TRANSPORTATION PLANNING REPORT

State Route 13

From State Route 20 (Linden) to Interstate 40
PERRY AND HUMPHREYS COUNTY

PREPARED BY
LONG ENGINEERING
For the
TENNESSEE DEPARTMENT OF TRANSPORTATION
PROJECT PLANNING DIVISION

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

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APPENDIX (Bound Separately)

1.0 PROJECT HISTORY AND BACKGROUND INFORMATION

1.1 Project History

Previous studies have been conducted for this route. In 2000, an Advance Planning Report (APR) was prepared that considered a new facility built predominantly along the existing alignment that consisted of 4-lane and 5-lane sections. In 2001, a spot location study was prepared that evaluated the potential for adding passing lanes at eight locations along the route. Cost estimates for these localized improvements were updated in 2007. A Needs Assessment was prepared and approved in January of 2006. That assessment found that no further development of the project was necessary at the time but it would be submitted to the South Central Tennessee Rural Planning Organization West (RPO) for further review and integration into their prioritization process.

This study effort was initiated at the request of the officials through a letter submitted by the Perry County Mayor in May 2008 to the Tennessee Department of Transportation urging consideration for reviewing this corridor in relationship to the State's County Seat Connector program (T.C.A. 54-5-102(b)). Local officials indicate that potential industries have pointed to the remoteness of the area as a reason why they have chosen not to relocate to Perry County. An improved facility connecting the county seat of Linden to I-40 would improve connectivity and perhaps increase the attractiveness for industries to locate in Perry County.

This Transportation Planning Report (TPR) was prepared in response to local officials request for a review of the corridor. This study integrates the findings from the previous study efforts and reviews potential improvement strategies ranging from localized improvements to building a new facility on new alignment.

1.2 Project Study Area

The limits of the TPR extend from State Route 20 in Perry County (Linden, Tennessee) to Interstate 40 in Humphreys County, a distance of approximately 21.3 miles. **Exhibit 1.1** presents a regional map, **Exhibit 1.2** presents the study corridor identified on the Perry and Humphreys County highway maps, and **Exhibit 1.3** further details the corridors geographic features on United States Geological Survey Map. Corridor plans are attached to the study that present a 2,000 ft. wide corridor centered on the existing State Route 13 alignment with additional features identified in greater detail.

1.3 Community Profile

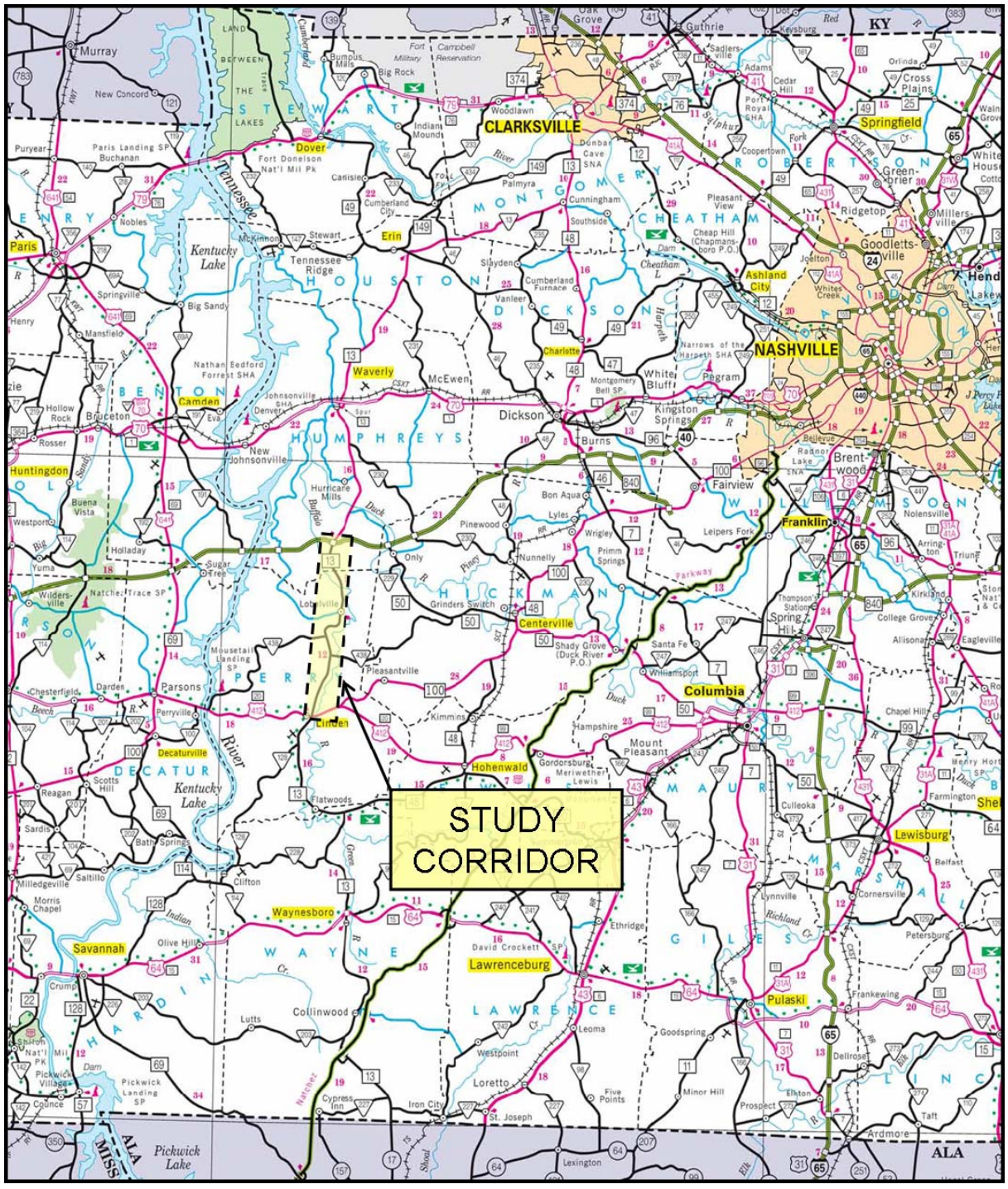
The 21.3 mile corridor study limits reside primarily in Perry County with 3.4 miles in Humphreys County where the corridor intersects I-40. **Table 1.1** presents geographic data for the area and indicates that Humphreys County is the more urbanized area with higher densities. **Table 1.2** presents historic population trends for the two counties and offers a comparison to the averages seen statewide.

Table 1.1 – Geographic Data

Category	Perry County	Humphreys County
Land Area excluding water covered (Square Miles)	414.89	532.22
Persons per/Square Mile	18.4	33.7
Housing Units/Square Mile	10.37	16.76

Data Source: 2000-2006 U.S. Census Data

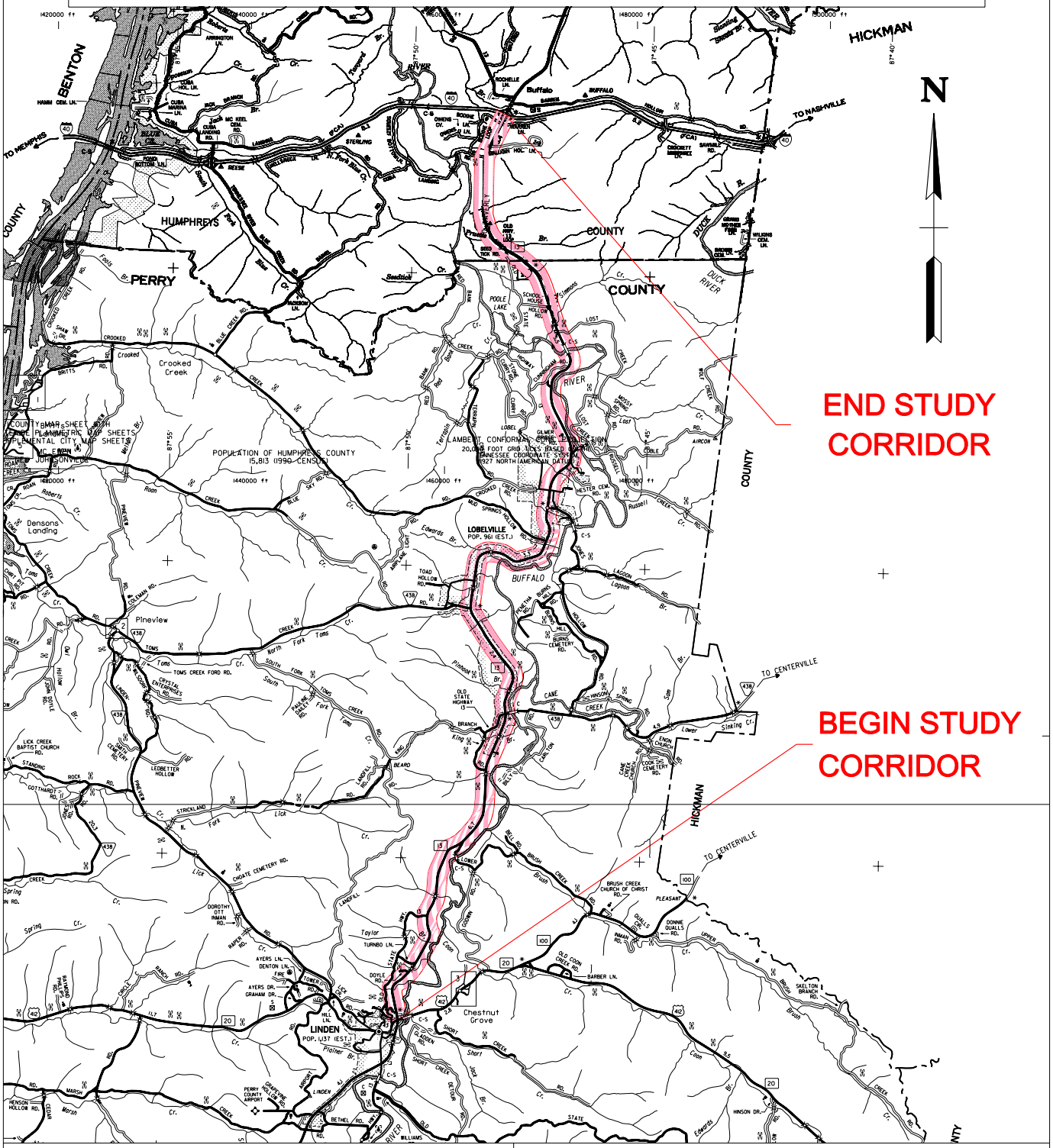
Exhibit 1.1 – Regional Map



PERRY AND HUMPHREYS COUNTIES

TRANSPORTATION PLANNING REPORT

STATE ROUTE 13



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MILES

EXHIBIT 1.2 AREA MAP

FROM S.R. 20 TO I-40

PERRY AND HUMPHREYS COUNTIES

N

BEGIN STUDY CORRIDOR

2,000 FT CORRIDOR

MATCH LINE - SEE FIGURE 3b

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

EXHIBIT 1.3a
FEATURE MAP

NOT TO SCALE

N

MATCH LINE - SEE FIGURE 3a

2,000 FT CORRIDOR

END STUDY CORRIDOR

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

EXHIBIT 1.3b
FEATURE MAP

NOT TO SCALE

Table 1.2 – Population Trends

Year	Perry County			Humphreys County			State of Tennessee		
	Pop.	Percent Change	Avg. Growth Rate	Pop.	Percent Change	Avg. Growth Rate	Pop.	Percent Change	Avg. Growth Rate
1990	6,612	-	-	15,765	-	-	4.9 Mil.	-	-
2000	7,631	1.15%	1.44%	17,929	13.73%	1.28%	5.7 Mil.	16.7%	1.55%
2007[1]	7,671	1.01%	0.07%	18,173	1.01%	0.19%	6.2 Mil.	8.2%	1.13%

Data Source: U.S. Census Bureau

Linden is the county seat of Perry County, and has been considered as such since 1848, and Waverly is the county seat of Humphreys County. However, Waverly is north of the corridor limits under study.

Currently, the Perry County employment estimates are 3,240 available for employment with a 17.4% unemployment rate as published in October 2008[2]. This is the highest county unemployment rate in the state. The existing major industries in Perry County include manufacturing of auto parts (1,400 employees), a sawmill (100 employees), sand & Gravel processing (40 employees), and the manufacturing of hoses/gaskets (30 employees). Government employees include county, city, public utilities, and the school system.

[1] 2006 values are estimates as of date of this report.
[2] http://www.tennessee.gov/labor-wfd/labor_figures/october2008county.pdf

1.4 Existing Transportation Conditions

Historic Traffic

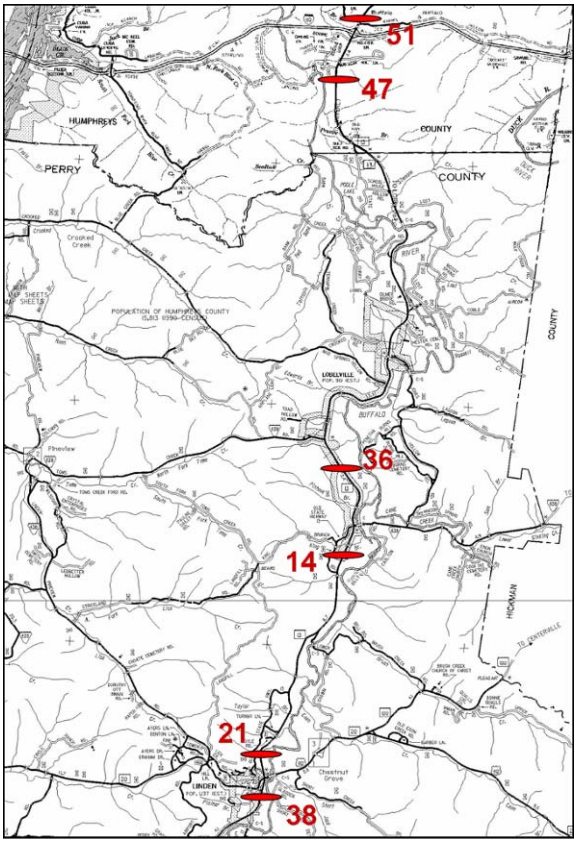
TDOT collects traffic data at numerous locations along the corridor on a continuing basis. **Table 1.3** presents data for six (6) count stations located in the area of the corridor. **Exhibit 1.4** depicts the TDOT count stations available along the route. For each of these locations, the 20-year growth has been modest at best. As currently exists, traffic volumes are relatively low and within acceptable range for a 2-lane facility.

Table 1.3 – Historic Traffic Data

Count Station	County	1991	2007	Average Annual Growth Rate
51	Humphreys	1981	2138	0.48%
47	Humphreys	2017	2122	0.32%
36	Perry	2213	2684	1.21%
14	Perry	1736	2815	3.07%
21	Perry	1623	3252	4.44%
38	Perry	2586	3332	1.60%

Data Source: TDOT

Exhibit 1.4 – TDOT Traffic Count Locations



1.5 Review of Existing Corridor Conditions and Deficiencies

A corridor field review was conducted on August 20, 2008 with TDOT, consulting staff, local officials, including the Perry County Mayor, and the Mayors of Lobelville and Linden. The corridor was reviewed in its entirety and specific locations that had been previously studied, were discussed and reviewed. The following highlights the existing corridor review and some of the concerns and issues that are to be addressed with any recommended improvement strategy (The entire field review summary is available in Appendix B).

Existing State Route 13, within the study limits, is a two-lane rural major arterial facility on the Surface Transportation Program System. Approximately 580' of this STP System route north from the beginning of the project at SR 20 is located within the Linden City Limits and approximately 7.7 miles of the study area is inside the Lobelville City Limits. From the project beginning and extending 12.27 miles to just south of 8th Avenue in Lobelville, the route is characterized as a two-lane roadway with 11-12 foot travel lanes, variable shoulder widths, and ditches inside a typical 80' right-of-way (See **Exhibit 1.5** for a typical section).

Exhibit 1.5 – Typical View South of Lobelville

From this location to the intersection of 4th Avenue (2,300 feet), there are two 11 foot travel lanes with variable paved shoulders (12-20 foot) within an 80' right-of-way. The shoulders are currently striped to accommodate angled or perpendicular parking for Lobelville businesses (**Exhibit 1.6**). There is some curb-and-gutter drainage with existing sidewalks within built-up sections of Lobelville. The roadway shoulders taper to 5 feet wide from 4th Avenue to just south of 3rd Avenue (Approx 500 feet).

Exhibit 1.6 – Aerial View Through Lobelville

From 3rd Avenue, in Lobelville, approximately 5 miles to the Perry County Line, the route consists of two 11 foot travel lanes and 5 foot paved shoulders with ditches within a 100' right-of-way. This same cross-section exists from the Perry/Humphreys County Line to the northern project terminus at I-40, a distance of approximately 3.49 miles. The majority of the route is signed at 55 MPH speed limit while segments within Linden and Lobelville City Limits are signed at 30 MPH.

Upon review of the corridor, there are a number of needs and constraints that can best be categorized as follows:

Corridor Constraints

- Inadequate shoulder width throughout the corridor limits. Additional shoulder width may also decrease the potential for vehicles leaving the roadway inadvertently.
- Deficient clear zones in some areas.
- Right-of-way limitations (existing ROW along the route varies between 80 and 100 feet).
- Proximity of the Buffalo River and rugged terrain limit opportunities for alignment improvements.

Corridor Needs

- A safer facility for all users.
- Provide an improved facility for emergency vehicles.
- A regional route that provides for the long-term needs of the community.
- An enhanced route that will attract industry and help facilitate measurable economic development (local officials reiterated that the four lane connector program is an important project to Perry County and that industry has turned down sites in Perry County since there was no four lane facility connection to I-40).

1.6 Safety (Crash and Geometrics)

The Tennessee Roadway Information Management System (TRIMS) provides data for use in calculating crash rates for comparison to statewide averages and identify roadway segment features. Typically, the study corridor consists of two, 11-12 foot lanes, five foot paved shoulders, and 80 foot ROW. **Table 1.4** presents currently available summarized crash data for the study corridor.

Table 1.4 – Crash Summary

Section Description		Road Class	Begin Mile	End Mile	Statewide Average Rate	Actual Crash Rate	Ratio A/C
State Route 13 Segments	U.S. 412 (S.R. 20) to Old State Route 13	Rural 2-Lane	12.51	14.85	1.701	1.289	0.49
	Old S.R. 13 to Lower Brush Creek Rd	Rural 2-Lane	14.85	16.55	1.701	1.464	0.50
	Lower Brush Creek Road to S.R. 438 East	Rural 2-Lane	16.55	19.26	1.701	1.502	0.56
	S.R. 438 East to S.R. 438 West	Rural 2-Lane	19.26	21.62	1.701	1.252	0.44
	S.R. 438 West to Mud Springs Hollow Road	Rural 2-Lane	21.62	24.21	1.701	0.616	0.22
	Mud Springs Hollow Road to I-40	Rural 2-Lane	24.21(P); 0.00(H)	30.41(P); 3.39(H)	1.701	1.881	0.81
S.R. 13 Overall From U.S. 412 (S.R. 20) to I-40					1.701	1.315	0.64

Note: (H) = Humphreys County and (P) = Perry County

Even though there is only one section that exceeds the statewide average rate for similar facilities, there is concern for safety based on the following findings.

Over the most recent three-year period (2004-2006), there were 103 documented crashes resulting in two fatalities (two separate crashes), 14 incapacitating injury crashes with a total of 19 injuries, and 30 injury crashes including 69 total injuries. **Table 1.5** presents a summary of the types of crashes occurring along the study corridor.

Table 1.5 – Crash Types

Year	Right Angle	Read End	Out of Control	Side Swipe	Object in Road	Parked Vehicle	Total Crashes
2004	9	6	17	1	9	0	42
2005	5	6	18	0	5	1	35
2006	3	7	12	1	3	0	26
Total	17	19	47	2	17	1	103

1.7 Utility Infrastructure
The following presents the known utilities in the study corridor.

Water - The Lobelville Water Plant located just south of the Lobelville business district, to the east side of the corridor situated between the Buffalo River and State Route 13. Various water lines are provided along the corridor including 4", 6" and 8" pipes.

Septic Systems - As with most rural areas, there are septic systems in place for the treatment of wastewater. In some areas, particularly where homes are in close proximity to the roadway, septic system fields may be impacted. If septic fields cannot be relocated to another area of the property then this can significantly increase right-of-way costs.

Electric- Electric service is provided throughout the corridor. There are an estimated 350-400 utility poles located along the study corridor.

Telephone - Telephone service is provided throughout the corridor.

Gas - Natural gas service is provided along the corridor. There is a 2.5" gas line from Linden to Lobelville.

Pipeline - There are a minimum of four (4) pipelines that bisect the State Route 13 corridor just to the north of the Lobelville business district. This pipeline system will be a consideration for any improvement option that is proposed for the area.

1.8 Structures/Bridges
There are nine drainage structures classified as bridges by TDOT and an additional 23 culverts. Of the nine bridges, the most significant is the bridge over the Buffalo River. This bridge is just over 1,000 feet in length. This bridge is on a tangent with insufficient shoulders as depicted in **Exhibit 1.7**.

The main bridge over the Buffalo River at LM 28.98 has a history of scour problems. Replacement of the existing structure should be considered to eliminate scour problems. The Buffalo River is designated Class II – Pastoral River Area (Scenic River Program) by the Tennessee Department of Environment and Conservation (TDEC) except for the portions in Perry, Humphreys and Lewis counties.

Exhibit 1.7 - View North Along State Route 13 at the Buffalo River

1.9 Early Environmental Screening (EES)

In preparation of Transportation Planning Reports (TPR), the Tennessee Department of Transportation (TDOT) has introduced an environmental screening process for the project study area. By screening the latest available Geographic Information Systems (GIS) environmental data during the early stages of project planning, TDOT and the resource and permitting agencies will be better prepared to anticipate potential environmental issues and mitigation requirements. This screening process involves using GIS to assess environmental data as it spatially relates to the project's Area of Potential Effect (APE). In broad terms, the GIS environmental data reviewed in this TPR include the following layers:

- Archaeological/Historic Architecture – Historic properties and cemetery sites;
- Community Impacts – Sensitive community populations;
- Ecology – Scenic Waterways, Natural Areas, large wetlands, protected species (bat, aquatic, terrestrial, plants);
- Hazardous Substances/Geology – Hazardous substance sites, pyritic rock/geotechnical, caves; and,
- Parks & Public Land – parks (federal/state/local), public land/buildings, railroads, wildlife management areas.

As of the publication of this document, the GIS data within each layer was relevant and current for the corridor. This data will be updated as part of the ongoing project development process.

