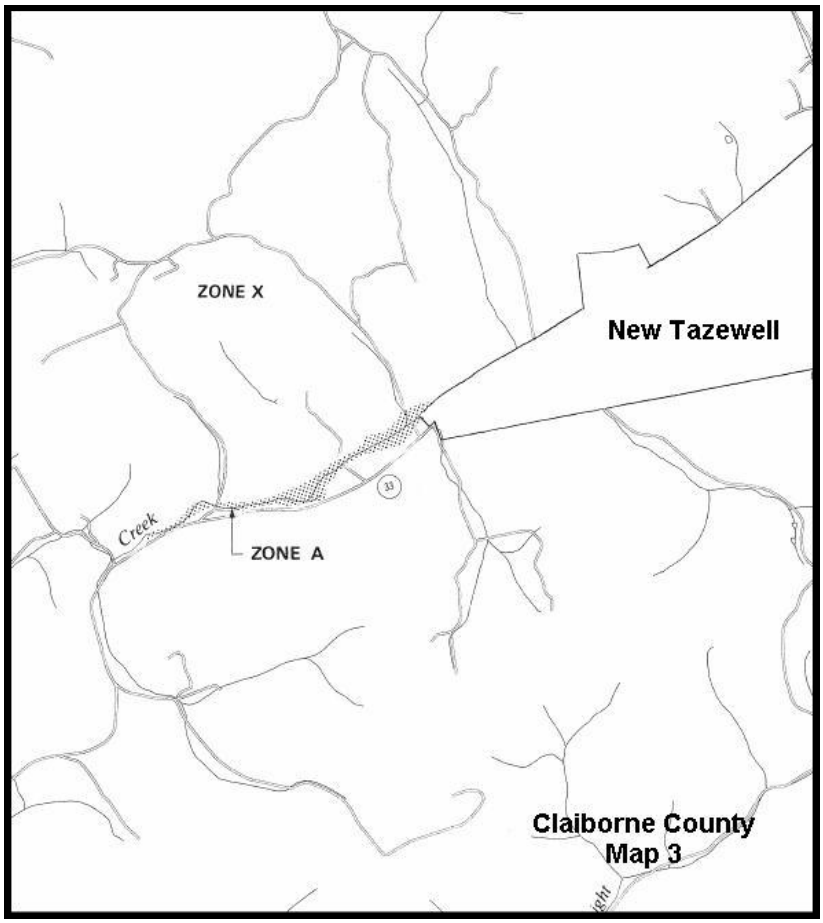

ZONE X
ZONE A
ZONE X
ZONE X
ZONE X
COOL BRANCH
STATE RD.
TUMBLING RUN
ROSE HILL
ROUTE 33
STATE RD 2347
U.S.
Union County
Map 2


ZONE A
Big
CLAIBORNE COUNTY
UNION COUNTY
LITTLE BARREN
ZONE X
33
ZONE A
RIVER
COUNTY BOUNDARY
CLINCH
Claiborne County
Map 1


Barren
Big
ZONE A
CUPP
MILL
Sandlick
Creek
SANDLICK
ZONE A
Hauser
Spring
Hauser Spring
CARR
BRANCH
Branch
Creek
Barren
ZONE X
Big
ZONE A
Claiborne County
Map2


ZONE X
New Tazewell
Creek
ZONE A
Claiborne County
Map 3

Route:	SR 33	OPTION 1(Sect.1)
Description:	From: State Route 61 in Maynardsville	
	To: State Route 170	
County:	UNION/ CLAIBORNE	
Length:	3.72 ± MILE(s)	
Date:	1/3/2008	

CLEAR AND GRUBBING	$	340,000
EARTHWORK	$	14,890,000
PAVEMENT REMOVAL	$	0
DRAINAGE	$	1,960,000
STRUCTURES	$	0
RAILROAD CROSSING OR SEPARATION	$	0
PAVING	$	2,650,000
RETAINING WALLS	$	0
MAINTENANCE OF TRAFFIC	$	185,000
TOPSOIL	$	55,000
SEEDING	$	40,000
SODDING	$	20,000
SIGNING	$	20,000
LIGHTING	$	0
SIGNALIZATION	$	0
FENCE	$	0
GUARDRAIL	$	175,000
RIP RAP OR SLOPE PROTECTION	$	60,000
OTHER CONST. ITEMS (15%)	$	3,060,000
MOBILIZATION	$	885,000
CONSTRUCTION COST	$	24,340,000
10% ENG. & CONT.	$	2,435,000
TOTAL CONSTRUCTION COST	$	26,775,000
10% PRELIMINARY ENGINEERING	$	2,435,000
6%x 5 years= 30%		8,765,000
TOTAL COST	$	37,975,000

Prepared by Conceptual Planning Office

Route:	SR 33	OPTION 1(Sect.2)
Description:	From: State Route 170	
	To: Lewis Green Hollow Road	
County:	UNION/ CLAIBORNE	
Length:	1.71 ± MILE(s)	
Date:	1/3/2008	