Preliminary Archeological/Historic Architecture

Historic Properties & Structures - A preliminary review was conducted of the National Historic Register and six (6) properties are listed in Perry County and 10 properties are listed in Humphreys County. However, none of the listed properties are located within the project corridor. If properties are identified later as being eligible for the National Register, they will need to be avoided to prevent adverse effects or potential 4(f) takes.

Cemetery-Archaeological Sites - Medium impact on the resource is anticipated as several cemeteries are located within the project study area. Although cemetery sites are present in the study area, it is possible to avoid most if not all potential impacts. 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 to result in no adverse effect and/or minimum impact to cemetery property.

Preliminary Community Impact

Sensitive Populations - Impacts to sensitive community populations cannot be avoided under a full corridor widening project or option on new location. Within the study area, preliminary maps reveal a population that is approximately 13.5% below the state poverty level.

Preliminary Ecology

Scenic Waterways – No project impact is anticipated as the project study area does not include a currently designated scenic waterway in or within 1 mile of the corridor. A portion of the Buffalo River is designated as a Class II – Pastoral River Area (Scenic River Program) by

the Tennessee Department of Environment and Conservation (TDEC) but not for the sections in Perry & Humphreys County.

Large Wetland Impacts – A substantial impact to the project as there is greater than 5 acres of wetlands within the project study area. Equalization measures (pipes and culverts) will likely be required for floodplain wetland impacts per the US Army Corps of Engineers and/or the Tennessee Department of Environment and Conservation (TDEC). Compensatory mitigation will be required; TDOT does not have any existing mitigation in watershed. Design effort will be needed to avoid and minimize impacts to wetlands to the maximum extent practical. If a floodplain is crossed by the project, floodplain culverts may be necessary

Bats, Rare and Federally Protected Species - A severe impact on the project is anticipated as there is a known occurrence of Indiana or gray bats within 4 miles of the proposed study area. It is anticipated that: a) avoidance/minimization of potential impacts to species will be needed; b) surveys for the species in the project area may be required; c) coordination with United States Fish and Wildlife Service (USFWS) and establish Section 7 biological conclusions for the project will be needed; and d) seasonal construction limitations will likely be necessary.

Plants, Rare and Federally Protected Species – A medium impact on the project is anticipated as there is a known federally-protected terrestrial species located within the project study area and it is possible to avoid any impacts to the species with additional design. Additional alternatives will likely eliminate impacts on the species. A survey for the species will likely be required. Additional design alternatives and minimizations will be required if additional populations are found during the required field surveys.

Aquatic Species, Rare and Federally Protected Species – medium impact on the project is anticipated as there is a known occurrence of a state projected aquatic species (Hasteola suaveolens (False Indian Plaintain) and Pituophis melanoleucus melanoleucus (Pine Snake)) located within any 12-digit HUC that the project study area passes through. Additional alternatives could likely reduce species impacts. Consultation with the US Fish and Wildlife Service and TDEC and a survey for the species will be required. The potential of locating a population of the species during field surveys in the project study area exists. Special construction considerations may be required.

Preliminary Hazardous Substances/Geology

This route parallels the Buffalo River for much of the corridor and may have areas of challenging geotechnical considerations. Exhibit 1.8 depicts a known sinkhole location just south of Buffalo River Heights/Turnbow Road area between the State Route 13 corridor and the Buffalo River.

Pyritic Rock/Geotechnical - No project impact is anticipated. Pyritic rock is not known to occur in the study area. Limestone and dolomite are present.

Caves - No project impact is anticipated as there are no known caves in the project study area.

Exhibit 1.8 - Sink Hole on East Side of State Route 13

Preliminary Hazardous Materials and Hazardous Substance Sites – Local officials indicated that the area to the east of State Route 13 is a potential hazardous site. This location is just north of 2nd Avenue as the Lobelville Business district is entered from the north. Any improvement strategy, including widening, would need to occur to the west if, in fact, hazardous materials are on this site. A review of the EPA database did not indicate that this site is under the jurisdiction of the EPA.

Preliminary Parks, Public Lands and Railroads

Tennessee Natural Areas Program – No impact on the project is anticipated as the project is greater than 1 mile from a natural area.

Tennessee Wildlife Management Area (WMA) – No project impact is anticipated as a WMA does not abut nor is located within the project study area.

Parks - No impact on the project is anticipated as there are no parks located within or abutting the project study area.

Railroads – No impact on the project is anticipated as there are no railroads along the study corridor.

2.0 PRELIMINARY PURPOSE AND NEED

The purpose of proposed improvements for the study corridor is to provide a transportation facility that enhances mobility within the region, supports economic development, improves safety, better provides for alternative modes of travel, and relieves potential traffic congestion that may emerge from increasing development.

The State Route 13 corridor, including this section, is a primary north-south route for Perry and Humphreys Counties. This route accesses employment opportunities and connects Linden (the seat of Perry County) to the I-40 corridor in Humphreys County. The State's County Seat Connector Program's intent is to connect all county seats to the interstate system with a 4-lane facility and this section has not been completed as the entire route is currently 2-lanes.

Based on initial findings, as documented in this report, there are multiple areas of concern along the route meriting additional consideration. A review of the corridor indicates that along a majority of the study route, shoulder width is deficient and many areas have less than recommended clear zones. In addition, there is a sufficient mixture of cars and trucks coupled with horizontal and vertical variations of the roadway that makes passing difficult on the existing two lane highway.

Although traffic volumes within the 20-year planning horizon do not support additional through travel lanes to increase capacity, spot improvements such as the addition of passing lanes and turning lanes are warranted to improve localized operations and improve safety in conjunction with other remedial improvements.

Based on the findings of this study in conjunction with the field review with local officials and previous study efforts, the goals and objectives of an improved State Route 13 facility include:

- Improve geometric and clear zone deficiencies;
- Promote safer operations;
- Support economic development within the region;
- Fulfill the intent of the State's County Seat Connector Program; and
- Improve facility for alternative modes of transportation.

3.0 OPTIONS ANALYZED

3.1 Route Option Discussion

This report examines the consideration for a no-build option, addition of localized operational and safety improvement options, a widening to 3-lanes option, a widening to 5-lanes option, and construction predominately on new location. These options are introduced below and discussed throughout the remainder of this report.

Option 1: No-Build

This option assumes no modifications or improvements are made over the planning horizon to add capacity. Maintenance related activities such as resurfacing, signing, and isolated safety projects may occur.

Option 2: Localized Improvements

Eleven (11) potential location improvements can be implemented independently or in combination as an overall improvement strategy along the corridor as discussed further under **Section 3.5 Option 2: Localized Improvements** portion of this section and detailed at the end of this report under ***Optional Location Plans***.

Option 3: 3-Lane Widening Along Existing Alignment (Areas between Option 2: Localized Improvements)

This option considers the completion of a 3-lane section that builds upon the work completed by the localized improvement option strategy and provides for a continuous 3-lane section of roadway from State Route 20 to I-40. This additional work is approximately 15.3 miles in length if all localized options previously discussed (Locations A-K) are implemented. Work under this option would include the reconstruction of the existing 2-lane roadway to accommodate three travel lanes and paved shoulders. The third lane could be a center turn lane in areas with a high concentration of turning movements or it could be an alternating passing lane. This option includes provisions for the replacement of the bridge over the Buffalo River. This option should only be considered after the implementation of the localized improvements discussed further in **Section 3.5**.

Option 4: Widening Along Existing (5-Lane Reconstruction)

At this time, existing and forecasted traffic does not support the need to construct a 5-lane facility. This option is provided in the event that significant growth occurs in the area and demand spikes or if there is an economic opportunity that emerges which would necessitate significant infrastructure improvements and would be supportive of TDOT's guiding principles.

This option considers the concept to predominantly widen along the existing alignment. The existing road lies adjacent to the Buffalo River. Widening along existing would keep travelers within the Lobelville Business District and local officials are concerned with the impacts to the local economy if a by-pass is constructed around their town center. It would not be practical to construct the entire corridor at one time. A phased approach could look at connecting the Lobelville business district to I-40 initially, then connecting Linden to Lobelville to complete the system.

For the section to the south near State Route 20, a curb and gutter section should be utilized to better manage access to the facility from the businesses in the area. Through the Lobelville business district, a curb and gutter section is recommended in order to minimize the footprint and to fit the surroundings. A 5-lane section through the town area would

eliminate much of the on-street parking that is currently present. There are areas where a five lane footprint may not be feasible without impacting adjacent businesses. In this case, consideration should be given for reduced lane widths (11 foot), with curbing adjacent to the outside lane since the speeds can be reduced in this area.

Option 5: New Location
At this time, existing and forecasted traffic does not support the need to construct a multilane facility on new location. This option is provided in the event that significant growth occurs in the area and demand spikes or if there is a significant economic opportunity that emerges which would necessitate significant infrastructure improvements and would be supportive of TDOT's guiding principles.

This option considers the construction of a new facility, typically being 4-lanes with a depressed grassed median, on new location for the entire route. The corridor plans highlight a 2,000 ft wide corridor centered along existing alignment. The new location facility would generally fall within this corridor footprint due to the close proximity of the Buffalo River along much of the route. It is not the intent of this option to build a new facility with any significant distance from the existing alignment. It is possible to bypass the Lobelville Business District with this option but it is not preferred by local officials. If a bypass were to be considered, the route would fall outside of the corridor limits but the preliminary environmental screening has still identified the potential issues. This option would connect to State Route 20 in the area of the existing intersection and the northern terminus ties into the existing State Route 13 interchange with I-40.

The existing State Route 13 alignment would remain as it accesses a number of residences and the Lobelville business district. Maintenance responsibility for the existing route would revert to Perry and Humphreys County.

3.2 Cross-Section Discussion
Capacity analysis for the design years indicated that suitable capacity exists on the current two lane facility and additional through lanes are not required to accommodate future forecasted traffic conditions. However, additional laneage is perceived as instrumental to securing economic opportunities and also proving additional operational improvements such as passing of slower moving traffic.

All typical cross-sections for various options described above are detailed in the attached ***Optional Location Plans*** and the 2,000 ft wide ***Corridor Plans*** at the end of this report. For the localized improvement options, the basic section is three lanes with upgraded shoulders. The third lane is either a passing lane or a center turning lane depending upon the location. In areas where passing lanes are recommended, all widening is to occur to one side. This may mean that the opposing side shoulder is not improved in these areas.

For one location, curb and gutter is recommended in order to better control access to the roadway. **Exhibits 3.1 to 3.3** depict the typical sections for the localized improvement options.

For the 5-lane widening along existing alignment, a section is proposed that would transition between a rural section and an urban section (curb & gutter). For the new location option, a 4-lane divided highway is proposed. These typical sections are presented for reference in the 2,000 foot ***Corridor Plan*** attached at the end of this report.

Exhibit 3.1 –Passing Lane Typical Section

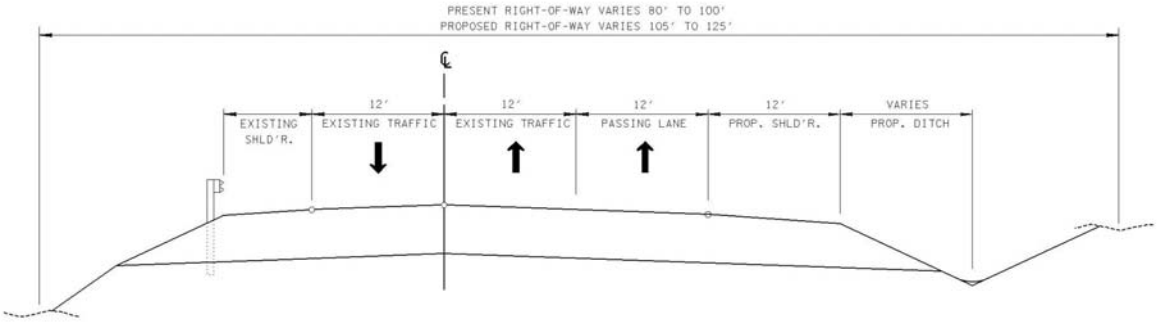


Exhibit 3.2 – Center Turn Lane Typical Section

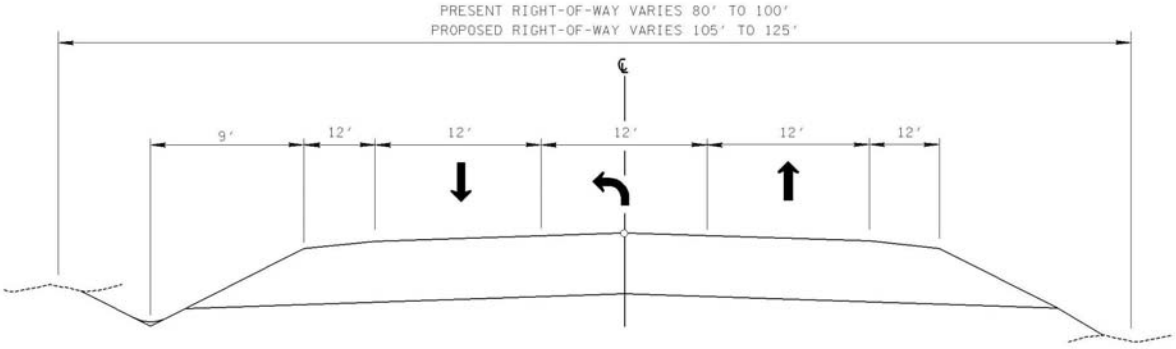
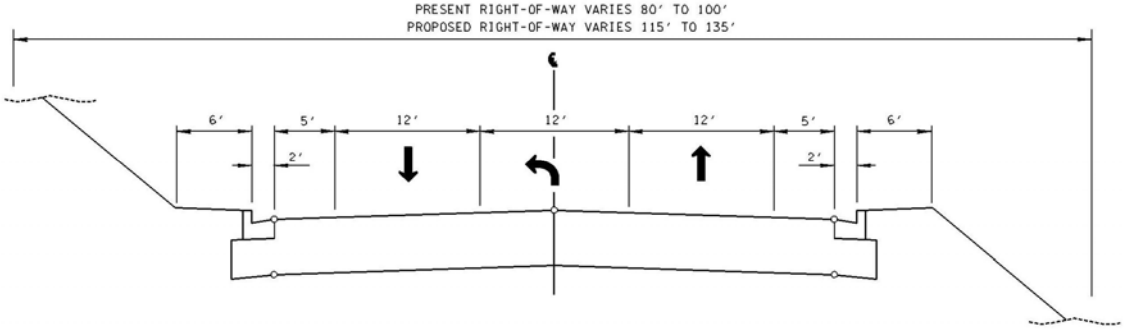


Exhibit 3.3 – Center Turn Lane with Curb Typical Section



Pedestrians and Bicycles

The proposed cross-sections for a new location or a predominately widening along existing option have accommodations for bicycles. A paved shoulder in conjunction with the recommended twelve-foot wide travel lane is adequate for bicycle use.

The addition of sidewalks is not necessary because of the sparse building density and lack of walkable destinations along the entire route. However, in the Linden and Lobelville business areas, sidewalks may be feasible in conjunction with curb & gutter installations.

3.3 Measures of Effectiveness (MOE) Discussion

Congestion Reduction

Currently, congestion is minimal along the corridor. Travel speeds generally approach free flow speeds and are typically only reduced when traveling behind slower moving vehicles. Two sections that merit discussion for congestion reduction are from the State Route 20 intersection to the north approximately 1-mile and the section through the Lobelville business district. Both of these areas have frequent turning movements that cause additional delay for through traffic as no provisions exist for turning vehicles to make these movements from a turning lane.

Lobelville Area

This section resides entirely within the Lobelville city limits and has numerous driveway connections and side roads with frequent turns during peak periods.

During initial planning, a 4-lane and a 5-lane section were considered but due to close proximity of numerous businesses and input from city representatives, a 4-lane section was dropped from consideration for this area. A conceptual review of the section through the business district indicated that a 5-lane section with 11 ft lanes could fit within the existing ROW. Additional provisions for parking would be needed elsewhere as this concept would all but eliminate the existing angled parking along State Route 13 in this area.

A 3-lane section will improve operations, particularly since there are so many driveways and side roads. From a highway capacity analysis perspective, a 3-lane section is analyzed as a 2-lane facility, thereby the LOS will not show a change when transition a 2-lane road to 3-lanes. However, from an operational perspective, it is realistic to expect that a 3-lane section will offer improvements. Center turn-lanes will help reduce rear-end crashes and a passing lane will offer improved operations in the rural areas. Many state transportation agencies recognizes that 3-lane facility can accommodate a higher total daily volume and achieved a similar LOS.

Linden Area

The section immediately adjacent to State Route 20 is developing with uncontrolled access along the route. The addition of a turning lane would ease delays for through vehicles and improve overall operations. Implementing access management strategies such as consolidating driveways would also help to ease the number of conflict points along this section of roadway.

Rural Areas

The rural sections between these community centers and I-40 have congestion buildup from slow moving traffic and the inability to make passing maneuvers. Consideration for localized improvements that provide a safer opportunity for passing would ease scenarios where passing is difficult.

Level of Service

The concept of LOS uses qualitative factors such as, speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience, to characterize operational conditions within a traffic stream and their perception by motorists and passengers. The six levels of service are designated by letters, A to F, with LOS A representing the best operating conditions and LOS F the worst (synonymous to letter grades received in school).

A general description of the operating conditions for each level of service is shown in **Table 3.1**.

Utilizing updated traffic forecasts provided by TDOT (Appendix A), **Table 3.2** presents the LOS projections for the design years of 2013 and 2033. Detailed calculations are available in Appendix C. Based on highway capacity analysis techniques and procedures, a 3-lane section will have generally the same capacity as the existing 2-lane section. From an operations perspective, corridor operations would be improved with the addition of a center turn lane even though the LOS may not change based on capacity analysis because left turning vehicles would be removed from the other traffic traveling through the corridor.

For the study corridor limits, there are no projected failures or deficiencies related to capacity within the planning horizon (2033). This initial analysis is based on no geometric improvements being made. Therefore, based on capacity analysis and exiting geometric conditions, there will not be a section with a LOS lower than D.

Table 3.1 - Level of Service (LOS) Description

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

Information Source: Highway Capacity Manual (2000), Transportation Research Board

Table 3.2 – Capacity Analysis

Roadway Segment	2013	LOS			2033	LOS		
	AADT	2-Lane	3-Lane	4-Lane/ 5-Lane	AADT	2-Lane	3 Lane	4-Lane/ 5-Lane
US 412 (SR 20) to Old SR 13	4,950	C	C	A	7,780	D	C	A
Old SR 13 to Lower Brush Creek Road	4,000	C	C	A	6,000	D	C	A
Lower Brush Creek Rd to SR 438 East	3,910	C	C	A	5,610	C	C	A
SR 438 East to SR 438 West	3,370	C	C	A	4,500	C	C	A
SR 438 West to Mud Springs Hollow Road	3,120	C	C	A	3,980	C	C	A
Mud Springs Hollow Road to I-40	2,590	C	B	A	3,150	C	C	A

3.4 Modal Inter-relationships

Public transportation is available in some areas of Perry and Humphreys County. The Mid-Cumberland Human Resource Agency predominately services Humphreys County and the South Central Tennessee Development District Rural Public Transportation (SCTDD) services Perry County. Improvements to the State Route 13 corridor would improve transit operations by providing a safer facility with reduced congestion at least at spot locations.

3.5 Option 2: Localized Improvements

The following options are presented in consideration of funding limitations and can be completed independently or in combination to provide an improved facility with implemental localized solutions. While most of the study corridor follows a meandering and rolling terrain, vertical and horizontal sight distances along the route are adequate, with no grades meeting the criteria for the addition of truck climbing lanes. However, after field inspection and discussion with local and TDOT officials, the incorporation of passing lanes at various locations was included as optional enhancements due to the inability for vehicles to safely pass slow moving traffic on the existing two-lane facility. Several of the options were previously presented in a passing lane study and have been carried forward to this study effort.

In other locations, the addition of turn lanes will remove the slower moving turning vehicles from the through movements, thus reducing congestion and the chances for crashes such as rear-end collisions and a final location option is for the addition of a center-turning lane approximately 0.6 miles in length in an area with a high frequency of turning movements.

The following options are presented from the south to the north.

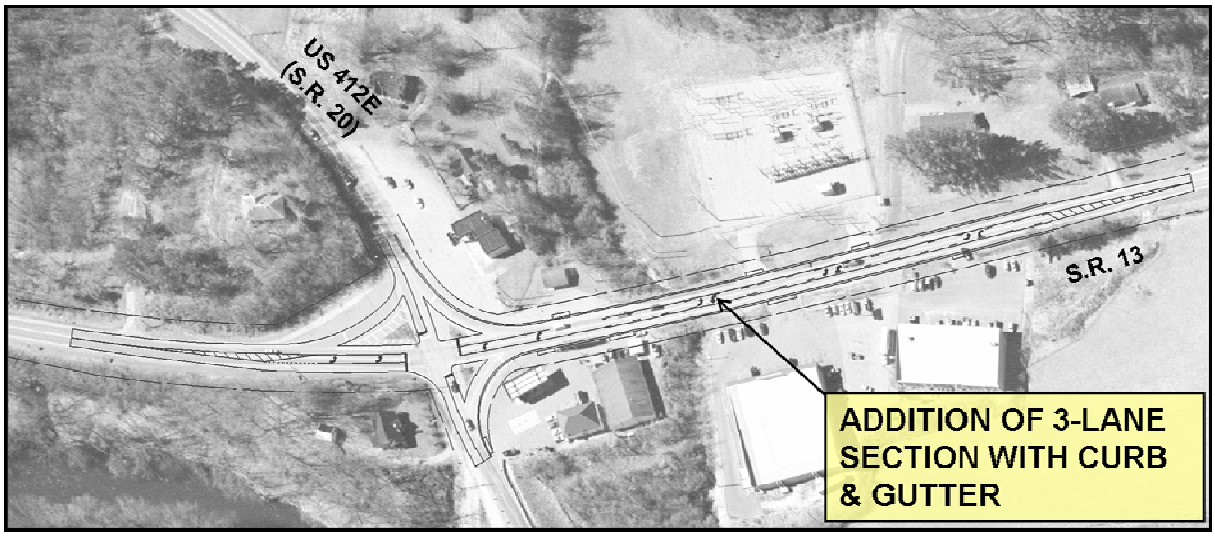
3.5.1 Option 2: Location A – S.R. 20 Intersection Area (Approx. Log Mile (LM) 12.43 to 12.73)

This area is at the southern terminus for the study corridor and is one of the more congested areas along the route as a result of the intersection of two state routes and the proximity of local businesses and commercial centers (**Exhibit 3.4**). A localized improvement strategy for this location is to construct additional turning lanes at the State Route 20 intersection and to implement access management strategies to the north of the State Route 20 intersection for a distance of approximately 750 feet. **Exhibit 3.5** depicts a conceptual plan for this location. The access management strategies include consolidating access points with curb and gutter, thus minimizing conflict points along the section limits. Additional turning lanes at the intersection with State Route 20 will allow for multiple storage queues and decrease average vehicle delays as more vehicles are processed through the intersection. Queue lengths and delay are noted to be long during the peak travel periods.

Exhibit 3.4 - View South to State Route 20

Implementation of these improvements may be considered as a stand-alone project or as an incremental improvements strategy for any future lane widening projects. This option estimate is $1.05 million to $1.42 million.

Exhibit 3.5 – Concept Plan Option 2: Location A



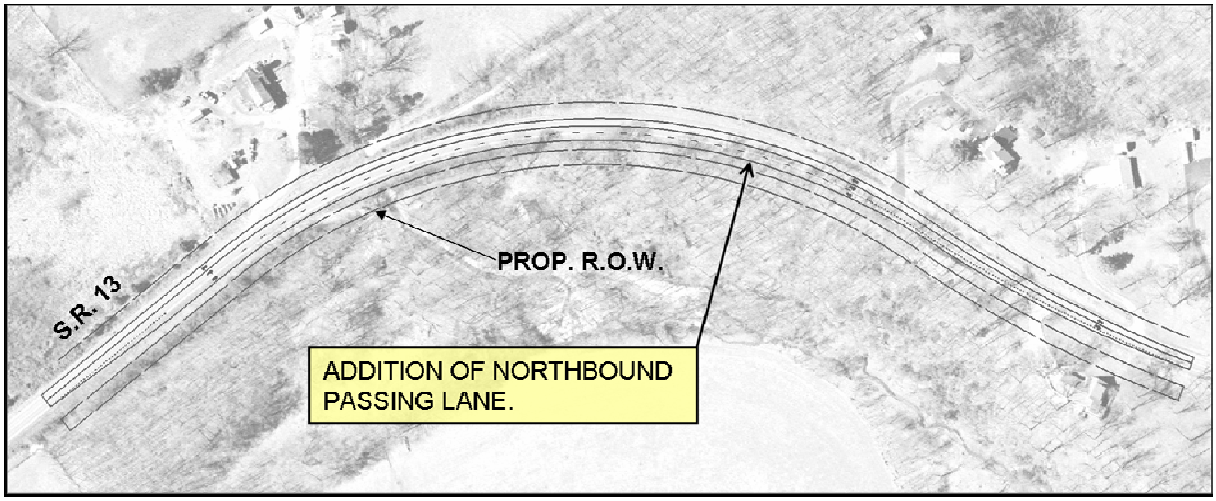
3.5.2 Option 2: Location B - Fred Mill Road Area (LM 13.02 to 13.42)

This section corresponds to a previous study recommendation. **Exhibit 3.6** depicts the view along the curved section. The previous strategy was to build an additional lane on the northbound side to facilitate passing. However, no provisions were made for sight distance. In addition to the lane widening, consideration should be given to adjusting the horizontal alignment or to clear the vegetation to ensure that adequate visibility around the curve is maintained. **Exhibit 3.7** depicts a conceptual plan for this location.

Exhibit 3.6 - View North Along Route Leaving the Linden Area

This option recommends the addition of a northbound passing lane to be added on the east side of the roadway for a proposed 2600' and assumes the vegetation will but cut back to improve sight distance around the curve. This option estimate is $850,000 to $1.14 million.

Exhibit 3.7 – Concept Plan Option 2: Location B

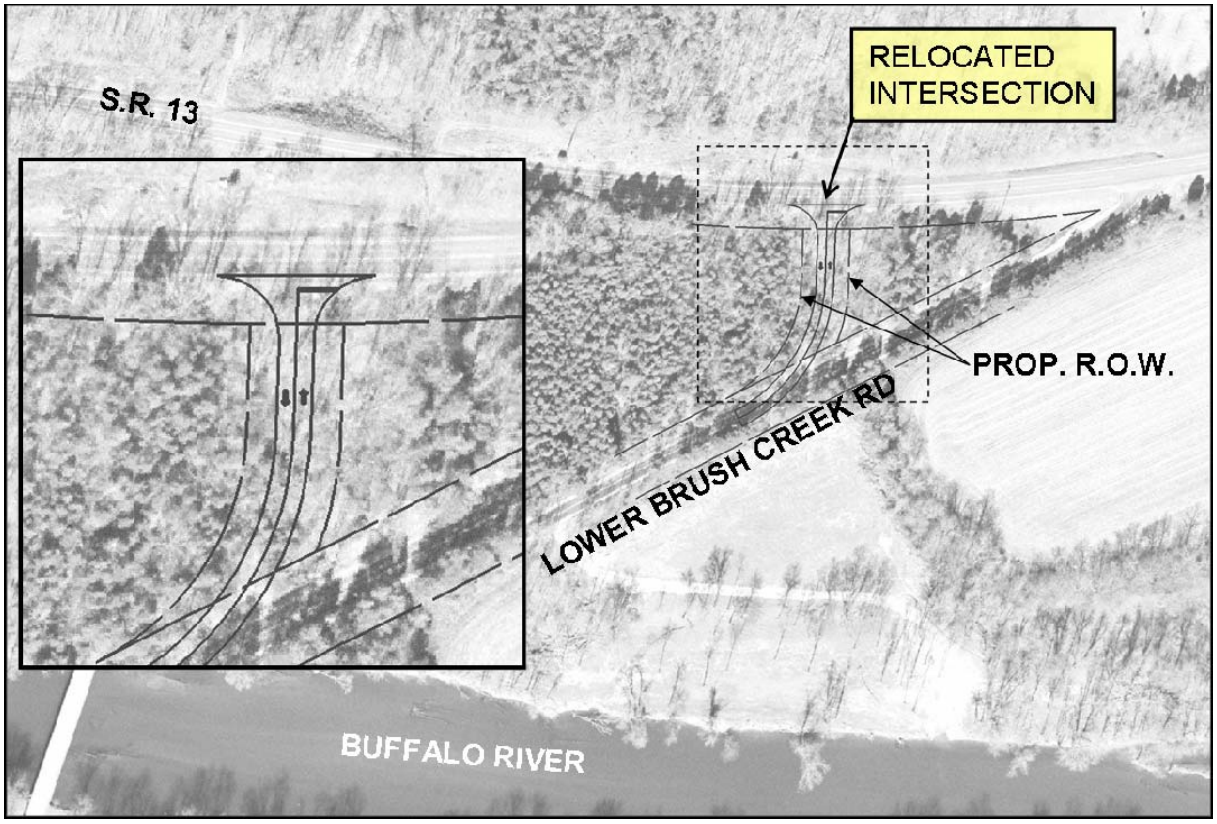


3.5.2 Option 2: Location C - Old State Hwy 13/Lower Brush Creek Road Area (LM 16.48)

Operational improvements for this section of the route were not proposed in the prior study. However, there are a number of curved sections, skewed intersections and at least one fatal crash that is included in the most recent three year period of available data has occurred in this section near Skaggs Bluff. There is also a skewed intersection with Lower Brush Creek Road. Visibility from the side road is limited. Local officials indicated that this is a significant cut through for trips to Hickman County as opposed to traveling south to State Route 20 then heading east. Realigning Lower Brush Creek Road will improve the intersection angle and improve overall operations. **Exhibit 3.8** depicts a view of the Lower Brush Creek Road intersection. **Exhibit 3.9** presents a concept for recommended improvements. This option estimate is $310,000 to $420,000.

Exhibit 3.8 - Lower Brush Creek Rd

Exhibit 3.9 – Concept Plan Option 2: Location C



3.5.4 Option 2: Location D - Aldridge Circle Area (LM 16.91 to 17.94)

This section has an uphill grade in the southbound direction and a passing lane is proposed on the west side of SR 13. Total length is approximately 1.1 miles. See the attached Optional Location Plans sheets 6-8 for additional details and a proposed layout. This option estimate is $2.0 to $2.7 million.

3.5.5 Option 2: Location E - Aldridge Circle Area (LM 18.10 to 18.58)

This section consists of an uphill grade in the northbound direction and a passing lane is proposed on the east side of the roadway to accommodate northbound traffic. Total project length is approximately 0.5 miles.

Improvement options D & E could occur simultaneously and connect as one improvement but this will require additional improvements or replacement to a bridge between the two sections. This structure should be reviewed at the time that options D and E may move forward to determine if replacement is necessary and the work could be included with this option at that time. See the attached Optional Location Plans sheets 8-9 for additional details and a proposed layout. This option estimate is $1.0 to $1.3 million.

3.5.6 Option 2: Location F - S.R. 438/Old Beardstown Rd (LM 19.13 to 19.38)

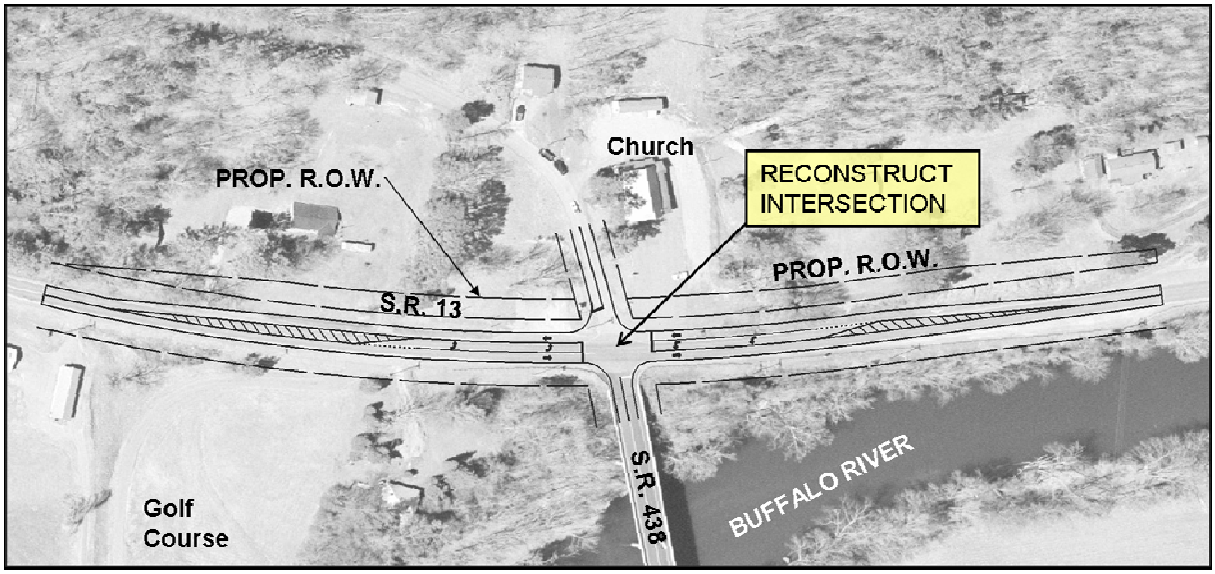
This area is constrained by the proximity of the Buffalo River on the eastern side and the close proximity of several land uses on the western side including a church. The Buffalo River Golf and Country Club is also located on the eastside of State Route 13 just south of the intersection with State Route 438.

Exhibit 3.10 – State Route 13 at State Route 438 East

Exhibit 3.10 presents a view northbound along State Route 13 from the State Route 438 intersection.

The section begins approximately 0.13 miles south of the intersection with State Route 438 and continues for 1350' (LM 19.13 - 19.38). At this location, separated left-turn lanes are proposed to be constructed from on both approaches on State Route 13. No improvements are proposed on the State Route 438 or Old State Highway 13 approaches. **Exhibit 3.11** presents a concept for recommended improvements. This option estimate is $560,000 to $750,000.

Exhibit 3.11 – Concept Plan Option 2: Location F

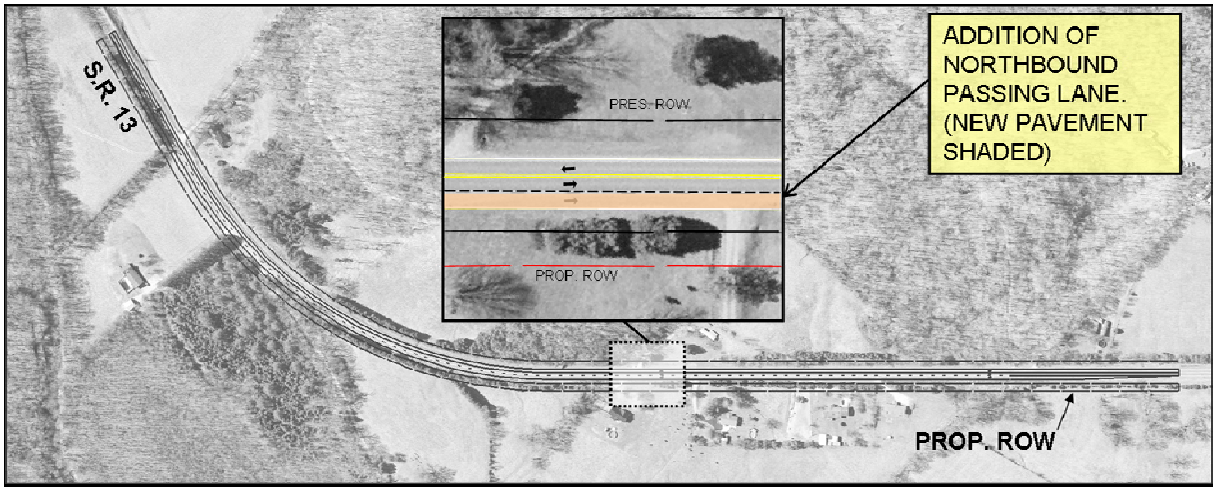


3.5.7 Option 2: Location G - Old Beardstown Road Area (LM 19.80 to 20.62)

Location G begins 0.10 mile north of the Pinhook Branch Bridge and continues north approximately 0.82 miles (LM 19.82 - 20.64). This section is proposed to include a passing lane for northbound traffic to be added on the east side of the roadway. **Exhibit 3.12** presents a view northbound along State Route 13 within the section area. **Exhibit 3.13** presents a concept for recommended improvements. This option estimate is $1.5 to $2.0 million.

Exhibit 3.12 - View North Along State Route 13

Exhibit 3.13 – Concept Plan Option 2: Location G

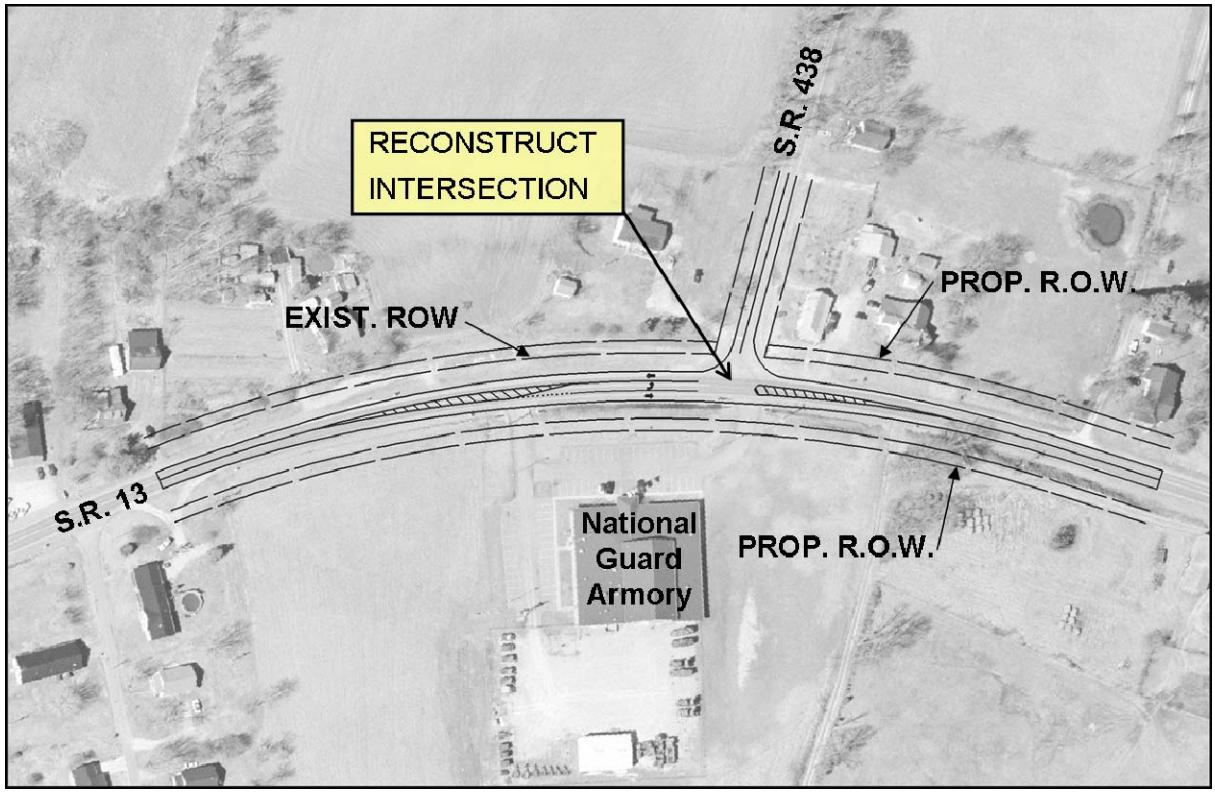


3.5.8 Option 2: Location H - S.R. 438 at National Guard Area (LM 21.48 to 21.72)

Location H recommendations consist of improvements at the northern intersection of State Route 438 with State Route 13. Proposed work includes a northbound left-turn lane from State Route 13 onto State Route 438. No lane improvements are proposed on other approaches to this intersection at this time, however, some widening on State Route 13 just north of State Route 438 will be required to prevent the offset of State Route 13 through lanes. The total length of the proposed improvement is 1,250 feet (LM 21.48 - 21.72). **Exhibit 3.14** presents a view of the intersection in question. **Exhibit 3.15** presents a concept for recommended improvements. This option estimate is $570,000 to $780,000.

Exhibit 3.14 - State Route 13 at State Route 438 West

Exhibit 3.15 – Concept Plan Option 2: Location H



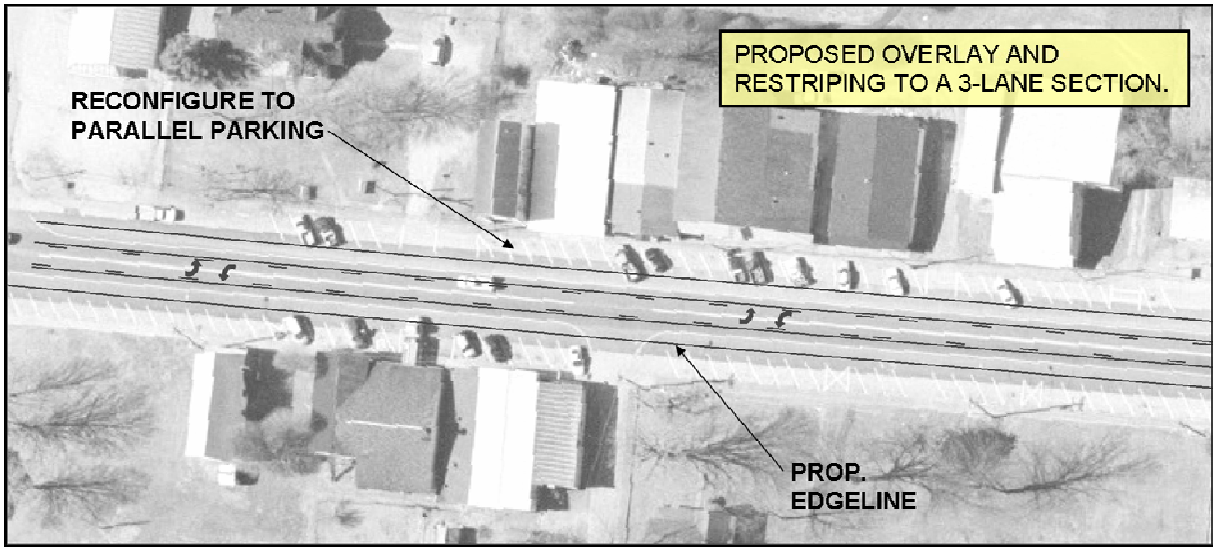
3.5.9 Option 2: Location I - Lobelville Business District

The section of State Route 13 through the Lobelville business district currently has surplus pavement such that a center turning lane could be added with a pavement overlay and re-striping project for approximately 0.6 miles in length. **Exhibit 3.16** presents a view of the section in question. There is some on-street parking, but local officials indicate that this parking can be relocated behind the businesses, if necessary, in many cases.

Exhibit 3.16 – South Along State Route 13

At the corner of Main and 8th in Lobelville, there is a large culvert and a channel in poor condition. It looks like the channel may have been realigned in the past and is now eroding the 90 degree bend at the culvert outlet. If the route is widened to the west, then the channel may need to be relocated. Even if the route is not realigned, there is a need for some channel stabilization. **Exhibit 3.17** presents one area within Location I. See the attached Optional Location Plans sheet 14 for additional details and a proposed layout. This option estimate is $170,000 to $220,000.

Exhibit 3.17 – Concept Plan Option 2: Location I

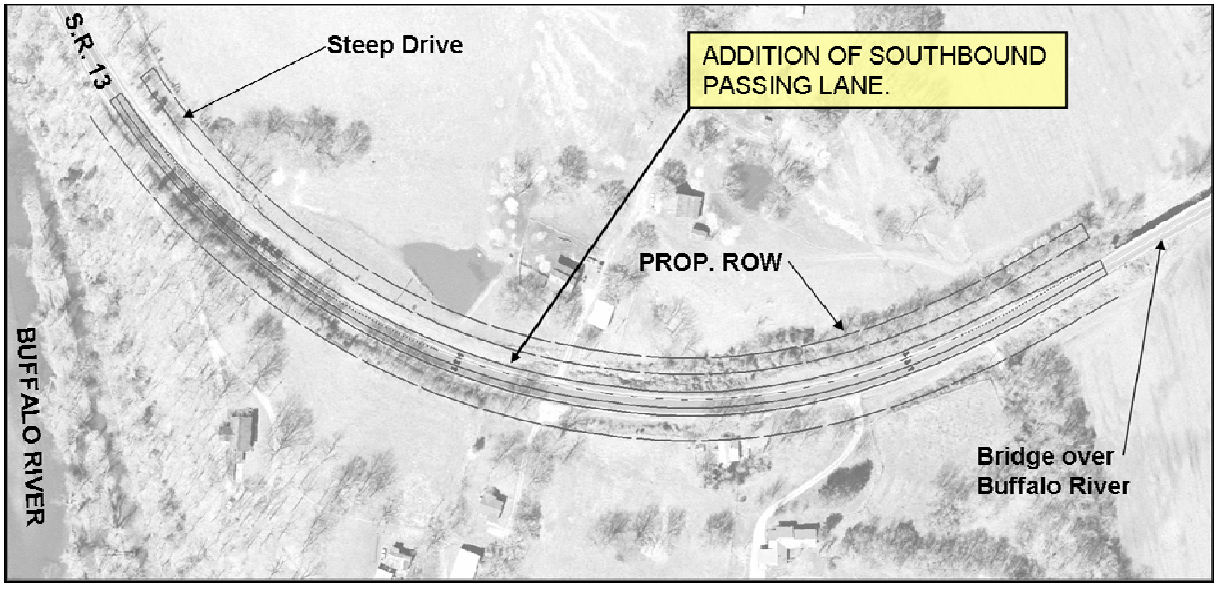


3.5.10 Option 2: Location J - South of Buffalo River Crossing Area (LM 27.99 to 28.33)

This section corresponds with a previous study's recommendation for the addition of a passing lane for southbound traffic. **Exhibit 3.18** presents a view of the section in question. There is a sign marking the location of Smith Cemetery to the west in this section of the corridor. No additional observations were noted during the field review. **Exhibit 3.19** presents a concept for recommended improvements. This option estimate is $830,000 to $1.12 million.