CLEAR AND GRUBBING	$	155,000
EARTHWORK	$	6,450,000
PAVEMENT REMOVAL	$	0
DRAINAGE	$	860,000
STRUCTURES	$	0
RAILROAD CROSSING OR SEPARATION	$	0
PAVING	$	1,225,000
RETAINING WALLS	$	0
MAINTENANCE OF TRAFFIC	$	85,000
TOPSOIL	$	25,000
SEEDING	$	20,000
SODDING	$	10,000
SIGNING	$	10,000
LIGHTING	$	0
SIGNALIZATION	$	0
FENCE	$	0
GUARDRAIL	$	80,000
RIP RAP OR SLOPE PROTECTION	$	20,000
OTHER CONST. ITEMS (15%)	$	1,340,000
MOBILIZATION	$	440,000
CONSTRUCTION COST	$	10,720,000
10% ENG. & CONT.	$	1,070,000
TOTAL CONSTRUCTION COST	$	11,790,000
10% PRELIMINARY ENGINEERING	$	1,070,000
6%x 5 years= 30%		3,860,000
TOTAL COST	$	16,720,000

Prepared by Conceptual Planning Office

Route:	SR 33	OPTION 1(Sect.3)
Description:	From: Lewis Green Hollow Road	
	To: Sharps Chapel Road	
County:	UNION/ CLAIBORNE	
Length:	1.75 ± MILE(s)	
Date:	1/3/2008	

CLEAR AND GRUBBING	$	125,000
EARTHWORK	$	1,520,000
PAVEMENT REMOVAL	$	0
DRAINAGE	$	740,000
STRUCTURES	$	12,480,000
RAILROAD CROSSING OR SEPARATION	$	0
PAVING	$	1,090,000
RETAINING WALLS	$	0
MAINTENANCE OF TRAFFIC	$	85,000
TOPSOIL	$	20,000
SEEDING	$	15,000
SODDING	$	5,000
SIGNING	$	10,000
LIGHTING	$	0
SIGNALIZATION	$	0
FENCE	$	0
GUARDRAIL	$	65,000
RIP RAP OR SLOPE PROTECTION	$	70,000
OTHER CONST. ITEMS (15%)	$	2,435,000
MOBILIZATION	$	735,000
CONSTRUCTION COST	$	19,395,000
10% ENG. & CONT.	$	1,940,000
TOTAL CONSTRUCTION COST	$	21,335,000
10% PRELIMINARY ENGINEERING	$	1,940,000
6%x 5 years= 30%		6,985,000
TOTAL COST	$	30,260,000

Prepared by Conceptual Planning Office

Route:	SR 33	OPTION 1(Sect.4)
Description:	From: Sharps Chapel Road	
	To: Lakeview Road	
County:	UNION/ CLAIBORNE	
Length:	2.02 ± MILE(s)	
Date:	1/3/2008	

CLEAR AND GRUBBING	$	185,000
EARTHWORK	$	4,985,000
PAVEMENT REMOVAL	$	0
DRAINAGE	$	630,000
STRUCTURES	$	0
RAILROAD CROSSING OR SEPARATION	$	0
PAVING	$	1,745,000
RETAINING WALLS	$	0
MAINTENANCE OF TRAFFIC	$	100,000
TOPSOIL	$	30,000
SEEDING	$	20,000
SODDING	$	10,000
SIGNING	$	10,000
LIGHTING	$	0
SIGNALIZATION	$	0
FENCE	$	0
GUARDRAIL	$	140,000
RIP RAP OR SLOPE PROTECTION	$	10,000
OTHER CONST. ITEMS (15%)	$	1,180,000
MOBILIZATION	$	390,000
CONSTRUCTION COST	$	9,435,000
10% ENG. & CONT.	$	945,000
TOTAL CONSTRUCTION COST	$	10,380,000
10% PRELIMINARY ENGINEERING	$	945,000
6%x 5 years= 30%		3,400,000
TOTAL COST	$	14,725,000

Prepared by Conceptual Planning Office

Route:	SR 33	OPTION 1(Sect.5)
Description:	From: Lakeview Road	
	To: Lone Mountain Road	
County:	UNION/ CLAIBORNE	
Length:	2.99 ± MILE(s)	
Date:	1/3/2008	

CLEAR AND GRUBBING	$	270,000
EARTHWORK	$	48,710,000
PAVEMENT REMOVAL	$	0
DRAINAGE	$	3,225,000
STRUCTURES	$	4,410,000
RAILROAD CROSSING OR SEPARATION	$	0
PAVING	$	2,970,000
RETAINING WALLS	$	0
MAINTENANCE OF TRAFFIC	$	150,000
TOPSOIL	$	45,000
SEEDING	$	30,000
SODDING	$	15,000
SIGNING	$	15,000
LIGHTING	$	0
SIGNALIZATION	$	0
FENCE	$	0
GUARDRAIL	$	210,000
RIP RAP OR SLOPE PROTECTION	$	110,000
OTHER CONST. ITEMS (15%)	$	9,025,000
MOBILIZATION	$	2,255,000
CONSTRUCTION COST	$	71,440,000
10% ENG. & CONT.	$	7,145,000
TOTAL CONSTRUCTION COST	$	78,585,000
10% PRELIMINARY ENGINEERING	$	7,145,000
6%x 5 years= 30%		25,720,000
TOTAL COST	$	111,450,000