Exhibit 3.18 – View North Along State Route 13
Prior to Buffalo River Bridge)

Exhibit 3.19 – Concept Plan Option 2: Location J



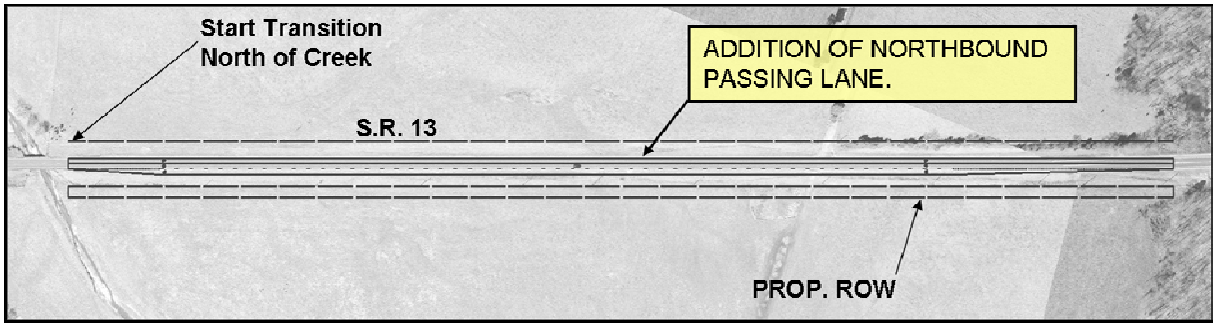
3.5.11 Option 2: Location K - North of Buffalo River Crossing (LM 28.99 to 29.56)

This section includes a previous study recommendation which called for a northbound passing lane. **Exhibit 3.20** presents a view of the section in question.

Exhibit 3.20 - View North Along S.R. 13
(Area of proposed passing lane)

Location K is the northernmost proposed improvement; the lane taper begins just north of the Simmons Creek Bridge in Perry County. The northbound passing lane on the east side of the roadway would continue 0.71 miles, ending approximately 0.29 miles north of Schoolhouse Hollow Road (LM 28.98 - 29.69). **Exhibit 3.21** presents a concept for recommended improvements. This option estimate is $1.4 to $1.9 million.

Exhibit 3.21 – Concept Plan Option 2: Location K



3.6 Cost Estimates

Cost estimates are provided for the corridor across a range of options. Each estimate is reported with a low and high value. The costs are summarized in the Summary Data Tables and Itemized Cost Estimates are provided in this report. The cost of each of the options discussed is presented in **Table 3.3**.

Table 3.3 – Cost Summary Table

OPTION	ROW	UTILITY	CONST	INFLATION	TOTAL	LOW	HIGH
Option 2: Location A	$ -	$ 72,000	$ 686,000	$ 463,000	$ 1,230,000	$ 1,100,000	$ 1,500,000
Option 2: Location B	$ 18,000	$ 96,000	$ 495,000	$ 372,000	$ 990,000	$ 850,000	$ 1,140,000
Option 2: Location C	$ 4,000	$ 14,000	$ 205,000	$ 137,000	$ 360,000	$ 310,000	$ 420,000
Option 2: Location D	$ 45,000	$ 245,000	$ 1,147,000	$ 878,000	$ 2,320,000	$ 2,000,000	$ 2,700,000
Option 2: Location E	$ 21,000	$ 115,000	$ 526,000	$ 405,000	$ 1,070,000	$ 1,000,000	$ 1,300,000
Option 2: Location F	$ 11,000	$ 60,000	$ 327,000	$ 243,000	$ 650,000	$ 560,000	$ 750,000
Option 2: Location G	$ 36,000	$ 195,000	$ 825,000	$ 645,000	$ 1,710,000	$ 1,500,000	$ 2,000,000
Option 2: Location H	$ 13,000	$ 58,000	$ 339,000	$ 251,000	$ 670,000	$ 570,000	$ 780,000
Option 2: Location I	$ -	$ -	$ 114,000	$ 70,000	$ 190,000	$ 170,000	$ 220,000
Option 2: Location J	$ 15,000	$ 189,000	$ 396,000	$ 367,000	$ 970,000	$ 830,000	$ 1,120,000
Option 2: Location K	$ 25,000	$ 317,000	$ 669,000	$ 618,000	$ 1,630,000	$ 1,400,000	$ 1,900,000
Location Totals	***$ 188,000***	***$ 1,361,000***	***$ 5,729,000***	***$ 4,449,000***	***$ 11,790,000***	***$ 10,290,000***	***$ 13,830,000***
Option 3: 3-Lane Widen Along Exist.(Infill between Location A-K Options, Approx 15.3 miles)	$ 739,000	$ 2,992,000	$ 45,635,000	$ 30,139,000	$ 79,510,000	$ 68,000,000	$ 92,000,000
Option 4: Widen. Along Exist. 5-Lane (Full Reconstruction for 20.3 miles)	$ 2,587,000	$ 5,120,000	$ 93,479,000	$ 61,776,000	$ 162,970,000	$ 139,000,000	$ 188,000,000
Option 5: New Location (4-lane median divided)	$ 10,025,000	$ 4,732,000	$ 106,915,000	$ 74,282,000	$ 195,960,000	$ 167,000,000	$ 226,000,000

Construction: Includes 10% PE and Mobilization

3.7 Recommended Priority of Improvements

The following highlights the recommended prioritization of localized improvements (Option 2) based on this preliminary review.

HIGH PRIORITY

- **Option 2: Location I - Lobelville Business District*:*** Due to the ease of implementation, the relatively low cost to implement these improvements, and the amount of time required to implement these improvements. This option estimate is $170,000 to $220,000.
- **Option 2: Location A - S.R. 20 Intersection Area:** These improvements will improve traffic flow through the State Route 20 intersection thereby reducing delay. Coupled with the consolidation of driveways, this option will reduce conflict points and improve overall operations in this area. This option estimate is $1.1 to $1.5 million.
- **Option 2: Location C - Old State Hwy 13/Lower Brush Creek Road Area*:*** This location has significant cut-through traffic to the east and the skew of the intersection limits visibility to the south just north of Skaggs Bluff. This improvement option will address the intersection deficiency and provide for better overall and safer operations. This option estimate is $310,000 to $420,000.
- **Option 2: Location D & E - Aldridge Circle Area (LM 16.91 to 18.58)*:*** Improvements D & E could occur simultaneously as they provide for a pair of passing lanes. The short section between these two options includes an existing bridge and it is not recommended for improvements at this time. Location D option estimate is $2.0 to $2.7 million and Location E option estimate is $1.0 to $1.3 million.
- **Option 2: Location B - Fred Mill Road Area:** This location has the worst geometry prior to entering the Linden City Limits. The addition of a turn lane coupled with removal of vegetation should improve operations and overall safety. The new passing lane in the northbound direction will help vehicles maneuver around slow moving traffic including trucks along the upward grade. This option estimate is $850,000 to $1.14 million.
- **Option 2: Location H - S.R. 438 at National Guard Area:** This option would improve operations at the northernmost junction with State Route 438 by providing a turning lane for the State Route 13 approach. The limits for this project are minimal. This option estimate is $570,000 to $780,000.
- **Option 2: Location F - S.R. 438 Intersection Area/Old Beardstown Rd*:*** This option would improve operations at the southernmost junction with State Route 438 by providing a turning lane for the State Route 13 approach. Based on a field review of the area and data research, this location may be more difficult to construct than Location H due to the proximity of a church, golf course, and an existing bridge on State Route 438 over the Buffalo River. This option estimate is $560,000 to $750,000.
- **Option 2: Location G - Old Beardstown Road Area (LM 19.80 to 20.62)*:*** This passing lane section is between Locations H & F and would compliment the adjoining project intersection improvements. This option estimate is $1.5 to $2.0 million.
- **Option 2: Location K - North of Buffalo River Crossing (LM 28.99 to 29.56):** This location north of the Lobelville Business district would provide the last significant passing area traveling toward I-40. The section is relatively straight and potentially easier to implement as opposed to option J. This option estimate is $1.4 to $1.9 million.
- **Option 2; Location J - South of Buffalo River Crossing Area:** This option provides a needed passing opportunity on an upgrade as the Lobelville Business district is approached. Due to construction issues, this option has a high cost for a relatively short section. This option estimate is $830,000 to $1.12 million.

LOW PRIORITY

Other Options Considered

Other options reviewed, but not recommended, included a widening of the entire corridor or consideration for building a facility on new location. These options include:

- ***Option 1: No-Build Option -*** The No-Build option provides no improvements and serves as a baseline option against which all other options are compared. For the No-Build option, the LOS is projected to reside within an acceptable range (LOS D or Better) for future forecasted traffic for the entire corridor. Regardless of the LOS, there are safety concerns that would not be addressed under the no-build option and operational deficiencies that impede access to major destinations. This option does not promote or provide the necessary infrastructure that could attract economic opportunities to the area.
- ***Option 3: 3-Lane Widening Along Existing Alignment (Areas between Localized Improvements) -*** This may be pursued once the previously mentioned localized improvements were implemented. This would provide for a continuous three-lane section throughout the corridor and include a new bridge over the Buffalo River. This option estimate is $68 to $92 million to complete a three lane option for the entire corridor.
- ***Option 4: Widening Along Existing (5-Lane Reconstruction) -*** This option may require widening of the previously mentioned options along with the additional work required to provide for five lanes of travel throughout the corridor. This option has a high cost and is not justified based on traffic forecasts and projected impacts to properties and the environment along the route. This option estimate is $139 to $188 million.
- ***Option 5: New Location -*** This option is the most expensive considered, and is less attractive than the options identified above. This option estimate is $167 to $226 million. At this time, based on forecasted demand and potential adverse impacts to the environment, this option is unlikely to fit within the guiding principles established by TDOT.

4.0 ASSESSMENT OF OPTIONS

TDOT's Seven Guiding Principles

The Tennessee Department of Transportation (TDOT) has adopted seven guiding principles against which all transportation projects are to be evaluated. These guiding principles address concerns for system management, mobility, economic growth, safety, community, environmental stewardship, and financial responsibility. These guiding principles are discussed in the following paragraphs as they relate to the options discussed in this report.

Guiding Principle 1: Preserve and Manage the Existing Transportation System

Many aspects of existing State Route 13 are less than ideal. There are few opportunities to maneuver around slower moving traffic and this leads to an overall reduction in operations and level of service. There is also a high percentage of out of control crashes (46%) that may stem from current geometric deficiencies and roadside inadequacies. Improving State Route 13 from State Route 20 in Linden to I-40 with either a strategy of localized improvements or a comprehensive reconstruction will address many of these corridor deficiencies.

Addressing the safety and operational needs will improve the overall transportation system in the region by providing the infrastructure to adequately address the movement of people and goods. This improved north-south route and connection to the I-40 corridor will enhance the overall transportation system in the region and provide a more efficient and safer route for roadway users.

To achieve this goal, one option is to implement a series of localized improvements that can be considered independently and collectively will provide a more efficient system that minimizes impacts on the environment and minimizes costs. The following summarizes the localized improvement options as discussed earlier in this report:

Option 2: Localized Improvement Strategy:

The localized improvements provide targeted relief for 11 key locations along the route and when combined, will provide a comprehensive strategy for the corridor that will provide needed relief and safety improvements and manage the needs of the system for years to come. Implementation of the 11 localized improvement options best meets the intent of this guiding principle while being financially responsible and less invasive upon the environment.

Locations A, F, and H are primarily intersection improvement options that will improve the flow of traffic between intersecting state routes. Locations B through E, G, J, and K are primarily corridor improvement options for alternating passing lanes that will help ease congestion and offer users a safer place to pass slower moving traffic.

Location I improvement option (Lobelville Business District), identifies re-striping to a three lane section within the Lobelville Business District. There is currently sufficient pavement to accommodate the addition of a center turning lane with some modifications to on-street parking (currently angled but can be reconfigured to parallel parking). This improvement will provide congestion relief in this urbanized area.

If at such a time when the local improvement options are implemented it is apparent that additional improvements are need, then the 3-lane widening option should be considered. As discussed earlier in the report, this option would then build upon those localized

improvements to include additional areas in need of further upgrades and/or improvements. This could be achieved when funding becomes available and could be phased in over time.

Other options considered (Option 4: 5-lane Reconstruction and Option 5: New Location) in this study may better integrate the transportation system for the movement of people and goods but would have significantly more impacts to the environment and would overbuild the infrastructure based on current and forecasted demand and would be an inefficient allocation of state resources.

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

The improvement options discussed in this report will reduce congestion, optimize service and operational efficiency, and benefit north-south mobility in Perry and Humphreys counties. An improved State Route 13 will benefit freight movements, rural transportation services, emergency vehicles and passenger cars. The localized improvement options discussed in this report will provide additional capacity and safety to better address the demands on the corridor.

This corridor is important to Perry County communities and provides regional mobility and economic opportunities for both residents and industry. Various enhancements are needed to ensure that the mobility needs of the region are served. A system of localized or corridor improvements can help achieve this goal.

At this time, the rural characteristic of the corridor and area does not lend itself easily to pedestrian and bicycle movements for a majority of the options except for the more urban sections in Linden and Lobelville. However, improved shoulders in areas of localized improvement options will provide an additional level of safety above existing conditions for alternative uses.

Guiding Principle 3: Support the State's Economy

The State Route 13 corridor is a primary north-south route for not only Perry and Humphreys Counties, but also Wayne County to the south. This route accesses employment opportunities and connects Linden (the seat of Perry County) to the I-40 corridor in Humphreys County. The closest comparable north-south route is State Route 66 which runs from Decatur to I-40 on the west side of the Tennessee river approximately 15 miles due west of State Route 13.

Currently, the Perry County employment estimates are 3,240 available for employment with a 17.4% unemployment rate as published in October 2008. This is the highest county unemployment rate in the state. Perry County has been working diligently with the Department of Economic and Community Development (ECD) as well as the Tennessee Valley Authority (TVA) to identify and attract potential industry to the region. Comments that the area have received for why industry has not selected the site identified the area as too remote, too rural, and too far from an interstate with no improved highway. Enhancing the corridor with the localized improvement options (or a comprehensive improvement program) will ultimately enhance the corridor for all users and provide improved transportation infrastructure for use as a tool to attract the industries that have stayed away from the area in the past.

Guiding Principle 4: Maximize Safety and Security

Over the most recent three-year period (2004-2006), there were 103 documented crashes resulting in two fatalities (two separate crashes), 14 incapacitating injury crashes with a total of 19 injuries, and 30 injury crashes including 69 total injuries. 45.6% of the crashes were classified as "out of control" and these are typical of run off the road, or driving too fast for conditions. The two fatal crashes resulted from vehicles leaving the roadway. The second most prevalent crash type was rear-end collisions at 18.5% (See **Table 4.1** for a summary of crash types).

Table 4.1 – Crash Type Summary

	Right Angle	Read End	Out of Control	Side Swipe	Object in Road	Parked Vehicle	Total Crashes
Total	17	19	47	2	17	1	103
Percentage	16.5%	18.5%	45.6%	1.9%	16.5%	1.0%	100%

The Federal Highway Administration publishes crash reduction factors (CRF) that are a percentage of crash reductions that may be expected after implementing a given counter measure[3]. There are various roadside countermeasures that could help reduce the severity and occurrences of run off the road crashes (categorized under out of control). Providing localized improvements would include addressing existing clear zone issues or improvements to sight distances on curves. The FHWA has indicated that with these types of improvements, crashes can be reduced from 20% to 50% with fatal and injury crashes getting the largest reductions.

Each of the Option 2: Localized Improvements (Locations A-K) will improve the level of safety on the roadway system and will help to reduce the crash frequency along the corridor.

Guiding Principle 5: Build Partnerships for Livable Communities

TDOT's Long Range Transportation Plan promotes and encourages projects that have public and community support. This project study, originated by the County Mayor and RPO, was identified as a need for the region and is supported by local public officials. As this project advances, the public involvement process will continue as mandated by the provisions of the National Environmental Policy Act (NEPA).

Guiding Principle 6: Promote Stewardship of the Environment

Further environmental studies will be required if state and/or federal funds are planned for the proposed project. If federal funds are involved, a document consistent with the National Environmental Policy Act (NEPA) will be required. If state funds are involved, and no federal monies are used, a Tennessee Environmental Evaluation Report (TEER) will be required.

Several areas within the study area should be considered for avoidance or minimized impacts. These areas include cemeteries, churches, major pipeline crossings, and sink holes as previous discussed in **Section 1.9**. The study area contains several blue line streams.

[3] Desktop Reference for Crash Reduction Factors, Report No. FHWA-SA-08-011, U.S. Department of Transportation Federal Highway Administration (September 2008)

Most of the options are improvements along existing alignment and these generally have less impact than constructing on new location. The new location option does not fair well when assessing the other options correlating to this guiding principle.

Guiding Principle 7: Emphasize 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 responsibly in the development and implementation of roadway projects and minimizing costs to the taxpayers.

Concept level construction cost estimates were prepared for each option considered (**Table 3.3**). Many of the costs associated with the localized improvement options can be offset by the savings associated with potential reductions in crashes, savings associated with reduced travel time delays, and the revenue and opportunities generated by potential economic development.

Summary of Principles

Exhibit 4.1 assesses the evaluated improvement options, as discussed throughout this report, in relationship to the seven (7) guiding principles. It is important to note that each of the localized options are evaluated independently. That is to say, if only Option 2: Location I is built (Re-striping existing pavement to 3-lanes in the Lobelville Business District), the overall compatibility to the guiding principle of supporting the State's economy may be view as "fair." However, if all localized improvement options are implemented, the collective evaluation would be "good."

Exhibit 4.1 – Improvement Options Relationship to Guiding Principles

PRINCIPLE	Option 1: No Build	Option 2: Local Improvement Options											Option 3: 3-Lane Widening (Infill)	Option 4: 5-Lane Widening (Re-Build)	Option 5: New Location
		A	B	C	D	E	F	G	H	I	J	K			
Preserve and Manage the Existing Transportation System	Fair	Good	Fair	Good	Fair	Fair	Good	Good	Fair	Good	Fair	Fair	Good	Fair	Poor
Move a Growing, Diverse, and Active Population	Fair	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good
Support the State's Economy	Poor	Good	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Good	Fair	Fair	Good	Good	Fair
Maximize Safety and Security	Poor	Good	Fair	Fair	Fair	Fair	Fair	Fair	Fair	Good	Fair	Fair	Good	Good	Good
Build Partnerships for Livable Communities	Poor	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Fair	Fair
Promote Stewardship of the Environment	Fair	Good	Good	Fair	Fair	Fair	Fair	Fair	Fair	Good	Fair	Fair	Fair	Poor	Poor
Emphasize Financial Responsibility	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Good	Poor	Poor	Poor

Definition of "Good" - The proposed action is compatible with and promotes the vision of the TDOT Guiding principle.
Definition of "Fair" - The proposed action is acceptable but not an ideal fit with the TDOT Guiding principle.
Definition of "Poor" - The proposed action is not compatible with the subject TDOT Guiding principle.

5.0 SUMMARY

Future improvements to the existing State Route 13 corridor are necessary to address the local and regional needs of the area by providing system connectivity to I-40, enhancing operational characteristics and providing for a safer route. An incremental improvement strategy initially focused on the eleven (11) locations identified in this report will provide an enhanced facility for all users that best fits within TDOT's guiding principles, promotes financial responsive, improves safety, preserves the existing transportation system, and provides infrastructure improvements that will support potential economic development.

The following summarizes the options considered in this report:

Option 2: Localized Improvements
Combinations of route improvements are recommended to provide safer operations and enhance mobility for roadway users. Although it may not be practical at this time to construct all of the recommended improvements, they could be phased in to yield the desired benefits.

The recommended order of improvements is:

1. Option 2: Location I - Lobelville Business District
2. Option 2: Location A - S.R. 20 Intersection Area
3. Option 2: Location C - Old State Hwy 13/Lower Brush Creek Road Area
4. Option 2: Location D - Aldridge Circle Area (LM 16.91 to 17.94)
5. Option 2: Location E - Aldridge Circle Area (LM 18.10 to 18.58)
6. Option 2: Location B - Fred Mill Road Area
7. Option 2: Location H - S.R. 438 at National Guard Area
8. Option 2: Location F - S.R. 438 Intersection Area/Old Beardstown Rd
9. Option 2: Location G - Old Beardstown Road Area (LM 19.80 to 20.62)
10. Option 2: Location K - North of Buffalo River Crossing (LM 28.99 to 29.56)
11. Option 2: Location J - South of Buffalo River Crossing Area

The following options were considered but are not recommended at this time.

Option 3: 3-Lane Widening Along Existing Alignment (Areas between Localized Improvements
This may be pursued once the previously mentioned localized improvements are implemented. This would provide for a continuous three-lane section throughout the corridor and includes a new bridge over the Buffalo River.

Option 4: Widening Along Existing (5-Lane Reconstruction)
This option may require widening of the previously mentioned options along with the additional work required to provide for five lanes of travel throughout the corridor. This option has a high cost and is not justified based on traffic forecasts and projected impacts to properties and the environment impacts along the route.

Option 5: New Location

Construction on new location may not be the most suitable option as the costs for such a facility will be fiscally large and the potential impacts great while other options are available that reduce costs and impacts and meet the needs of the area.

At this time, Option 5 (New Location) should be considered a low priority due to the increased cost associated with it and the potential impacts to the environment that would need additional study to fully understand the impacts. If a new location option is constructed, the existing route would be removed from the state highway system and become the responsibility of local government.

Exhibit 5.1 displays the adequacy of each option to meet the purpose, needs, and goals of a corridor improvement program.

Exhibit 5.1 – Improvement Options Relationship to Purpose, Needs, and Goals

<table>
<tr><th rowspan="2">Goals</th><th rowspan="2">Option 1: No Build</th><th colspan="11">Option 2: Local Improvement Options</th><th rowspan="2">Option 3: 3-Lane Widen (Infill)</th><th rowspan="2">Options 4 & 5: 5-Lane Widening (Re-Build) and New Location</th></tr>
<tr><th>A</th><th>B</th><th>C</th><th>D</th><th>E</th><th>F</th><th>G</th><th>H</th><th>I</th><th>J</th><th>K</th></tr>
<tr><td>Improve Geometric and Clear Zone Deficiencies</td><td rowspan="5">These goals are addressed by the No-Build Option.</td><td colspan="11">Considered collectively, these localized options may notably meet this goal.</td><td rowspan="3">Notably meets these goals</td><td rowspan="4">Implementation of these options would significantly meet these goals.</td></tr>
<tr><td>Promote Safer Operations</td><td colspan="11">Considered collectively, these localized options may notably meet this goal.</td></tr>
<tr><td>Support Economic Development within Region</td><td colspan="11">Considered collectively, these localized options may notably meet this goal.</td></tr>
<tr><td>Fulfill the intent of the State's County Seat Connector Program</td><td colspan="11">None of the localized options meet the goal of building 4-lanes (as intended). However, when considered collectively, these options provide improved safety, reduced congestion, and will improve mobility similar to the spirit of the County Seat Connector Program.</td><td rowspan="2">Marginally meets these goals</td></tr>
<tr><td>Improve Facility for Alternative Modes of Transportation</td><td colspan="11">These options fall short of this goal mainly due to the rural character of the area. Implementation of the Location I option will have the greatest impact on this goal as the area has a mixture of uses within close proximity.</td><td>These options can include the required infrastructure to better meet this goal.</td></tr>
</table>

CHECKLIST OF DETERMINANTS FOR LOCATION STUDY
(Widening along existing or New Location Construction)

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

1.	Agricultural land usage……..	X
2.	Airport (existing or proposed)……	
3.	Commercial area, shopping center…(Linden & Lobelville Business Areas…..	X
4.	Floodplains……..	X
5.	Forested Land…….	X
6.	Historical, archaeological, cultural, or natural landmark or cemeteries……..	X
7.	Industrial park, factory…….	
8.	Institutional usages	
	a. School or other educational institution……	
	b. Church or other religious institution……	X
	c. Hospital or other medical facility……	
	d. Public building, e.g., fire station…….	X
	e. Defense Installation…….	X
9.	Recreational usages	
	a. Park or recreational area, State Natural Area…….	X
	b. Wildlife refuge or wildlife management area……...	
10.	Residential Establishment……	X
11.	Urban area, town, city, or community…(Linden & Lobelville)…….	X
	Title 6, low income/minority community……..	
12.	Waterway, lake pond, river, stream, spring, wetland…….	X
	Permit required: Coast Guard……..	
	Section 404…….	X
	Section 10……..	
	TVA Section 26a review……..	
	NPDES……..	X
	Aquatic Resource Alteration Permit…….	X
	Class V Injection Wells…….	
13.	Location coordinated with local officials……..	X
14.	Railroad Crossings…….	
15.	Hazardous Material Site…….	
	Underground Storage Tanks – U.S.T……..	X
16.	Other…….	Pipelines

DATA TABLE

Item	Option 2: Location A	Option 2: Location B	Option 2: Location C	Option 2: Location D	Option 2: Location E
Functional Class	Rural	Rural	Rural	Rural	Rural
System Class	STP	STP	STP	STP	STP
Length - Miles	0.3	0.4	0.05	1.03	0.48
Cross Section - Feet	36/80	36/105	24/80	36/105	36/105
Base Year ADT (2013)	5,000	5,000	210	3,900	3,900
Design Year ADT (2033)	7,800	7,800	280	5,600	5,600
Design Year DHV (2033) (10%)	780	780	30	560	560
Percent Trucks (DHV)	9%	9%	9%	9%	9%
Estimated Right-Of-Way Cost	$ -	$ 18,000	$ 4,000	$ 45,000	$ 21,000
Estimated Utility Cost	$ 72,000	$ 96,000	$ 14,000	$ 245,000	$ 115,000
Estimated Construction Cost	$ 686,000	$ 495,000	$ 205,000	$ 1,147,000	$ 526,000
Estimated Inflation	$ 463,000	$ 372,000	$ 137,000	$ 878,000	$ 405,000
Total Estimated Cost	$ 1,300,000	$ 990,000	$ 360,000	$ 2,400,000	$ 1,070,000
Estimated Per Mile Cost	$ 4,334,000	$ 2,475,000	$ 7,200,000	$ 2,331,000	$ 2,300,000

DATA TABLE (Continued)

Item	Option 2: Location F	Option 2: Location G	Option 2: Location H	Option 2: Location I
Functional Class	Rural	Rural	Rural	Urban/Rural
System Class	STP	STP	STP	STP
Length - Miles	0.25	0.82	0.24	0.56
Cross Section - Feet	36/105	36/105	36/105	36/105
Base Year ADT (2013)	3,400	3,400	3,400	3,100
Design Year ADT (2033)	4,500	4,500	4,500	4,000
Design Year DHV (2033) (10%)	450	450	450	400
Percent Trucks (DHV)	9%	9%	9%	10%
Estimated Right-Of-Way Cost	$ 11,000	$ 36,000	$ 13,000	$ -
Estimated Utility Cost	$ 60,000	$ 195,000	$ 58,000	$ -
Estimated Construction Cost	$ 327,000	$ 825,000	$ 339,000	$ 114,000
Estimated Inflation	$ 243,000	$ 645,000	$ 251,000	$ 70,000
Total Estimated Cost	$ 650,000	$ 1,800,000	$ 670,000	$ 190,000
Estimated Per Mile Cost	$ 2,600,000	$ 2,196,000	$ 2,792,000	$ 339,286

DATA TABLE (Continued)

Item	Option 2: Location J	Option 2: Location K	Option 3 3-Lane (INFILL)	Option 4 5-Lane Reconstruction	Option 5 New Location
Functional Class	Rural	Rural	Rural	Rural	Rural
System Class	STP	STP	STP	STP	STP
Length - Miles	0.34	0.57	15.3	20.3	21
Cross Section - Feet	36/125	36/125	3-Lane: Varies b/w rural and urban sections	5-Lane: Varies b/w rural and urban sections	4-Lane Divided
Base Year ADT (2013)	2,600	2,600	2,600-5,000	2,600-5,000	2,600-5,000
Design Year ADT (2033)	3,200	3,200	3,200-7,800	3,200-7,800	3,200-7,800
Design Year DHV (2033) (10%)	320	320	320-780	320-780	320-780
Percent Trucks (DHV)	10%	10%	11%	11%	11%
Estimated Right-Of-Way Cost	$ 15,000	$ 25,000	$ 739,000	$ 2,587,000	$ 10,025,000
Estimated Utility Cost	$ 189,000	$ 317,000	$ 2,992,000	$ 5,120,000	$ 4,732,000
Estimated Construction Cost	$ 396,000	$ 669,000	$ 45,635,000	$ 93,479,000	$ 106,915,000
Estimated Inflation	$ 367,000	$ 618,000	$ 30,139,000	$ 61,776,000	$ 74,282,000
Total Estimated Cost	$ 970,000	$ 1,700,000	$ 80,000,000	$ 163,000,000	$ 196,000,000
Estimated Per Mile Cost	$ 2,853,000	$ 2,983,000	$ 5,243,000	$ 8,030,000	$ 9,334,000

DESIGN CRITERIA FOR LOCATION AND DESIGN PHASE

Tennessee Department of Transportation
Design Criteria for Location and Design Phase

Route:	SR-13	**Alternate:**	Option 2: Location A
Section:	All	**Region:**	3
County:	Perry & Humphreys	**Project:**	

Location

From:	LM 12.43
To:	LM 12.73

Parameter	Criteria
2013 AADT	5,000
2033 AADT	7,800
Percent Trucks (DHV)	9%
Functional Classification:	Rural Arterial
Minimum Design Speed	45 MPH
Access Control	No
Maximum Curve	7°30’
Maximum Grade	6.5%
Minimum Stopping Sight Distance	400’
Surface Width	3 @ 12’
Number of Lanes	3
Usable Shoulder Width	0’
Median Width	N/A
Minimum R.O.W	80’
Signalization	None

Tennessee Department of Transportation
Design Criteria for Location and Design Phase

Route:	SR-13	**Alternate:**	Option 2: Location B
Section:	All	**Region:**	3
County:	Perry & Humphreys	**Project:**	

Location

From:	LM 13.02
To:	LM 13.42

Parameter	**Criteria**
2013 AADT	5,000
2033 AADT	7,800
Percent Trucks (DHV)	9%
Functional Classification:	Rural Arterial
Minimum Design Speed	45 MPH
Access Control	No
Maximum Curve	3°45’
Maximum Grade	4%
Minimum Stopping Sight Distance	525’-650’
Surface Width	3 @ 12’
Number of Lanes	3
Usable Shoulder Width	10’
Median Width	N/A
Minimum R.O.W	105’
Signalization	None

Tennessee Department of Transportation
Design Criteria for Location and Design Phase

Route:	SR-13	**Alternate:**	Option 2: Location C
Section:	All	**Region:**	3
County:	Perry & Humphreys	**Project:**	

Location

From:	Intersection near LM 16.48
To:	

Parameter	Criteria
2013 AADT – SR 20 (US 412) to I-40	200
2033 AADT – SR 247 to City limits	300
Percent Trucks (DHV)	5%
Functional Classification:	Rural Arterial
Minimum Design Speed	35 MPH
Access Control	No
Maximum Curve	200’ Radius (Stop Condition)
Maximum Grade	4%
Minimum Stopping Sight Distance	300’
Surface Width	2 @ 11’
Number of Lanes	2
Usable Shoulder Width	6’
Median Width	N/A
Minimum R.O.W	80’
Signalization	None

Tennessee Department of Transportation
Design Criteria for Location and Design Phase

Route:	SR-13	**Alternate:**	Option 2: Location D
Section:	All	**Region:**	3
County:	Perry & Humphreys	**Project:**	

Location

From:	LM 16.91
To:	LM 17.94

Parameter	**Criteria**
2013 AADT – SR 20 (US 412) to I-40	3,900
2033 AADT – SR 247 to City limits	5,600
Percent Trucks (DHV)	9%
Functional Classification:	Rural Arterial
Minimum Design Speed	60 MPH
Access Control	No
Maximum Curve	3°45’
Maximum Grade	4%
Minimum Stopping Sight Distance	525’-650’
Surface Width	3 @ 12’
Number of Lanes	3
Usable Shoulder Width	10’
Median Width	N/A
Minimum R.O.W	105’
Signalization	None

Tennessee Department of Transportation
Design Criteria for Location and Design Phase

Route:	SR-13	**Alternate:**	Option 2: Location E
Section:	All	**Region:**	3
County:	Perry & Humphreys	**Project:**	

Location

From:	LM 18.10
To:	LM 18.58

Parameter	**Criteria**
2013 AADT – SR 20 (US 412) to I-40	3,900
2033 AADT – SR 247 to City limits	5,600
Percent Trucks (DHV)	9%
Functional Classification:	Rural Arterial
Minimum Design Speed	60 MPH
Access Control	No
Maximum Curve	3°45’
Maximum Grade	4%
Minimum Stopping Sight Distance	525’-650’
Surface Width	3 @ 12’
Number of Lanes	3
Usable Shoulder Width	10’
Median Width	N/A
Minimum R.O.W	105’
Signalization	None

Tennessee Department of Transportation
Design Criteria for Location and Design Phase

Route:	SR-13	**Alternate:**	Option 2: Location F
Section:	All	**Region:**	3
County:	Perry & Humphreys	**Project:**	

Location

From:	LM 19.13
To:	LM 19.38

Parameter	**Criteria**
2013 AADT – SR 20 (US 412) to I-40	3,400
2033 AADT – SR 247 to City limits	4,500
Percent Trucks (DHV)	9%
Functional Classification:	Rural Arterial
Minimum Design Speed	60 MPH
Access Control	No
Maximum Curve	3°45’
Maximum Grade	4%
Minimum Stopping Sight Distance	525’-650’
Surface Width	3 @ 12’
Number of Lanes	3
Usable Shoulder Width	10’
Median Width	N/A
Minimum R.O.W	105’
Signalization	None

Tennessee Department of Transportation
Design Criteria for Location and Design Phase

Route:	SR-13	**Alternate:**	Option 2: Location G
Section:	All	**Region:**	3
County:	Perry & Humphreys	**Project:**	

Location

From:	LM 19.80
To:	LM 20.62

Parameter	**Criteria**
2013 AADT – SR 20 (US 412) to I-40	3,400
2033 AADT – SR 247 to City limits	4,500
Percent Trucks (DHV)	9%
Functional Classification:	Rural Arterial
Minimum Design Speed	60 MPH
Access Control	No
Maximum Curve	3°45’
Maximum Grade	4%
Minimum Stopping Sight Distance	525’-650’
Surface Width	3 @ 12’
Number of Lanes	3
Usable Shoulder Width	10’
Median Width	N/A
Minimum R.O.W	105’
Signalization	None

Tennessee Department of Transportation
Design Criteria for Location and Design Phase

Route:	SR-13	**Alternate:**	Option 2: Location H
Section:	All	**Region:**	3
County:	Perry & Humphreys	**Project:**	

Location

From:	LM 21.48
To:	LM 21.72

Parameter	**Criteria**
2013 AADT – SR 20 (US 412) to I-40	3,400
2033 AADT – SR 247 to City limits	4,500
Percent Trucks (DHV)	9%
Functional Classification:	Rural Arterial
Minimum Design Speed	60 MPH
Access Control	No
Maximum Curve	3°45’
Maximum Grade	4%
Minimum Stopping Sight Distance	525’-650’
Surface Width	3 @ 12’
Number of Lanes	3
Usable Shoulder Width	10’
Median Width	N/A
Minimum R.O.W	150’
Signalization	None

Tennessee Department of Transportation
Design Criteria for Location and Design Phase

Route:	SR-13	**Alternate:**	Option 2: Location I
Section:	All	**Region:**	3
County:	Perry & Humphreys	**Project:**	

Location

From:	Lobelville Business District – Approximately 3,000 FT
To:	

Parameter	**Criteria**
2013 AADT – SR 20 (US 412) to I-40	3,100
2033 AADT – SR 247 to City limits	4,000
Percent Trucks (DHV)	10%
Functional Classification:	Rural Arterial
Minimum Design Speed	35 MPH
Access Control	No
Maximum Curve	Re-striping Only
Maximum Grade	
Minimum Stopping Sight Distance	
Surface Width	3 @ 12’ + variable paved shoulder width
Number of Lanes	3
Usable Shoulder Width	Variable paved shoulder width
Median Width	N/A
Minimum R.O.W	Maintain existing ROW
Signalization	None

Tennessee Department of Transportation
Design Criteria for Location and Design Phase

Route:	SR-13	**Alternate:**	Option 2: Location J
Section:	All	**Region:**	3
County:	Perry & Humphreys	**Project:**	

Location

From:	LM 27.99
To:	LM 28.33

Parameter	**Criteria**
2013 AADT – SR 20 (US 412) to I-40	2,600
2033 AADT – SR 247 to City limits	3,200
Percent Trucks (DHV)	10%
Functional Classification:	Rural Arterial
Minimum Design Speed	60 MPH
Access Control	No
Maximum Curve	3°45’
Maximum Grade	4%
Minimum Stopping Sight Distance	525’-650’
Surface Width	3 @ 12’
Number of Lanes	3
Usable Shoulder Width	10’
Median Width	N/A
Minimum R.O.W	125’
Signalization	None

Tennessee Department of Transportation
Design Criteria for Location and Design Phase

Route:	SR-13	**Alternate:**	Option 2: Location K
Section:	All	**Region:**	3
County:	Perry & Humphreys	**Project:**	

Location

From:	LM 28.99
To:	LM 29.56

Parameter	**Criteria**
2013 AADT – SR 20 (US 412) to I-40	2,600
2033 AADT – SR 247 to City limits	3,200
Percent Trucks (DHV)	10%
Functional Classification:	Rural Arterial
Minimum Design Speed	60 MPH
Access Control	No
Maximum Curve	3°45’
Maximum Grade	4%
Minimum Stopping Sight Distance	525’-650’
Surface Width	3 @ 12’
Number of Lanes	3
Usable Shoulder Width	10’
Median Width	N/A
Minimum R.O.W	125’
Signalization	None

Tennessee Department of Transportation
Design Criteria for Location and Design Phase

Route:	SR-13	**Alternate:**	Option 3: 3-Lane Infill
Section:	All	**Region:**	3
County:	Perry & Humphreys	**Project:**	

Location *(Infill only if option 2 improvements are implemented)*

From:	State Route 20 (Linden)
To:	I-40

Parameter	**Criteria**
2013 AADT – SR 20 (US 412) to I-40	2,600
2033 AADT – SR 247 to City limits	3,200
Percent Trucks (DHV)	10%
Functional Classification:	Rural Arterial
Minimum Design Speed	60 MPH
Access Control	No
Maximum Curve	3°45’
Maximum Grade	4%
Minimum Stopping Sight Distance	525’-650’
Surface Width	3 @ 12’
Number of Lanes	3
Usable Shoulder Width	10’
Median Width	N/A
Minimum R.O.W	125’
Signalization	None

Tennessee Department of Transportation
Design Criteria for Location and Design Phase

Route:	SR-13	**Alternate:**	Option 4: Widening Along Existing
Section:	All	**Region:**	3
County:	Perry & Humphreys	**Project:**	

Location

From:	State Route 20 (Linden)
To:	I-40

Parameter	**Criteria**
2013 AADT – SR 20 (US 412) to I-40	Varies 3600 - 5700
2033 AADT – SR 247 to City limits	Varies 5070 - 7800
Percent Trucks (DHV)	11%
Functional Classification:	Rural Arterial
Minimum Design Speed	60 MPH
Access Control	No
Maximum Curve	3°45’
Maximum Grade	4%
Minimum Stopping Sight Distance	525’-650’
Surface (Lane) Width	5 @ 12’
Number of Lanes	5
Usable Shoulder Width	10’
Median Width	N/A
Minimum R.O.W	150’
Signalization	None

Tennessee Department of Transportation
Design Criteria for Location and Design Phase

Route:	SR-13	**Alternate:**	Option 5: New Location
Section:	All	**Region:**	3
County:	Perry & Humphreys	**Project:**	

Location

From:	State Route 20 (Linden)
To:	I-40

Parameter	Criteria
2013 AADT – SR 20 (US 412) to I-40	Varies 3600 - 5700
2033 AADT – SR 247 to City limits	Varies 5070 - 7800
Percent Trucks (DHV)	11%
Functional Classification:	Rural Arterial
Minimum Design Speed	60 MPH
Access Control	No
Maximum Curve	3°45’
Maximum Grade	4%
Minimum Stopping Sight Distance	525’-650’
Surface (Lane) Width	4 @ 12’
Number of Lanes	4
Usable Shoulder Width	10’
Median Width	48’
Minimum R.O.W	250’
Signalization	None

COST DATA SHEETS

SR-13 TPR
PERRY & HUMPHREYS

COST ESTIMATE SUMMARY

OPTION 2
LOCATION A

Location A **S.R. 20 Intersection Area (Approx. Log Mile (LM) 12.43 to 12.73)**

ITEM	COST				
Clear & Grubbing:	$0	=	$0	$	-
Earthwork:	$23,467	=	$23,000	$	23,000
Pavement Removal:	$0	=	$0	$	23,000
Drainage:	$106,485	=	$106,000	$	129,000
Structures:	$0	=	$0	$	129,000
Railroad:	$0	=	$0	$	129,000
Paving:	$228,326	=	$228,000	$	357,000
Retaining Walls:	$0	=	$0	$	357,000
Maintenance of Traffic:	$50,000	=	$50,000	$	407,000
Topsoil:	$1,320	=	$1,000	$	408,000
Seeding:	$396	=	$0	$	408,000
Sodding:	$25,000	=	$25,000	$	433,000
Signing:	$20,000	=	$20,000	$	453,000
Signalization:	$0	=	$0	$	453,000
Fencing:	$0	=	$0	$	453,000
Guardrail:	$0	=	$0	$	453,000
Rip-Rap:	$5,000	=	$5,000	$	458,000
Other Construction (15%):	$68,249	=	$68,000	$	526,000
Erosion Control (3.5%):	$15,925	=	$16,000	$	542,000
Sub-Total:	$544,167	=	$542,000	$	542,000
10% Eng. & Cont.:	$54,417	=	$54,000	$	596,000
Sub-Total:	$598,584	=	$599,000	$	596,000
			Mobilization =	$	30,000
			10% Preliminary. Engineering =	$	60,000
			Construction Total =	$	686,000
			ROW Total =	$	-
			Utility Total =	$	72,000
			INFLATION (10% Per Year for 5 Years) =	$	463,000
			LOCATION SUBTOTAL =	**$**	**1,230,000**
			RANGE LOW =	**$**	**1,100,000**
			RANGE HIGH =	**$**	**1,500,000**

SR-13 TPR
PERRY & HUMPHREYS

COST ESTIMATE SUMMARY

OPTION 2
LOCATION B

Location B **Fred Mill Road Area (LM 13.02 to 13.42)**

ITEM	COST				
Clear & Grubbing:	$3,636	=	$4,000	$	4,000
Earthwork:	$93,867	=	$94,000	$	98,000
Pavement Removal:	$0	=	$0	$	98,000
Drainage:	$6,484	=	$6,000	$	115,000
Structures:	$0	=	$0	$	115,000
Railroad:	$0	=	$0	$	115,000
Paving:	$168,567	=	$169,000	$	284,000
Retaining Walls:	$0	=	$0	$	284,000
Maintenance of Traffic:	$10,000	=	$10,000	$	294,000
Topsoil:	$14,080	=	$14,000	$	308,000
Seeding:	$4,224	=	$4,000	$	312,000
Sodding:	$5,000	=	$5,000	$	317,000
Signing:	$2,000	=	$2,000	$	319,000
Signalization:	$0	=	$0	$	319,000
Fencing:	$0	=	$0	$	319,000
Guardrail:	$18,000	=	$18,000	$	337,000
Rip-Rap:	$5,000	=	$5,000	$	342,000
Other Construction (15%):	$48,879	=	$49,000	$	391,000
Erosion Control (3.5%):	$11,278	=	$11,000	$	109,000
Sub-Total:	$379,736	=	$380,000	$	391,000
10% Eng. & Cont.:	$37,974	=	$39,000	$	39,000
Sub-Total:	$417,709	=	$418,000	$	430,000
			Mobilization =	$	22,000
			10% Preliminary. Engineering =	$	43,000
			Construction Total =	$	495,000
			ROW Total =	$	18,000
			Utility Total =	$	96,000
			INFLATION (10% Per Year for 5 Years) =	$	372,000
			LOCATION SUBTOTAL =	**$**	**990,000**
			RANGE LOW =	**$**	**850,000**
			RANGE HIGH =	**$**	**1,140,000**