Prepared by Conceptual Planning Office

Route:	SR 33	OPTION 1(Sect.6)
Description:	From: Lone Mountain Road	
	To: Mountain Road	
County:	UNION/ CLAIBORNE	
Length:	3.09 ± MILE(s)	
Date:	1/3/2008	

CLEAR AND GRUBBING	$	280,000
EARTHWORK	$	11,190,000
PAVEMENT REMOVAL	$	0
DRAINAGE	$	1,670,000
STRUCTURES	$	1,640,000
RAILROAD CROSSING OR SEPARATION	$	0
PAVING	$	2,275,000
RETAINING WALLS	$	0
MAINTENANCE OF TRAFFIC	$	155,000
TOPSOIL	$	45,000
SEEDING	$	30,000
SODDING	$	15,000
SIGNING	$	15,000
LIGHTING	$	0
SIGNALIZATION	$	0
FENCE	$	0
GUARDRAIL	$	215,000
RIP RAP OR SLOPE PROTECTION	$	90,000
OTHER CONST. ITEMS (15%)	$	2,645,000
MOBILIZATION	$	790,000
CONSTRUCTION COST	$	21,055,000
10% ENG. & CONT.	$	2,105,000
TOTAL CONSTRUCTION COST	$	23,160,000
10% PRELIMINARY ENGINEERING	$	2,105,000
6%x 5 years= 30%		7,580,000
TOTAL COST	$	32,845,000

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Route:	SR 33	OPTIONS 1 & 2 (Sect.7)
Description:	From: Mountain Road	
	To: Pine Road	
County:	UNION/ CLAIBORNE	
Length:	2.53 ± MILE(s)	
Date:	1/3/2008	

CLEAR AND GRUBBING	$	190,000
EARTHWORK	$	1,410,000
PAVEMENT REMOVAL	$	0
DRAINAGE	$	2,160,000
STRUCTURES	$	2,205,000
RAILROAD CROSSING OR SEPARATION	$	0
PAVING	$	3,060,000
RETAINING WALLS	$	0
MAINTENANCE OF TRAFFIC	$	125,000
TOPSOIL	$	40,000
SEEDING	$	25,000
SODDING	$	65,000
SIGNING	$	15,000
LIGHTING	$	0
SIGNALIZATION	$	0
FENCE	$	0
GUARDRAIL	$	15,000
RIP RAP OR SLOPE PROTECTION	$	90,000
OTHER CONST. ITEMS (15%)	$	1,410,000
MOBILIZATION	$	460,000
CONSTRUCTION COST	$	11,270,000
10% ENG. & CONT.	$	1,125,000
TOTAL CONSTRUCTION COST	$	12,395,000
10% PRELIMINARY ENGINEERING	$	1,125,000
6%x 5 years= 30%		4,055,000
TOTAL COST	$	17,575,000

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Route:	SR 33 (EXCLUDED SECTION)	OPTION 1(Sect.8)
Description:	From: Pine Road	
	To: U.S. 25E	
County:	UNION/ CLAIBORNE	
Length:	2.5 ± MILE(s)	
Date:	1/3/2008	

CLEAR AND GRUBBING	$	0
EARTHWORK	$	0
PAVEMENT REMOVAL	$	0
DRAINAGE	$	0
STRUCTURES	$	0
RAILROAD CROSSING OR SEPARATION	$	0
PAVING	$	0
RETAINING WALLS	$	0
MAINTENANCE OF TRAFFIC	$	0
TOPSOIL	$	0
SEEDING	$	0
SODDING	$	0
SIGNING	$	0
LIGHTING	$	0
SIGNALIZATION	$	0
FENCE	$	0
GUARDRAIL	$	0
RIP RAP OR SLOPE PROTECTION	$	0
OTHER CONST. ITEMS (15%)	$	0
MOBILIZATION	$	0
CONSTRUCTION COST	$	0
10% ENG. & CONT.	$	0
TOTAL CONSTRUCTION COST	$	0
10% PRELIMINARY ENGINEERING	$	0
6%x 5 years= 30%		0
TOTAL COST	$	0