SR-13 TPR
PERRY & HUMPHREYS

COST ESTIMATE SUMMARY

OPTION 2
LOCATION C

Location C **Old State Hwy 13/Lower Brush Creek Road Area (LM 16.48)**

ITEM	COST				
Clear & Grubbing:	$1,102	=	$1,000	$	1,000
Earthwork:	$35,000	=	$35,000	$	36,000
Pavement Removal:	$4,813	=	$5,000	$	41,000
Drainage:	$4,725	=	$5,000	$	51,000
Structures:	$0	=	$0	$	51,000
Railroad:	$0	=	$0	$	51,000
Paving:	$40,551	=	$41,000	$	92,000
Retaining Walls:	$0	=	$0	$	92,000
Maintenance of Traffic:	$25,000	=	$25,000	$	117,000
Topsoil:	$2,625	=	$3,000	$	120,000
Seeding:	$788	=	$1,000	$	121,000
Sodding:	$0	=	$0	$	121,000
Signing:	$5,000	=	$5,000	$	126,000
Signalization:	$0	=	$0	$	126,000
Fencing:	$0	=	$0	$	126,000
Guardrail:	$11,000	=	$11,000	$	137,000
Rip-Rap:	$5,000	=	$5,000	$	142,000
Other Construction (15%):	$19,590	=	$20,000	$	162,000
Erosion Control (3.5%):	$4,533	=	$5,000	$	46,000
Sub-Total:	$155,194	=	$155,000	$	162,000
10% Eng. & Cont.:	$15,519	=	$16,000	$	16,000
Sub-Total:	$170,713	=	$171,000	$	178,000
			Mobilization =	$	9,000
			10% Preliminary. Engineering =	$	18,000
			Construction Total =	$	205,000
			ROW Total =	$	4,000
			Utility Total =	$	14,000
			INFLATION (10% Per Year for 5 Years) =	$	137,000
			LOCATION SUBTOTAL =	**$**	**360,000**
			RANGE LOW =	**$**	**310,000**
			RANGE HIGH =	**$**	**420,000**

SR-13 TPR
PERRY & HUMPHREYS

COST ESTIMATE SUMMARY

OPTION 2
LOCATION D

Location D **Aldridge Circle Area (LM 16.91 to 17.94)**

ITEM	COST				
Clear & Grubbing:	$12,484	=	$12,000	$	12,000
Earthwork:	$201,407	=	$201,000	$	213,000
Pavement Removal:	$0	=	$0	$	213,000
Drainage:	$10,806	=	$11,000	$	250,000
Structures:	$0	=	$0	$	250,000
Railroad:	$0	=	$0	$	250,000
Paving:	$464,367	=	$464,000	$	714,000
Retaining Walls:	$0	=	$0	$	714,000
Maintenance of Traffic:	$10,000	=	$10,000	$	724,000
Topsoil:	$18,127	=	$18,000	$	742,000
Seeding:	$5,438	=	$5,000	$	747,000
Sodding:	$0	=	$0	$	747,000
Signing:	$5,000	=	$5,000	$	752,000
Signalization:	$0	=	$0	$	752,000
Fencing:	$0	=	$0	$	752,000
Guardrail:	$35,000	=	$35,000	$	787,000
Rip-Rap:	$5,000	=	$5,000	$	792,000
Other Construction (15%):	$114,394	=	$114,000	$	906,000
Erosion Control (3.5%):	$26,255	=	$26,000	$	239,000
Sub-Total:	$882,023	=	$882,000	$	906,000
10% Eng. & Cont.:	$88,202	=	$91,000	$	91,000
Sub-Total:	$970,225	=	$970,000	$	997,000
			Mobilization =	$	50,000
			10% Preliminary. Engineering =	$	100,000
			Construction Total =	$	1,147,000
			ROW Total =	$	45,000
			Utility Total =	$	245,000
			INFLATION (10% Per Year for 5 Years) =	$	878,000
			LOCATION SUBTOTAL =	**$**	**2,320,000**
			RANGE LOW =	**$**	**2,000,000**
			RANGE HIGH =	**$**	**2,700,000**

SR-13 TPR
PERRY & HUMPHREYS

COST ESTIMATE SUMMARY

OPTION 2
LOCATION E

Location E **Aldridge Circle Area (LM 18.10 to 18.58)**

ITEM	COST				
Clear & Grubbing:	$5,817	=	$6,000	$	6,000
Earthwork:	$75,081	=	$75,000	$	81,000
Pavement Removal:	$0	=	$0	$	81,000
Drainage:	$10,806	=	$11,000	$	104,000
Structures:	$0	=	$0	$	104,000
Railroad:	$0	=	$0	$	104,000
Paving:	$202,248	=	$202,000	$	306,000
Retaining Walls:	$0	=	$0	$	306,000
Maintenance of Traffic:	$10,000	=	$10,000	$	316,000
Topsoil:	$10,558	=	$11,000	$	327,000
Seeding:	$3,168	=	$3,000	$	330,000
Sodding:	$5,000	=	$5,000	$	335,000
Signing:	$5,000	=	$5,000	$	340,000
Signalization:	$0	=	$0	$	340,000
Fencing:	$0	=	$0	$	340,000
Guardrail:	$18,000	=	$18,000	$	358,000
Rip-Rap:	$5,000	=	$5,000	$	363,000
Other Construction (15%):	$51,852	=	$52,000	$	415,000
Erosion Control (3.5%):	$11,895	=	$12,000	$	93,000
Sub-Total:	$402,530	=	$403,000	$	415,000
10% Eng. & Cont.:	$40,253	=	$42,000	$	42,000
Sub-Total:	$442,783	=	$443,000	$	457,000
			Mobilization =	$	23,000
			10% Preliminary. Engineering =	$	46,000
			Construction Total =	$	526,000
			ROW Total =	$	21,000
			Utility Total =	$	115,000
			INFLATION (10% Per Year for 5 Years) =	$	405,000
			LOCATION SUBTOTAL =	**$**	**1,070,000**
			RANGE LOW =	**$**	**1,000,000**
			RANGE HIGH =	**$**	**1,300,000**

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PERRY & HUMPHREYS

COST ESTIMATE SUMMARY

OPTION 2
LOCATION F

Location F **S.R. 438 Intersection Area/Old Beardstown Rd (LM 19.13 to 19.38)**

ITEM	COST				
Clear & Grubbing:	$3,030	=	$3,000	$	3,000
Earthwork:	$29,333	=	$29,000	$	32,000
Pavement Removal:	$0	=	$0	$	32,000
Drainage:	$4,322	=	$4,000	$	43,000
Structures:	$0	=	$0	$	43,000
Railroad:	$0	=	$0	$	43,000
Paving:	$149,282	=	$149,000	$	192,000
Retaining Walls:	$0	=	$0	$	192,000
Maintenance of Traffic:	$10,000	=	$10,000	$	202,000
Topsoil:	$4,400	=	$4,000	$	206,000
Seeding:	$1,320	=	$1,000	$	207,000
Sodding:	$0	=	$0	$	207,000
Signing:	$3,000	=	$3,000	$	210,000
Signalization:	$0	=	$0	$	210,000
Fencing:	$0	=	$0	$	210,000
Guardrail:	$11,000	=	$11,000	$	221,000
Rip-Rap:	$5,000	=	$5,000	$	226,000
Other Construction (15%):	$32,353	=	$32,000	$	258,000
Erosion Control (3.5%):	$7,443	=	$7,000	$	39,000
Sub-Total:	$253,042	=	$253,000	$	258,000
10% Eng. & Cont.:	$25,304	=	$26,000	$	26,000
Sub-Total:	$278,346	=	$278,000	$	284,000
			Mobilization =	$	14,000
			10% Preliminary. Engineering =	$	29,000
			Construction Total =	$	327,000
			ROW Total =	$	11,000
			Utility Total =	$	60,000
			INFLATION (10% Per Year for 5 Years) =	$	243,000
			LOCATION SUBTOTAL =	**$**	**650,000**
			RANGE LOW =	**$**	**560,000**
			RANGE HIGH =	**$**	**750,000**

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PERRY & HUMPHREYS

COST ESTIMATE SUMMARY

OPTION 2
LOCATION G

Location G **Old Beardstown Road Area (LM 19.80 to 20.62)**

ITEM	COST				
Clear & Grubbing:	$9,940	=	$10,000	$	10,000
Earthwork:	$144,333	=	$144,000	$	154,000
Pavement Removal:	$0	=	$0	$	154,000
Drainage:	$4,322	=	$4,000	$	177,000
Structures:	$0	=	$0	$	177,000
Railroad:	$0	=	$0	$	177,000
Paving:	$345,594	=	$346,000	$	523,000
Retaining Walls:	$0	=	$0	$	523,000
Maintenance of Traffic:	$10,000	=	$10,000	$	533,000
Topsoil:	$14,433	=	$14,000	$	547,000
Seeding:	$4,330	=	$4,000	$	551,000
Sodding:	$0	=	$0	$	551,000
Signing:	$3,000	=	$3,000	$	554,000
Signalization:	$0	=	$0	$	554,000
Fencing:	$0	=	$0	$	554,000
Guardrail:	$11,000	=	$11,000	$	565,000
Rip-Rap:	$5,000	=	$5,000	$	570,000
Other Construction (15%):	$82,043	=	$82,000	$	652,000
Erosion Control (3.5%):	$18,795	=	$19,000	$	173,000
Sub-Total:	$633,996	=	$634,000	$	652,000
10% Eng. & Cont.:	$63,400	=	$65,000	$	65,000
Sub-Total:	$697,396	=	$697,000	$	717,000
			Mobilization =	$	36,000
			10% Preliminary. Engineering =	$	72,000
			Construction Total =	$	825,000
			ROW Total =	$	36,000
			Utility Total =	$	195,000
			INFLATION (10% Per Year for 5 Years) =	$	645,000
			LOCATION SUBTOTAL =	**$**	**1,710,000**
			RANGE LOW =	**$**	**1,500,000**
			RANGE HIGH =	**$**	**2,000,000**

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PERRY & HUMPHREYS

COST ESTIMATE SUMMARY

OPTION 2
LOCATION H

Location H **S.R. 438 at National Guard Area (LM 21.48 to 21.72)**

ITEM	COST				
Clear & Grubbing:	$3,490	=	$3,000	$	3,000
Earthwork:	$29,329	=	$29,000	$	32,000
Pavement Removal:	$0	=	$0	$	32,000
Drainage:	$6,229	=	$6,000	$	46,000
Structures:	$0	=	$0	$	46,000
Railroad:	$0	=	$0	$	46,000
Paving:	$143,288	=	$143,000	$	189,000
Retaining Walls:	$0	=	$0	$	189,000
Maintenance of Traffic:	$10,000	=	$10,000	$	199,000
Topsoil:	$8,447	=	$8,000	$	207,000
Seeding:	$2,534	=	$3,000	$	210,000
Sodding:	$0	=	$0	$	210,000
Signing:	$2,000	=	$2,000	$	212,000
Signalization:	$0	=	$0	$	212,000
Fencing:	$0	=	$0	$	212,000
Guardrail:	$17,000	=	$17,000	$	229,000
Rip-Rap:	$5,000	=	$5,000	$	234,000
Other Construction (15%):	$33,348	=	$33,000	$	267,000
Erosion Control (3.5%):	$7,659	=	$8,000	$	40,000
Sub-Total:	$260,664	=	$261,000	$	267,000
10% Eng. & Cont.:	$26,066	=	$27,000	$	27,000
Sub-Total:	$286,731	=	$287,000	$	294,000
			Mobilization =	$	15,000
			10% Preliminary. Engineering =	$	30,000
			Construction Total =	$	339,000
			ROW Total =	$	13,000
			Utility Total =	$	58,000
			INFLATION (10% Per Year for 5 Years) =	$	251,000
			LOCATION SUBTOTAL =	**$**	**670,000**
			RANGE LOW =	**$**	**570,000**
			RANGE HIGH =	**$**	**780,000**

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PERRY & HUMPHREYS

COST ESTIMATE SUMMARY

OPTION 2
LOCATION I

Location I **Lobelville Business District**

ITEM	COST				
Clear & Grubbing:	$0	=	$0	$	-
Earthwork:	$0	=	$0	$	-
Pavement Removal:	$0	=	$0	$	-
Drainage:	$0	=	$0	$	3,000
Structures:	$0	=	$0	$	3,000
Railroad:	$0	=	$0	$	3,000
Paving:	$57,269	=	$57,000	$	60,000
Retaining Walls:	$0	=	$0	$	60,000
Maintenance of Traffic:	$5,000	=	$5,000	$	65,000
Topsoil:	$0	=	$0	$	65,000
Seeding:	$0	=	$0	$	65,000
Sodding:	$0	=	$0	$	65,000
Signing & Marking:	$13,700	=	$14,000	$	79,000
Signalization:	$0	=	$0	$	79,000
Fencing:	$0	=	$0	$	79,000
Guardrail:	$0	=	$0	$	79,000
Rip-Rap:	$0	=	$0	$	79,000
Other Construction (15%):	$11,395	=	$11,000	$	90,000
Erosion Control (3.5%):	$2,659	=	$3,000	$	3,000
Sub-Total:	$87,365	=	$87,000	$	90,000
10% Eng. & Cont.:	$8,736	=	$9,000	$	9,000
Sub-Total:	$96,101	=	$96,000	$	99,000
			Mobilization =	$	5,000
			10% Preliminary. Engineering =	$	10,000
			Construction Total =	$	114,000
			ROW Total =	$	-
			Utility Total =	$	-
			INFLATION (10% Per Year for 5 Years) =	$	70,000
			OPTION SUBTOTAL =	**$**	**190,000**
			RANGE LOW =	**$**	**170,000**
			RANGE HIGH =	**$**	**220,000**

SR-13 TPR
PERRY & HUMPHREYS

COST ESTIMATE SUMMARY

OPTION 2
LOCATION J

Location J **South of Buffalo River Crossing Area (LM 27.99 to 28.33)**

ITEM	COST				
Clear & Grubbing:	$4,121	=	$4,000	$	4,000
Earthwork:	$66,481	=	$66,000	$	70,000
Pavement Removal:	$0	=	$0	$	70,000
Drainage:	$9,343	=	$9,000	$	88,000
Structures:	$0	=	$0	$	88,000
Railroad:	$0	=	$0	$	88,000
Paving:	$143,266	=	$143,000	$	231,000
Retaining Walls:	$0	=	$0	$	231,000
Maintenance of Traffic:	$7,000	=	$7,000	$	238,000
Topsoil:	$5,983	=	$6,000	$	244,000
Seeding:	$1,795	=	$2,000	$	246,000
Sodding:	$0	=	$0	$	246,000
Signing:	$3,000	=	$3,000	$	249,000
Signalization:	$0	=	$0	$	249,000
Fencing:	$0	=	$0	$	249,000
Guardrail:	$20,000	=	$20,000	$	269,000
Rip-Rap:	$5,000	=	$5,000	$	274,000
Other Construction (15%):	$39,148	=	$39,000	$	313,000
Erosion Control (3.5%):	$8,990	=	$9,000	$	79,000
Sub-Total:	$305,138	=	$305,000	$	313,000
10% Eng. & Cont.:	$30,514	=	$31,000	$	31,000
Sub-Total:	$335,652	=	$336,000	$	344,000
			Mobilization =	$	17,000
			10% Preliminary. Engineering =	$	35,000
			Construction Total =	$	396,000
			ROW Total =	$	15,000
			Utility Total =	$	189,000
			INFLATION (10% Per Year for 5 Years) =	$	367,000
			LOCATION SUBTOTAL =	**$**	**970,000**
			RANGE LOW =	**$**	**830,000**
			RANGE HIGH =	**$**	**1,120,000**

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PERRY & HUMPHREYS

COST ESTIMATE SUMMARY

OPTION 2
LOCATION K

Location K

ITEM	COST				
Clear & Grubbing:	$6,910	=	$7,000	$	7,000
Earthwork:	$89,185	=	$89,000	$	96,000
Pavement Removal:	$0	=	$0	$	96,000
Drainage:	$56,229	=	$56,000	$	167,000
Structures:	$0	=	$0	$	167,000
Railroad:	$0	=	$0	$	167,000
Paving:	$240,239	=	$240,000	$	407,000
Retaining Walls:	$0	=	$0	$	407,000
Maintenance of Traffic:	$10,000	=	$10,000	$	417,000
Topsoil:	$10,033	=	$10,000	$	427,000
Seeding:	$3,010	=	$3,000	$	430,000
Sodding:	$0	=	$0	$	430,000
Signing:	$3,000	=	$3,000	$	433,000
Signalization:	$0	=	$0	$	433,000
Fencing:	$0	=	$0	$	433,000
Guardrail:	$23,750	=	$24,000	$	457,000
Rip-Rap:	$5,000	=	$5,000	$	462,000
Other Construction (15%):	$66,354	=	$66,000	$	528,000
Erosion Control (3.5%):	$15,241	=	$15,000	$	111,000
Sub-Total:	$513,710	=	$514,000	$	528,000
10% Eng. & Cont.:	$51,371	=	$53,000	$	53,000
Sub-Total:	$565,081	=	$565,000	$	581,000
			Mobilization =	$	29,000
			10% Preliminary. Engineering =	$	59,000
			Construction Total =	$	669,000
			ROW Total =	$	25,000
			Utility Total =	$	317,000
			INFLATION (10% Per Year for 5 Years) =	$	618,000
			LOCATION SUBTOTAL =	**$**	**1,629,000**
			RANGE LOW =	**$**	**1,400,000**
			RANGE HIGH =	**$**	**1,900,000**

SR-13 TPR
PERRY HUMPHREYS

COST ESTIMATE SUMMARY
(Add'l work after Location Improvement Implementation)

OPTION 3
3-Lane Section

Location: 3-Lane Section

ITEM	COST				
Clear & Grubbing:	$184,970	=	$185,000	$	185,000
Earthwork:	$2,984,185	=	$2,984,000	$	3,169,000
Pavement Removal:	$2,083	=	$2,000	$	3,171,000
Drainage:	$862,993	=	$863,000	$	5,167,000
Structures:	$13,600,000	=	$13,600,000	$	18,767,000
Railroad:	$0	=	$0	$	18,767,000
Paving:	$13,929,752	=	$13,930,000	$	32,697,000
Retaining Walls:	$0	=	$0	$	32,697,000
Maintenance of Traffic:	$300,000	=	$300,000	$	32,997,000
Topsoil:	$268,577	=	$269,000	$	33,266,000
Seeding:	$80,573	=	$81,000	$	33,347,000
Sodding:	$25,000	=	$25,000	$	33,372,000
Signing:	$50,000	=	$50,000	$	33,422,000
Signalization:	$0	=	$0	$	33,422,000
Fencing:	$0	=	$0	$	33,422,000
Guardrail:	$255,000	=	$255,000	$	33,677,000
Rip-Rap:	$50,000	=	$50,000	$	33,727,000
Other Construction (15%):	$2,841,470	=	$2,841,000	$	36,568,000
Erosion Control (3.5%):	$1,132,536	=	$1,133,000	$	4,304,000
Sub-Total:	$35,434,602	=	$35,435,000	$	36,568,000
10% Eng. & Cont.:	$3,543,460	=	$3,657,000	$	3,657,000
Sub-Total:	$38,978,062	=	$38,978,000	$	40,225,000
			Mobilization =	$	1,387,000
			10% Preliminary. Engineering =	$	4,023,000
			Construction Total =	$	45,635,000
			ROW Total =	$	739,000
			Utility Total =	$	2,992,000
			INFLATION (10% Per Year for 5 Years) =	$	30,139,000
			LOCATION SUBTOTAL =	**$**	**80,000,000**
			RANGE LOW =	**$**	**68,000,000**
			RANGE HIGH =	**$**	**92,000,000**

SR-13 TPR
PERRY & HUMPHREYS

COST ESTIMATE SUMMARY

Option 4
Widening Along Existing
5-Lane Section

Location: Widening Along Existing (5-Lane Section)

ITEM	COST				
Clear & Grubbing:	$648,339	=	$648,000	$	648,000
Earthwork:	$11,448,046	=	$11,448,000	$	12,096,000
Pavement Removal:	$0	=	$0	$	12,096,000
Drainage:	$933,458	=	$933,000	$	15,297,000
Structures:	$16,800,000	=	$16,800,000	$	32,097,000
Railroad:	$0	=	$0	$	32,097,000
Paving:	$33,691,412	=	$33,691,000	$	65,788,000
Retaining Walls:	$0	=	$0	$	65,788,000
Maintenance of Traffic:	$300,000	=	$300,000	$	66,088,000
Topsoil:	$749,327	=	$749,000	$	66,837,000
Seeding:	$224,798	=	$225,000	$	67,062,000
Sodding:	$25,000	=	$25,000	$	67,087,000
Signing:	$50,000	=	$50,000	$	67,137,000
Signalization:	$0	=	$0	$	67,137,000
Fencing:	$0	=	$0	$	67,137,000
Guardrail:	$575,000	=	$575,000	$	67,712,000
Rip-Rap:	$50,000	=	$50,000	$	67,762,000
Other Construction (15%):	$7,296,807	=	$7,297,000	$	75,059,000
Erosion Control (3.5%):	$2,267,896	=	$2,268,000	$	14,364,000
Sub-Total:	$72,792,188	=	$72,792,000	$	75,059,000
10% Eng. & Cont.:	$7,279,219	=	$7,506,000	$	7,506,000
Sub-Total:	$80,071,407	=	$80,071,000	$	82,565,000
			Mobilization =	$	2,657,000
			10% Preliminary. Engineering =	$	8,257,000
			Construction Total =	$	93,479,000
			ROW Total =	$	2,587,000
			Utility Total =	$	5,120,000
			INFLATION (10% Per Year for 5 Years) =	$	61,776,000
			LOCATION SUBTOTAL =	**$**	**163,000,000**
			RANGE LOW =	**$**	**139,000,000**
			RANGE HIGH =	**$**	**188,000,000**

SR-13 TPR
PERRY & HUMPHREYS

COST ESTIMATE SUMMARY

OPTION 5
NEW LOCATION

NEW LOCATION 4-Lane Divided

ITEM	COST				
Clear & Grubbing:	$1,004,977	=	$1,005,000	$	1,005,000
Earthwork:	$20,267,037	=	$20,267,000	$	21,272,000
Pavement Removal:	$0	=	$0	$	21,272,000
Drainage:	$749,190	=	$749,000	$	24,601,000
Structures:	$18,000,000	=	$18,000,000	$	42,601,000
Railroad:	$0	=	$0	$	42,601,000
Paving:	$31,059,115	=	$31,059,000	$	73,660,000
Retaining Walls:	$0	=	$0	$	73,660,000
Maintenance of Traffic:	$100,000	=	$100,000	$	73,760,000
Topsoil:	$1,152,789	=	$1,153,000	$	74,913,000
Seeding:	$345,837	=	$346,000	$	75,259,000
Sodding:	$25,000	=	$25,000	$	75,284,000
Signing:	$50,000	=	$50,000	$	75,334,000
Signalization:	$0	=	$0	$	75,334,000
Fencing:	$1,000,000	=	$1,000,000	$	76,334,000
Guardrail:	$975,000	=	$975,000	$	77,309,000
Rip-Rap:	$50,000	=	$50,000	$	77,359,000
Other Construction (15%):	$8,509,342	=	$8,509,000	$	85,868,000
Erosion Control (3.5%):	$2,580,339	=	$2,580,000	$	23,852,000
Sub-Total:	$83,288,286	=	$83,288,000	$	85,868,000
10% Eng. & Cont.:	$8,328,829	=	$8,587,000	$	8,587,000
Sub-Total:	$91,617,114	=	$91,617,000	$	94,455,000
			Mobilization =	$	3,014,000
			10% Preliminary. Engineering =	$	9,446,000
			Construction Total =	$	106,915,000
			ROW Total =	$	10,025,000
			Utility Total =	$	4,732,000
			INFLATION (10% Per Year for 5 Years) =	$	74,282,000
			OPTION SUBTOTAL =	**$**	**196,000,000**
			RANGE LOW =	**$**	**167,000,000**
			RANGE HIGH =	**$**	**226,000,000**

TPR
CONCEPT PLANS

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

Index Of Sheets

SHEET NO.	DESCRIPTION
1	..... TITLE SHEET
2-2A	..... TYPICAL SECTIONS
3-17	..... LAYOUT SHEETS

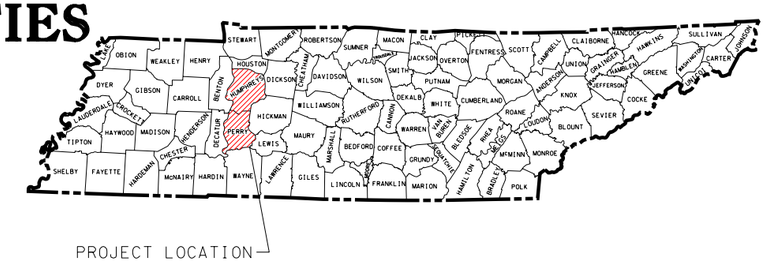
STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING

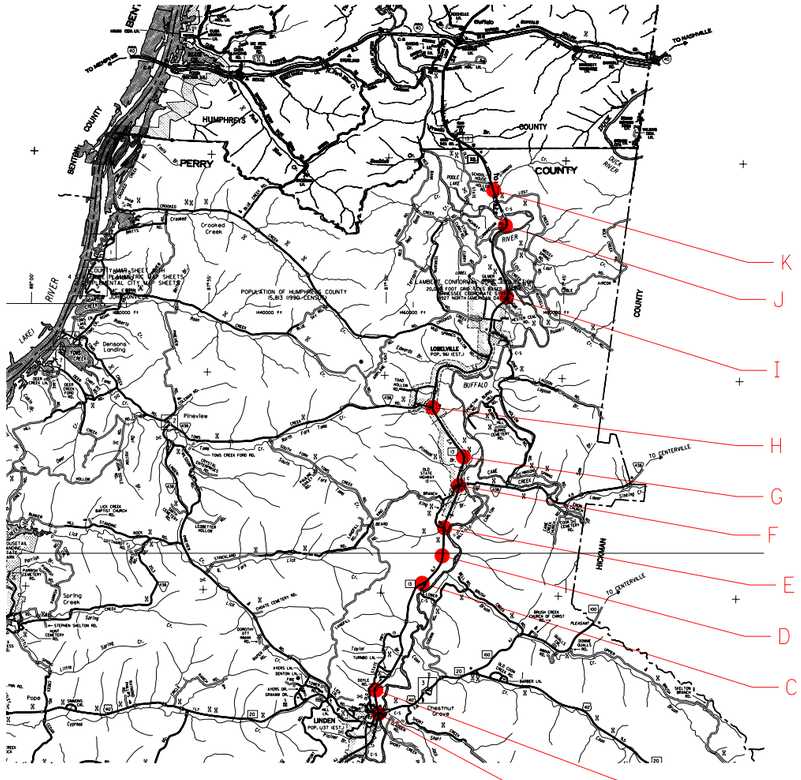
TENN.	YEAR	SHEET NO.
	2009	1
FED. AID PROJ. NO.		
STATE PROJ. NO.		

PERRY & HUMPHREYS COUNTIES

STATE ROUTE 13 FROM STATE ROUTE 20 IN
LINDEN TO I-40

OPTIONAL LOCATION PLANS





SCALE: 1"= 2 MILES

0 2 4 6

SPECIAL NOTES

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

THIS PROJECT TO BE CONSTRUCTED UNDER THE STANDARD SPECIFICATIONS OF THE TENNESSEE DEPARTMENT OF TRANSPORTATION DATED MARCH 1, 1995 AND ADDITIONAL SPECIFICATIONS AND SPECIAL PROVISIONS CONTAINED IN THE PLANS AND IN THE PROPOSAL CONTRACT

TDOT ROAD SP. SV. 2 _____

DESIGNER LONG ENGINEERING, INC. CHECKED BY _____

P.E. NO. _____

APPROVED: _____
CHIEF ENGINEER

DATE: _____

APPROVED: _____
COMMISSIONER

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED: _____ _____
DIVISION ADMINISTRATOR DATE

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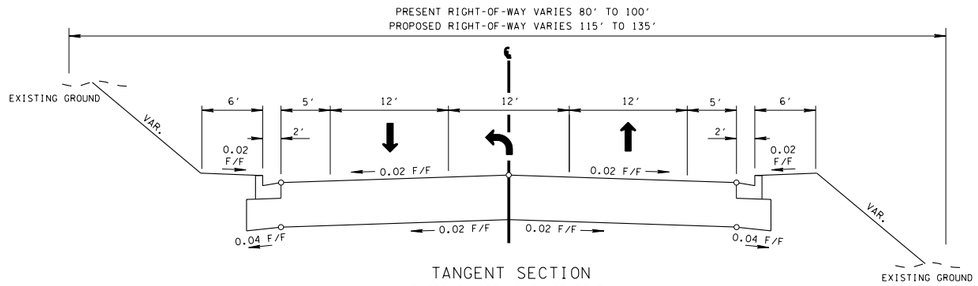
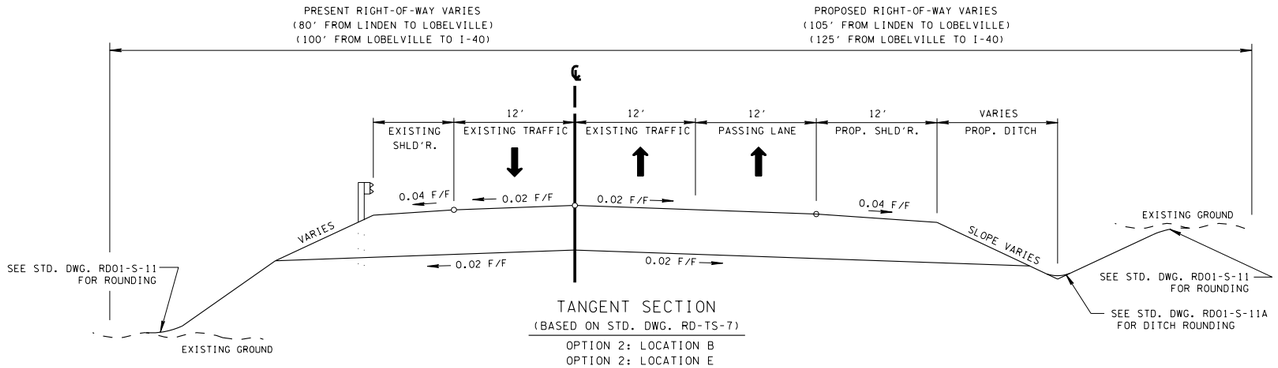
TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.

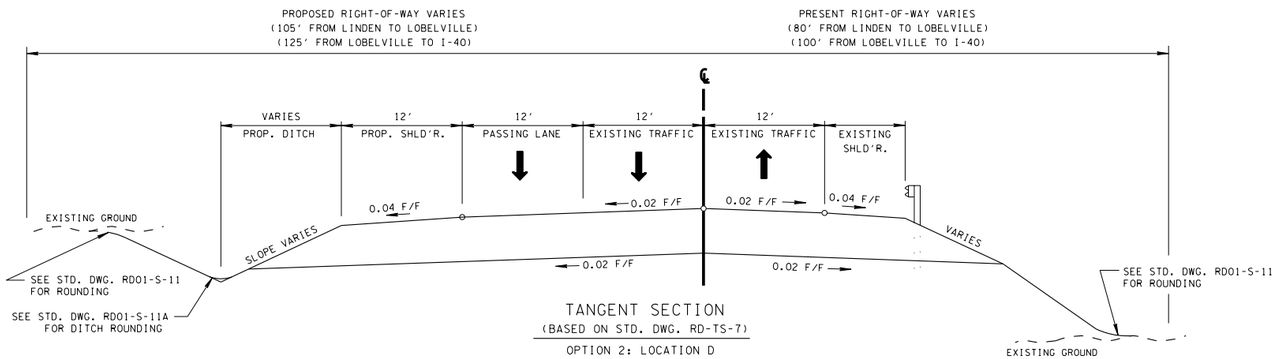
TYPE	YEAR	PROJECT NO.	SHEET NO.
TPR	2009		2



TANGENT SECTION
(BASED ON STD. DWG. RD-TS-7A)
OPTION 2: LOCATION A



TANGENT SECTION
(BASED ON STD. DWG. RD-TS-7)
OPTION 2: LOCATION B
OPTION 2: LOCATION E
OPTION 2: LOCATION G
OPTION 2: LOCATION K



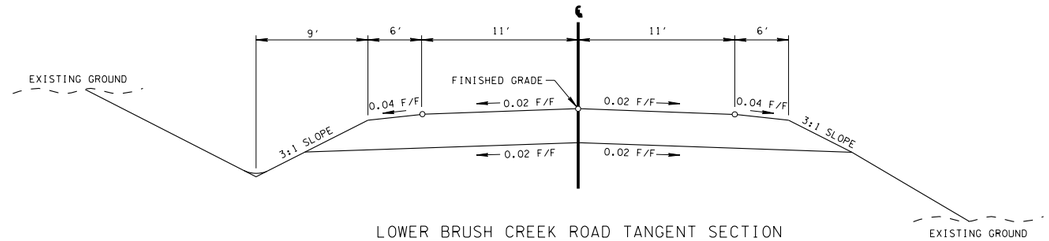
TANGENT SECTION
(BASED ON STD. DWG. RD-TS-7)
OPTION 2: LOCATION D
OPTION 2: LOCATION J

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

TYPICAL SECTIONS

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

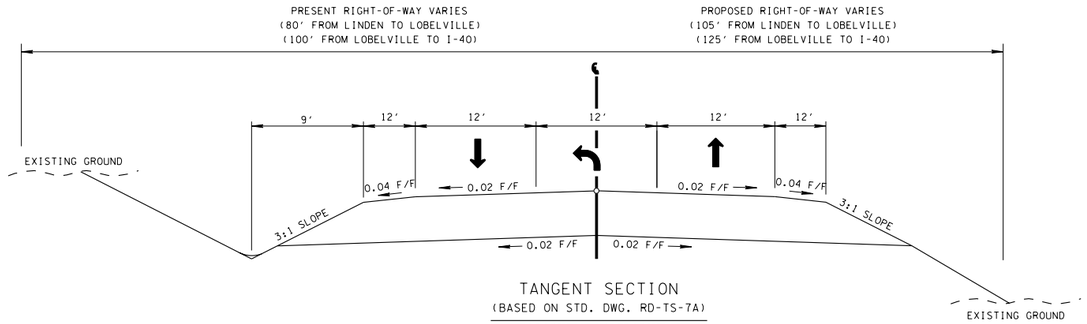
TYPE	YEAR	PROJECT NO.	SHEET NO.
TPR	2009		2A



LOWER BRUSH CREEK ROAD TANGENT SECTION

(BASED ON STD. DWG. RD01-TS-1)

OPTION 2: LOCATION C



TANGENT SECTION

(BASED ON STD. DWG. RD-TS-7A)

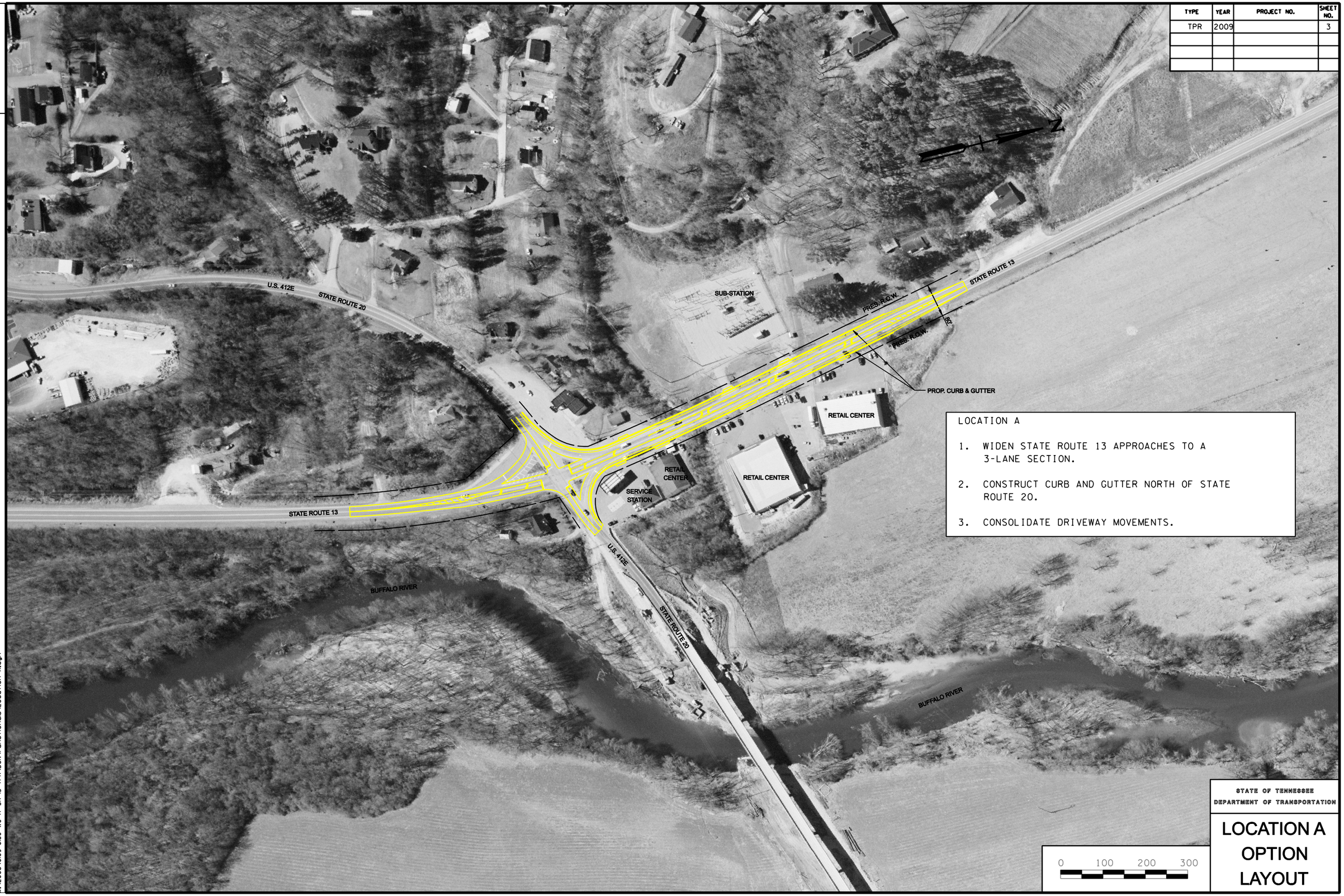
OPTION 2: LOCATION F
OPTION 2: LOCATION H
OPTION 2: LOCATION I (RE-STRIPE ONLY)

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

TYPICAL SECTIONS

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

TYPE	YEAR	PROJECT NO.	SHEET NO.
TPR	2009		3



LOCATION A

1. WIDEN STATE ROUTE 13 APPROACHES TO A 3-LANE SECTION.
2. CONSTRUCT CURB AND GUTTER NORTH OF STATE ROUTE 20.
3. CONSOLIDATE DRIVEWAY MOVEMENTS.

0 100 200 300

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

LOCATION A OPTION LAYOUT

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

TYPE	YEAR	PROJECT NO.	SHEET NO.
TPR	2009		4

N

STATE ROUTE 13

PRES. R.O.W.

PRES. R.O.W.

PROP. R.O.W.

80'

25'

BEGIN PASSING LANE

PRES. R.O.W.

PRES. R.O.W.

PROP. R.O.W.

END PASSING LANE

BUFFALO RIVER

LOCATION B

1. WIDEN STATE ROUTE 13 TO THE EAST SIDE.

2. CONSTRUCT AN ADDITIONAL LANE FOR PASSING IN THE NORTHBOUND DIRECTION.

0 100 200 300

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

LOCATION B OPTION LAYOUT

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

TYPE	YEAR	PROJECT NO.	SHEET NO.
TPR	2009		5

LOCATION C

1. CONSTRUCT NEW CONNECTION FOR LOWER BRUSH CREEK ROAD TO STATE ROUTE 13.

2. THE NEW INTERSECTION IS APPROXIMATELY 400' WEST OF THE EXISTING INTERSECTION.

0 100 200 300

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

LOCATION C OPTION LAYOUT

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

TYPE	YEAR	PROJECT NO.	SHEET NO.
TPR	2009		6

N

PROP R.O.W.
PRESENT R.O.W.
STATE ROUTE 13
25'
40'
PRESENT R.O.W.
PROP R.O.W.
PRESENT R.O.W.
PRESENT R.O.W.
END PASSING LANE
BUFFALO RIVER
SEE SHEET NO. 7
MATCH LINE

LOCATION D

1. WIDEN STATE ROUTE 13 TO THE WEST SIDE.

2. CONSTRUCT AN ADDITIONAL LANE FOR PASSING IN THE SOUTHBOUND DIRECTION.

0 100 200 300

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

LOCATION D OPTION LAYOUT

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

TYPE	YEAR	PROJECT NO.	SHEET NO.
TPR	2009		7

N

SEE SHEET NO. 6

MATCH LINE

PROP R.O.W.

PRESENT R.O.W.

STATE ROUTE 13

PRESENT R.O.W.

25'

80'

SEE SHEET NO. 8

MATCH LINE

ALDRIDGE CIR.

BUFFALO RIVER

LOCATION D

1. WIDEN STATE ROUTE 13 TO THE WEST SIDE.

2. CONSTRUCT AN ADDITIONAL LANE FOR PASSING IN THE SOUTHBOUND DIRECTION.

0 100 200 300

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

LOCATION D OPTION LAYOUT

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

TYPE	YEAR	PROJECT NO.	SHEET NO.
TPR	2009		8

LOCATION D

1. WIDEN STATE ROUTE 13 TO THE WEST SIDE.
2. CONSTRUCT AN ADDITIONAL LANE FOR PASSING IN THE SOUTHBOUND DIRECTION.

N

KING BRANCH ROAD

BEGIN PASSING LANE

STATE ROUTE 13

SEE SHEET NO. 7

SEE SHEET NO. 9

PROP R.O.W.

PRESENT R.O.W.

PRESENT R.O.W.

PRESENT R.O.W.

PRESENT R.O.W.

PROP R.O.W.

25'

80'

80'

25'

MATCH LINE

MATCH LINE

BUFFALO RIVER

BEGIN PASSING LANE

LOCATION E

1. WIDEN STATE ROUTE 13 TO THE EAST SIDE.
2. CONSTRUCT AN ADDITIONAL LANE FOR PASSING IN THE NORTHBOUND DIRECTION.

0 100 200 300

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

LOCATION D & E OPTION LAYOUT

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

TYPE	YEAR	PROJECT NO.	SHEET NO.
TPR	2009		9

N

SEE SHEET NO. 8

80'

PRESENT R.O.W.

STATE ROUTE 13

PRESENT R.O.W.

PROP R.O.W.

25'

MATCH LINE

CLAYTON DR.

END PASSING LANE

LOCATION E

1. WIDEN STATE ROUTE 13 TO THE EAST SIDE.

2. CONSTRUCT AN ADDITIONAL LANE FOR PASSING IN THE NORTHBOUND DIRECTION.

0 100 200 300

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

LOCATION E OPTION LAYOUT

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

TYPE	YEAR	PROJECT NO.	SHEET NO.
TPR	2009		10

N

OLD STATE ROUTE 13

STATE ROUTE 13

PROP R.O.W.

PRESENT R.O.W.

25'

80'

PRESENT R.O.W.

BUFFALO RIVER
GOLF AND COUNTRY CLUB

BUFFALO RIVER

S.R. 438 EAST

OLD BEARDSTOWN ROAD

PROP R.O.W.

PRESENT R.O.W.

STATE ROUTE 13

PRESENT R.O.W.