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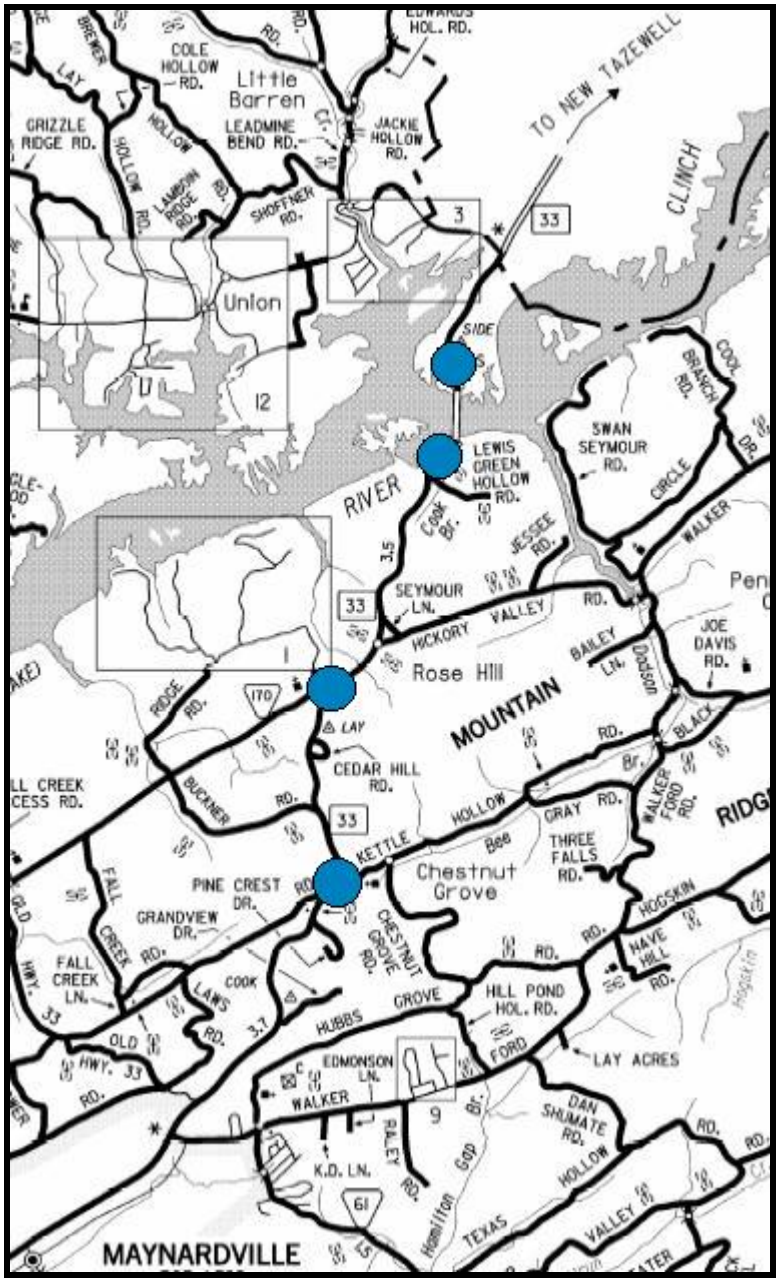
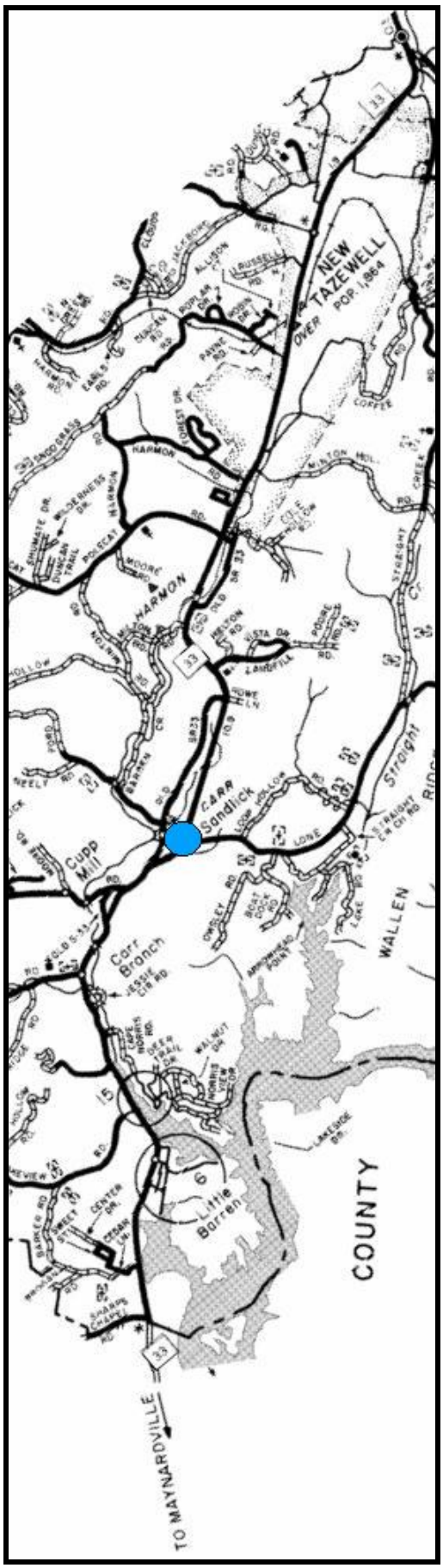
SPOT IMPROVEMENT LOCATIONS





Route:	**State Route 33**
Description:	**Site # 1 Intersection @ Little Valley Road / Kettle Hollow Road From L.M. 12.05 to L.M. 12.09**
County:	**Union / Claiborne**
Date:	**2/6/2008**

Earthwork		**$**	**224,600**
Drainage		**$**	**25,000**
Signs		**$**	**500**
Pavement markings		**$**	**8,500**
Pavement		**$**	**217,500**
Pavement Removal		**$**	**36,000**
Topsoil and Seeding		**$**	**2,000**
Maintenance of traffic		**$**	**15,000**
MOBILIZATION		**$**	**23,000**
	CONSTRUCTION COST	**$**	**552,100**
	10% ENG. & CONT.	**$**	**55,200**
	TOTAL CONSTRUCTION COST	**$**	**607,300**
	10% PRELIMINARY ENGINEERING	**$**	**55,200**
	4%x 1 year= 4%	**$**	**26,500**
	TOTAL COST	**$**	**689,000**
(3.21± acres)	**Right-of-Way COST**	**$**	**65,700**
	Utility Relocation COST	**$**	**10,000**
	TOTAL COST	**$**	**764,700**

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Route:	State Route 33
Description:	Site # 2 Intersection @ State Route 170 From L.M. 13.40 to L.M. 13.60
County:	Union / Claiborne
Date:	2/6/2008

Earthwork		$	279,100
Drainage		$	75,000
Signs		$	500
Pavement markings		$	5,000
Pavement		$	125,000
Pavement Removal		$	40,000
Topsoil and Seeding		$	2,000
Maintenance of traffic		$	15,000
MOBILIZATION		$	25,400
	CONSTRUCTION COST	$	567,000
	10% ENG. & CONT.	$	56,700
	TOTAL CONSTRUCTION COST	$	623,700
	10% PRELIMINARY ENGINEERING	$	56,700
	4%x 1 year= 4%	$	27,200
	TOTAL COST	$	707,600
(2.50± acres)	Right-of-Way COST	$	60,200
	Utility Relocation COST	$	10,000
	TOTAL COST	$	777,800

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Route:	**State Route 33**
Description:	**Site # 3 Approaches to Bridge Over Norris Lake From L.M. 15.54 to L.M. 16.20**
County:	**Union / Claiborne**
Date:	**2/6/2008**

Signs		**$**	**1,700**
Raised Snowplowable Pavement Markers		**$**	**2,800**
Flexible Delineators		**$**	**800**
Maintenance of traffic		**$**	**4,000**
MOBILIZATION		**$**	**500**
	CONSTRUCTION COST	**$**	**9,800**
	10% ENG. & CONT.	**$**	**1,000**
	TOTAL CONSTRUCTION COST	**$**	**10,800**
	10% PRELIMINARY ENGINEERING	**$**	**1,000**
	4%x 1 year= 4%	**$**	**500**
	TOTAL COST	**$**	**12,300**

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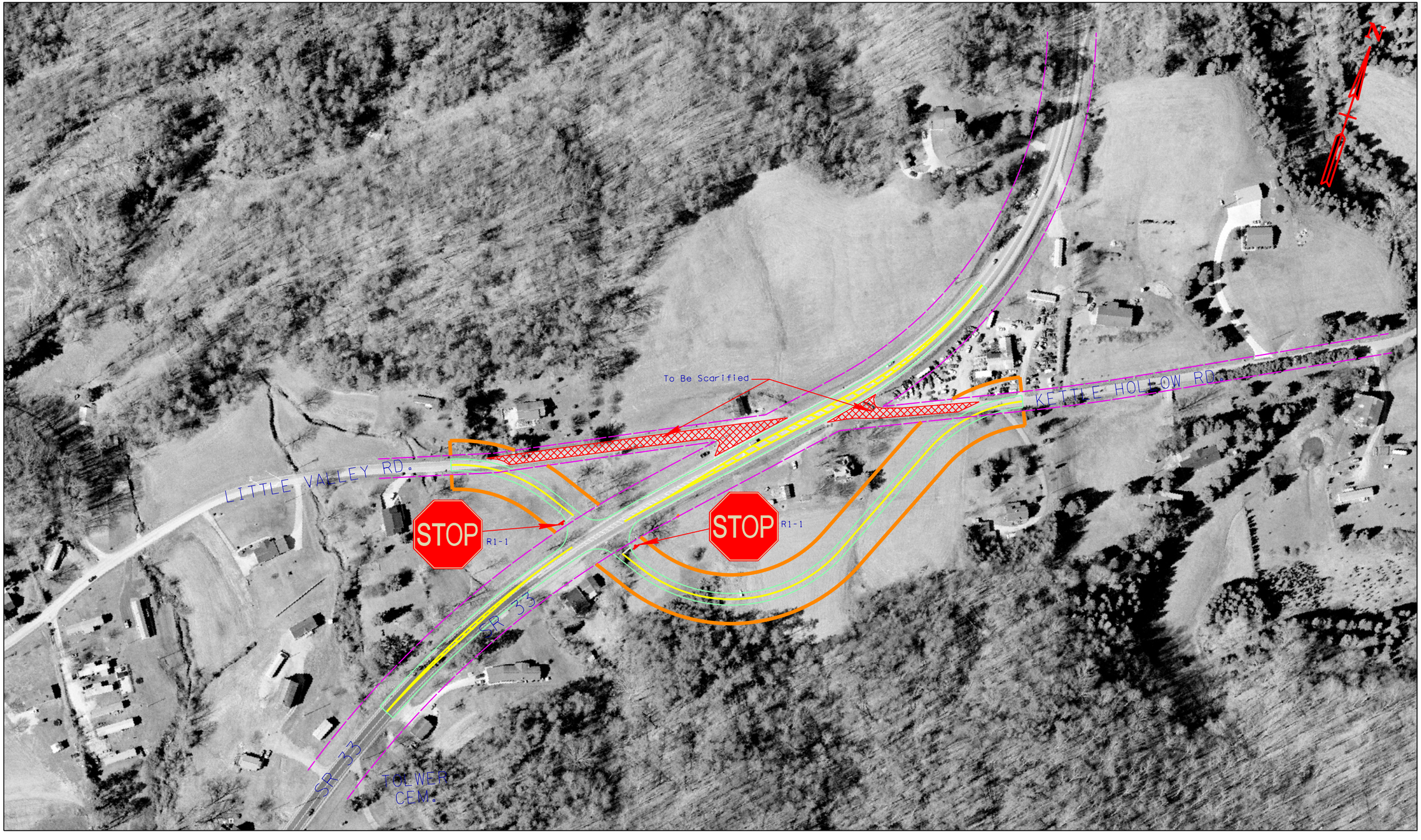
Route:	State Route 33
Description:	Site # 4 Intersection @ Lone Mountain Road @ L.M. 5.04
County:	Union / Claiborne
Date:	2/6/2008