LOCATION F

1. WIDEN STATE ROUTE 13 TO THE WEST SIDE.

2. CONSTRUCT AN ADDITIONAL LANE FOR TURNING IN THE NORTHBOUND AND SOUTHBOUND DIRECTION.

0 100 200 300

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

LOCATION F
OPTION
LAYOUT

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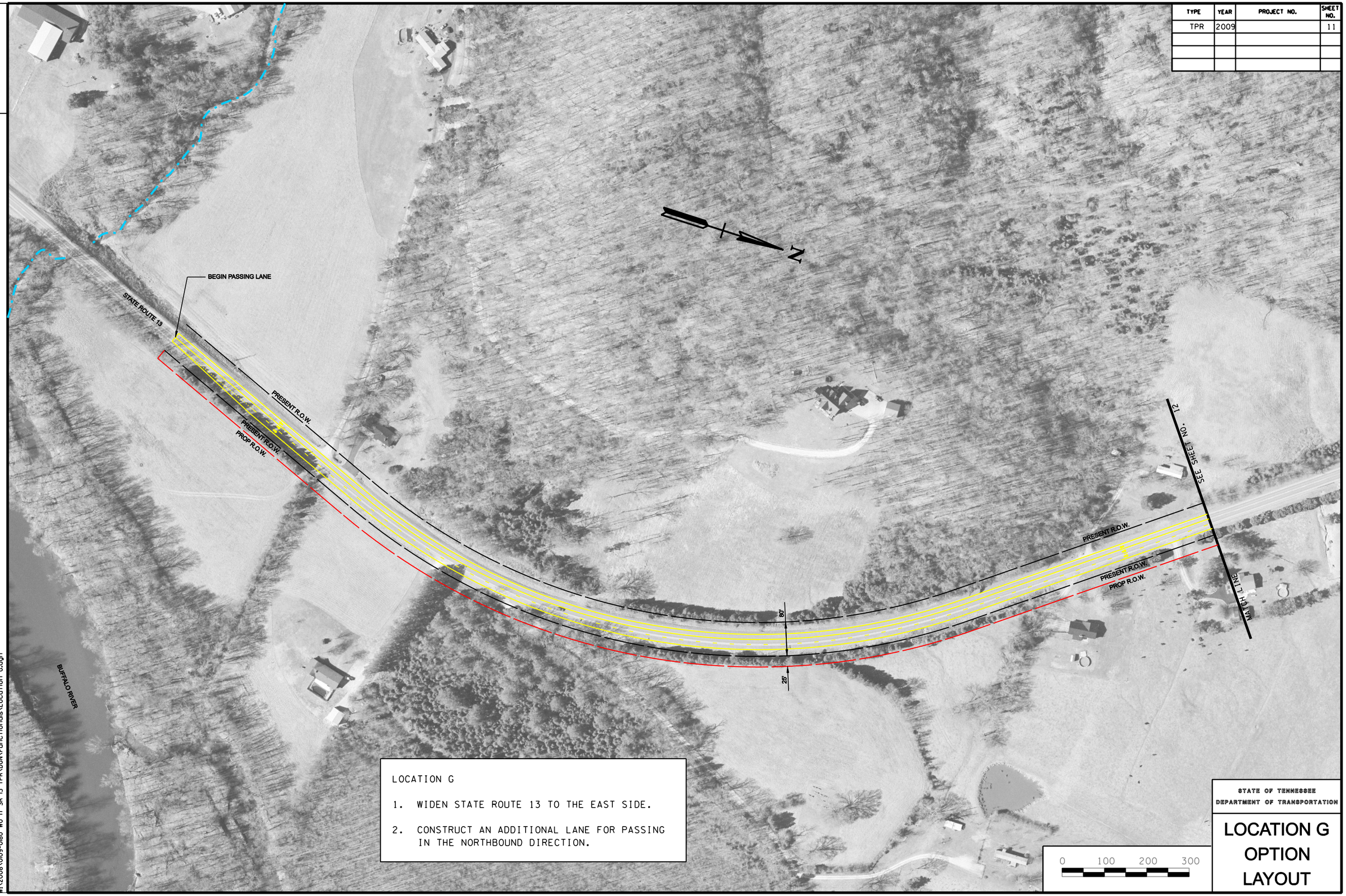
TENNESSEE D.O.T.
DESIGN DIVISION
FILE NO.

TYPE	YEAR	PROJECT NO.	SHEET NO.
TPR	2009		11



LOCATION G

1. WIDEN STATE ROUTE 13 TO THE EAST SIDE.

2. CONSTRUCT AN ADDITIONAL LANE FOR PASSING IN THE NORTHBOUND DIRECTION.

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

LOCATION G OPTION LAYOUT

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

TYPE	YEAR	PROJECT NO.	SHEET NO.
TPR	2009		12

N

SEE SHEET NO. 11

80'

PRESENT R.O.W.

END PASSING LANE

STATE ROUTE 13

PRESENT R.O.W.

PROP R.O.W.

29'

MATCH LINE

LOCATION G

1. WIDEN STATE ROUTE 13 TO THE EAST SIDE.

2. CONSTRUCT AN ADDITIONAL LANE FOR PASSING IN THE NORTHBOUND DIRECTION.

0 100 200 300

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

LOCATION G OPTION LAYOUT

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

TYPE	YEAR	PROJECT NO.	SHEET NO.
TPR	2009		13

N

S.R. 438

80'
15'
15'

PROP R.O.W.
PRESENT R.O.W.
PRESENT R.O.W.
PROP R.O.W.

PROP R.O.W.
PRESENT R.O.W.
PRESENT R.O.W.
PROP R.O.W.

STATE ROUTE 13

STATE ROUTE 13

TENNESSEE
NATIONAL GUARD
ARMORY

LOCATION H

1. WIDEN STATE ROUTE 13 EQUALLY TO THE EAST AND WEST SIDE.

2. CONSTRUCT AN ADDITIONAL LANE FOR TURNING IN THE NORTHBOUND AND SOUTHBOUND DIRECTION.

0 100 200 300

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

LOCATION H OPTION LAYOUT

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

TYPE	YEAR	PROJECT NO.	SHEET NO.
TPR	2009		14

N

W. 7th AVE.

W. 6th AVE.

W. 4th AVE.

STATE ROUTE 13

STATE ROUTE 13

E. 7th AVE.

E. 4th AVE.

E. 3rd AVE.

BEGIN RE-STRIPING

END RE-STRIPING

LOCATION I

1. RE-STRIPE STATE ROUTE 13 TO PROVIDE A 3-LANE SECTION.

0 100 200 300

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

LOCATION I OPTION LAYOUT

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

TYPE	YEAR	PROJECT NO.	SHEET NO.
TPR	2009		15

N

END PASSING LANE

STATE ROUTE 13

BUFFALO RIVER

CUNNINGHAM RIDGE ROAD

PROP R.O.W.

PRESENT R.O.W.

PRESENT R.O.W.

PRESENT R.O.W.

25'

100'

PROP R.O.W.

PRESENT R.O.W.

STATE ROUTE 13

PRESENT R.O.W.

BEGIN PASSING LANE

BUFFALO RIVER

LOCATION J

1. WIDEN STATE ROUTE 13 TO THE WEST SIDE.

2. CONSTRUCT AN ADDITIONAL LANE FOR PASSING IN THE SOUTHBOUND DIRECTION.

0 100 200 300

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

LOCATION J OPTION LAYOUT

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

TYPE	YEAR	PROJECT NO.	SHEET NO.
TPR	2009		16

N

BEGIN PASSING LANE

STATE ROUTE 13

PRESENT R.O.W.

PRESENT R.O.W.

PROP R.O.W.

100'

25'

PRESENT R.O.W.

PRESENT R.O.W.

PROP R.O.W.

SEE SHEET NO.

MATCH LINE

LOCATION K

1. WIDEN STATE ROUTE 13 TO THE EAST SIDE.

2. CONSTRUCT AN ADDITIONAL LANE FOR PASSING IN THE NORTHBOUND DIRECTION.

0 100 200 300

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

LOCATION K OPTION LAYOUT

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

TYPE	YEAR	PROJECT NO.	SHEET NO.
TPR	2009		17

LOCATION K

1. WIDEN STATE ROUTE 13 TO THE EAST SIDE.
2. CONSTRUCT AN ADDITIONAL LANE FOR PASSING IN THE NORTHBOUND DIRECTION.

0 100 200 300

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

LOCATION K OPTION LAYOUT

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

Index Of Sheets

SHEET NO.	DESCRIPTION
1	..... TITLE SHEET
2	..... TYPICAL SECTIONS
3-12	..... LAYOUT SHEETS

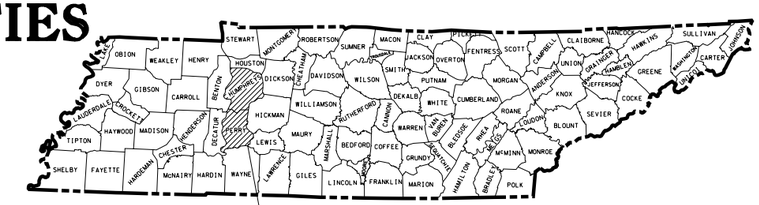
STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION
BUREAU OF ENGINEERING

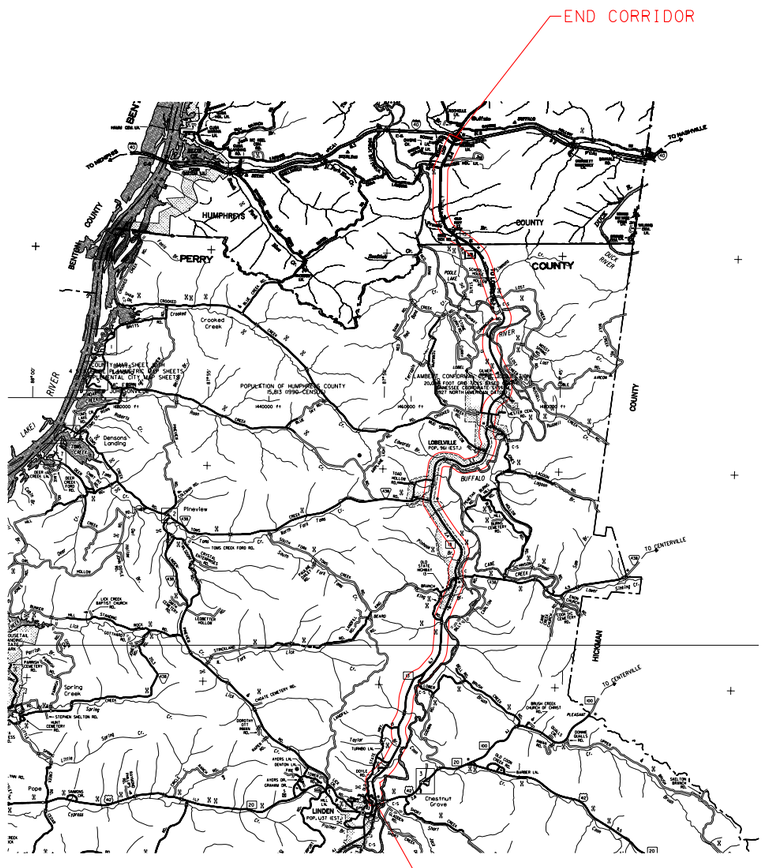
TENN.	YEAR	SHEET NO.
	2009	1
FED. AID PROJ. NO.		
STATE PROJ. NO.		

PERRY & HUMPHREYS COUNTIES

STATE ROUTE 13 FROM STATE ROUTE 20 IN LINDEN TO I-40

CORRIDOR PLANS





SCALE: 1"= 2 MILES

0 2 4 6

SPECIAL NOTES

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

THIS PROJECT TO BE CONSTRUCTED UNDER THE STANDARD SPECIFICATIONS OF THE TENNESSEE DEPARTMENT OF TRANSPORTATION DATED MARCH 1, 1995 AND ADDITIONAL SPECIFICATIONS AND SPECIAL PROVISIONS CONTAINED IN THE PLANS AND IN THE PROPOSAL CONTRACT

TDOT ROAD SP. SV. 2 _____

DESIGNER LONG ENGINEERING, INC. CHECKED BY _____

P.E. NO. _____

APPROVED: _____
CHIEF ENGINEER

DATE: _____

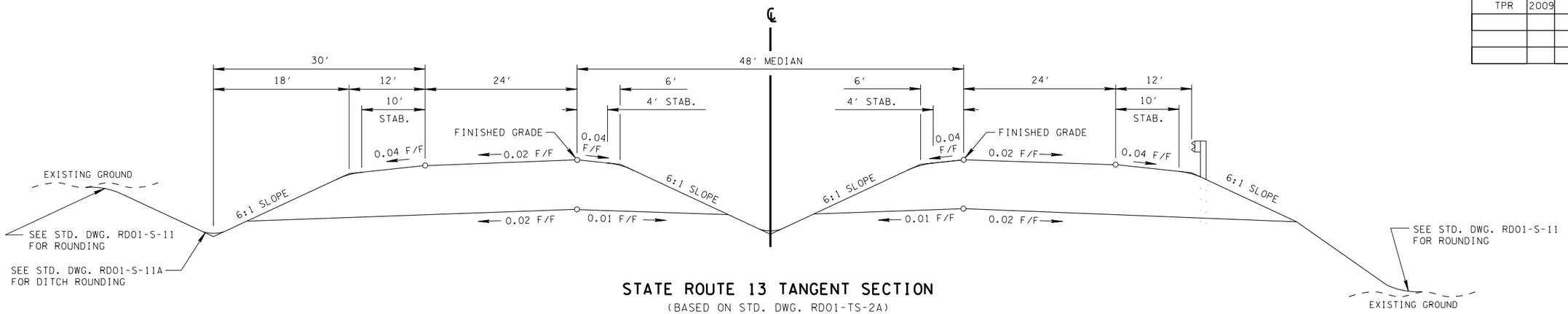
APPROVED: _____
COMMISSIONER

U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED: _____ _____
DIVISION ADMINISTRATOR DATE

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

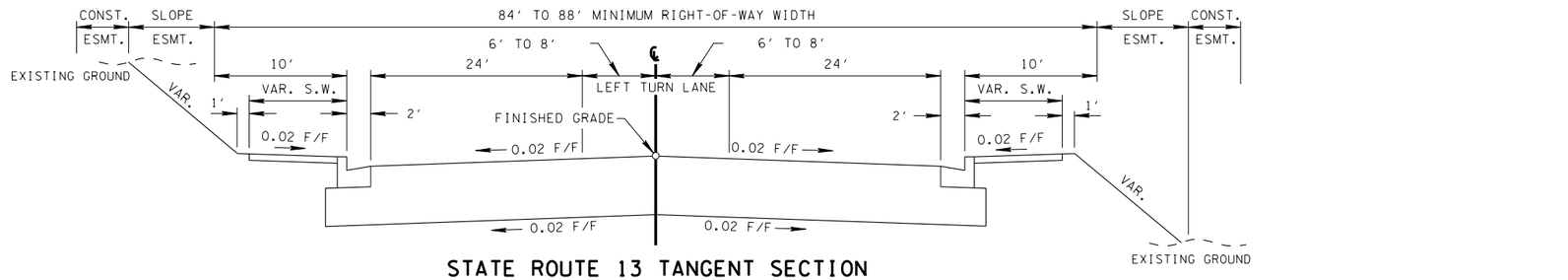
TYPE	YEAR	PROJECT NO.	SHEET NO.
TPR	2009		2



STATE ROUTE 13 TANGENT SECTION

(BASED ON STD. DWG. RD01-TS-2A)

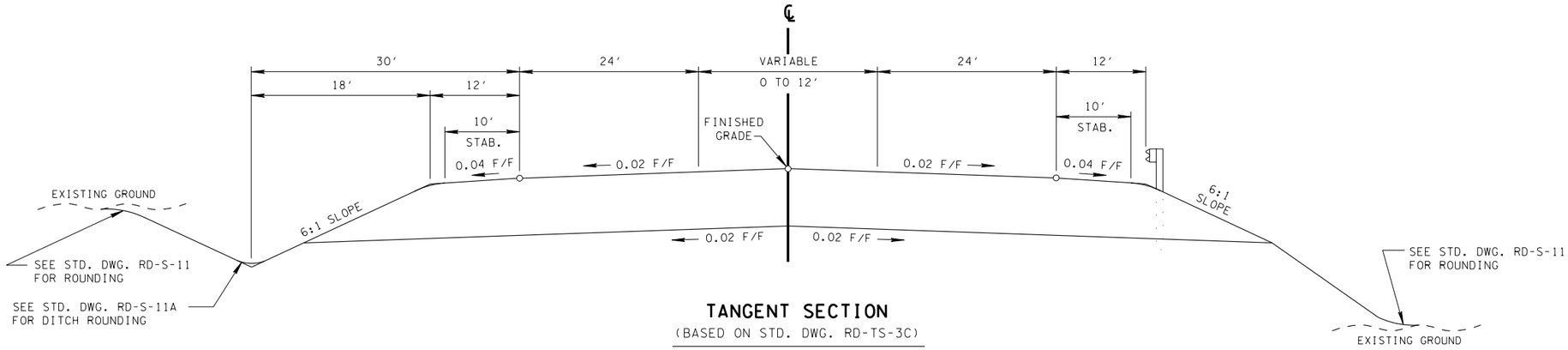
4-LANE NEW LOCATION OPTION



STATE ROUTE 13 TANGENT SECTION

(BASED ON STD. DWG. RD01-TS-6A)

5-LANE CURB AND GUTTER OPTION



TANGENT SECTION

(BASED ON STD. DWG. RD-TS-3C)

5-LANE OPTION

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

TYPICAL SECTIONS

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

TYPE	YEAR	PROJECT NO.	SHEET NO.
TPR	2009		3

N

SUB-STATION

L.M. 12.53

SINK HOLE

L.M. 13.61

SUNSHINE DR.

L.M. 13.80

STATE ROUTE 13

TURNBOW RD.

2000' CORRIDOR

SEE SHEET NO. 3

MATCH LINE

OLD STATE HWY. 13

BUFFALO RIVER HEIGHTS ROAD

FUNERAL HOME

CHURCH

STRIP CENTER

FREDS

BP

NAPA

U.S. 412E S.R.20

TO HOHENWALD

BUFFALO RIVER

0 400 800 1200

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

CORRIDOR LAYOUT

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

TYPE	YEAR	PROJECT NO.	SHEET NO.
TPR	2009		4

N

MATCH LINE
SEE SHEET NO. 3

OLD STATE HWY. 13

L.M. 14.85

2000' CORRIDOR

STATE ROUTE 13

L.M. 16.55

BUFFALO RIVER

LOWER BRUSH CREEK RD.

MATCH LINE
SEE SHEET NO. 5

0 400 800 1200

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

CORRIDOR LAYOUT

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

TYPE	YEAR	PROJECT NO.	SHEET NO.
TPR	2009		5

N

KING BRANCH RD.

CEMETERY

SEE SHEET NO. 4

MATCH LINE

2000' CORRIDOR

L.M. 18.07

L.M. 17.72

STATE ROUTE 13

ALDRIDGE CIR.

CLAYTON DR.

SEE SHEET NO. 6

MATCH LINE

BUFFALO RIVER

0 400 800 1200

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

CORRIDOR LAYOUT

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

TYPE	YEAR	PROJECT NO.	SHEET NO.
TPR	2009		6

N

SEE SHEET NO. 5

MATCH LINE

OLD STATE ROUTE 13

CHURCH

2000' CORRIDOR

OLD BEARDSTOWN ROAD

BUFFALO RIVER GOLF AND COUNTRY CLUB

L.M. 19.26

CHURCH

L.M. 19.73

BURNS DR.

STATE ROUTE 13

BUFFALO RIVER

SCHOOL DR.

S.R. 438 EAST

CEMETERY

OLD BEARDSTOWN RD.

MATCH LINE

SEE SHEET NO. 7

CEMETERY

0 400 800 1200

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

CORRIDOR LAYOUT

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TENNESSEE D.O.T.
DESIGN DIVISION
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TYPE	YEAR	PROJECT NO.	SHEET NO.
TPR	2009		7

N

S.R. 438

PIPELINE

PIPELINE

PIPELINE

2000' CORRIDOR

DUNCAN CIR.

L.M. 21.62

STATE ROUTE 13

DEPRIEST BEND DR.

OLD BEARDSTOWN RD.

MATCH LINE

SEE SHEET NO. 6

TENNESSEE NATIONAL GUARD ARMORY

BUFFALO RIVER

MATCH LINE

SEE SHEET NO. 8

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

0 400 800 1200

CORRIDOR LAYOUT

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TENNESSEE D.O.T.
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FILE NO.

TYPE	YEAR	PROJECT NO.	SHEET NO.
TPR	2009		8

N

PIPELINE
PIPELINE
PIPELINE
PIPELINE

SEE SHEET NO. 7
MATCH LINE

LOBELVILLE WATER PLANT

U.S. POST OFFICE
CHURCH

W. 4th AVE.
W. 6th AVE.
W. 7th AVE.
10th Ave.
E. 3rd. AVE.
E. 4th. AVE.
2nd. AVE. E
E. 7th AVE.

SEE SHEET NO. 9
MATCH LINE

L.M. 24.94
L.M. 24.21
W. 13th AVE.

STATE ROUTE 13
2000' CORRIDOR
BUFFALO RIVER

CHURCH
CHURCH

0 400 800 1200

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

CORRIDOR LAYOUT

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

TYPE	YEAR	PROJECT NO.	SHEET NO.
TPR	2009		9

N

ROBIN/HESTER CEMETERY RD.

CEMETERY

CUNNINGHAM RIDGE RD.

SEE SHEET NO. 8

SEE SHEET NO. 10

MATCH LINE

MATCH LINE

2nd. AVE.

STATE ROUTE 13

2000' CORRIDOR

L.M. 26.11

BUFFALO RIVER

GLIMER BRIDGE RD.

PIPELINE

PIPELINE

PIPELINE

PIPELINE

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

CORRIDOR LAYOUT

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

TYPE	YEAR	PROJECT NO.	SHEET NO.
TPR	2009		10

N

CUNNINGHAM RIDGE RD.

SEE SHEET NO. 9

MATCH LINE

CUNNINGHAM RIDGE RD.

2000' CORRIDOR

L.M. 28.79

STATE ROUTE 13

SCHOOLHOUSE HOLLOW ROAD

MATCH LINE

SEE SHEET NO. 11

BUFFALO LOOP

LOST CREEK RD.

BUFFALO RIVER

HUMPHREYS COUNTY

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

CORRIDOR LAYOUT

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

TYPE	YEAR	PROJECT NO.	SHEET NO.
TPR	2009		11

PERRY - HUMPHREYS COUNTY LINE

SEED TICK RD.

2000' CORRIDOR

L.M. 30.41

L.M. 1.00

STATE ROUTE 13

LEEGAN LN.

MATCH LINE

SEE SHEET NO. 10

SEE SHEET NO. 12

MATCH LINE

PERRY - HUMPHREYS COUNTY LINE

OP

N

0 400 800 1200

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

CORRIDOR LAYOUT

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

TYPE	YEAR	PROJECT NO.	SHEET NO.
TPR	2009		12

BUFFALO RIVER

N

CEMETERY

WARREN RD.

I-40

EXXON

BODINE LN.

CUBA LANDING RD.

2000' CORRIDOR

L.M. 2.66

STATE ROUTE 13

L.M. 3.39

MATCH LINE

SEE SHEET NO. 11

LEEGAN LN.

MALUGIN HOLLOW LN.

TEXACO
(BLDG. DEMOLISHED)

WARREN LN.

I-40

0 400 800 1200

STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

CORRIDOR LAYOUT

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