Earthwork		$	6,600
Drainage		$	10,000
Signs		$	500
Pavement markings		$	7,400
Pavement		$	125,000
Pavement Removal		$	8,000
Topsoil and Seeding		$	2,000
Maintenance of traffic		$	15,000
MOBILIZATION		$	9,000
	CONSTRUCTION COST	$	183,500
	10% ENG. & CONT.	$	18,400
	TOTAL CONSTRUCTION COST	$	201,900
	10% PRELIMINARY ENGINEERING	$	18,400
	4%x 1 year= 4%	$	8,800
	TOTAL COST	$	229,100
0.34± acres)	Right-of-Way COST	$	2,800
	Utility Relocation COST	$	5,000
	TOTAL COST	$	236,900

Prepared by Conceptual Planning Office

Site #1 State Route 33 in Union/ Claiborne County L.M. 12.05 - L.M. 12.09



0 200' 400'

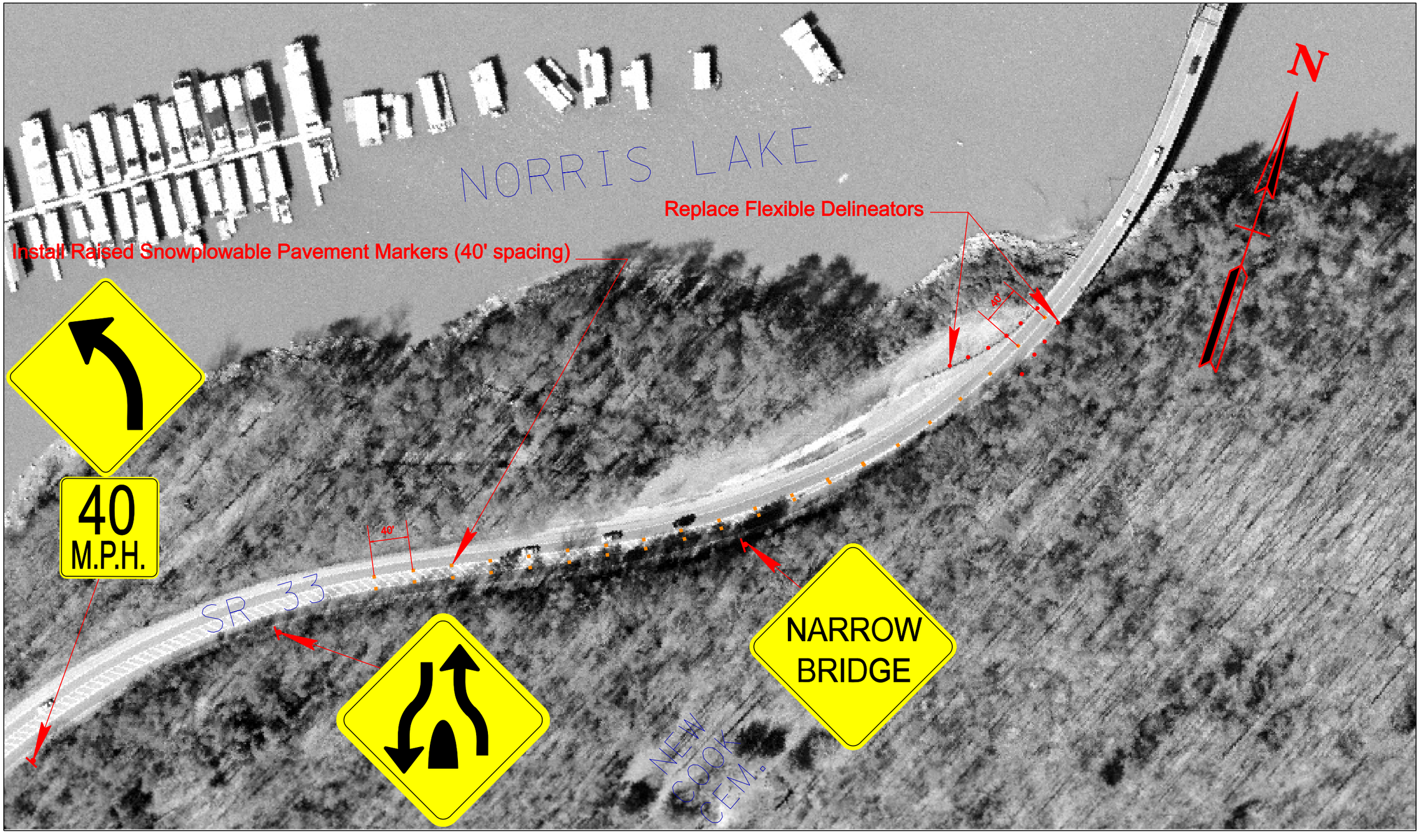
S H 01 / 29 / 08

Site #2 State Route 33 in Union / Claiborne County L.M. 13.40 - 13.60

0 200' 400'

S H 02 / 05 / 08

Site #3A State Route 33 in Union / Claiborne County L.M. 15.54 - 16.20



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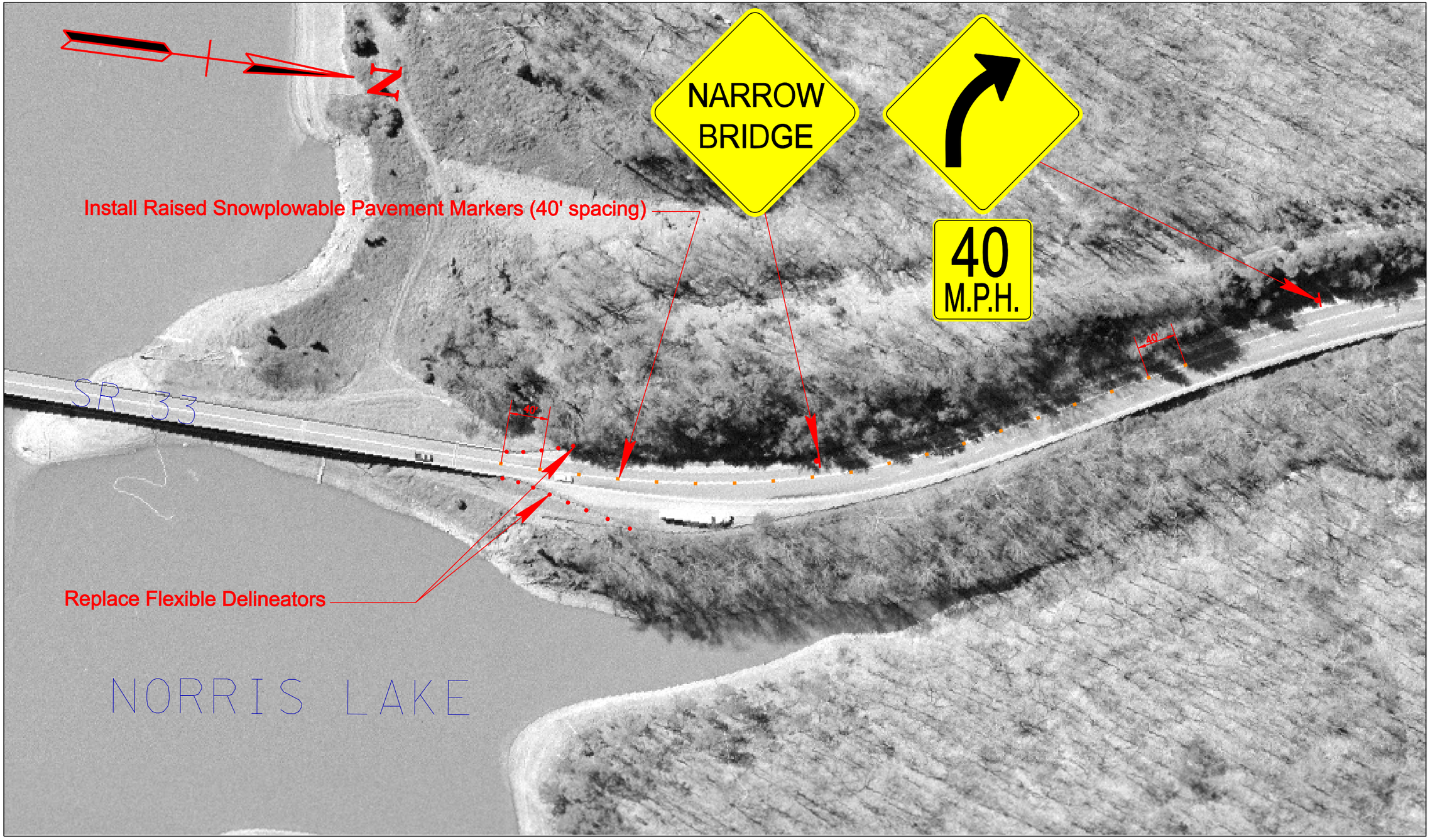
S H 02 / 05 / 08

Site #3B State Route 33 in Union / Claiborne County L.M. 15.54 - 16.20



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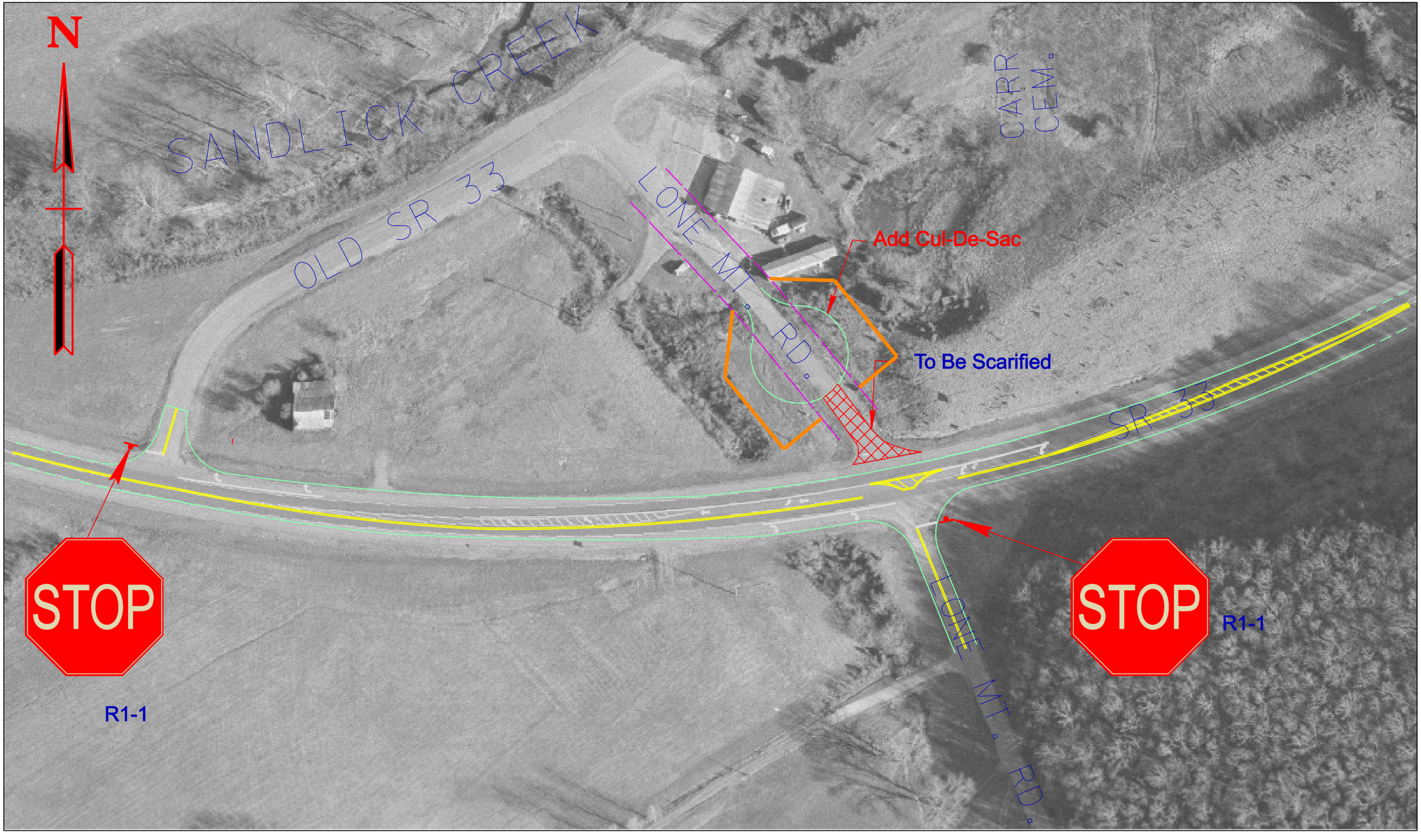
S H 02 / 05 / 08

Site #4 State Route 33 in Union / Claiborne County L.M. 5.04



0 100' 200'

S H 02 / 05 / 08