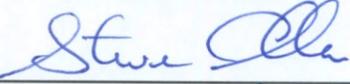


TRANSPORTATION PLANNING REPORT

**State Route 50
From State Route 247 to US 43 (State Route 6)
Maury County**



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

Recommended by:	Signature	DATE
CHIEF OF ENVIRONMENT AND PLANNING		3/14/08
TRANSPORTATION DIRECTOR PROJECT PLANNING DIVISION		3-14-08
TRANSPORTATION MANAGER 2 PROJECT PLANNING DIVISION		3/14/08

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

EXECUTIVE SUMMARY

The Tennessee Department of Transportation's (TDOT) Long Range Planning Division conducted a Needs Assessment for State Route 50 from State Route 48, Centerville, Hickman County to U.S. 43 (State Route 6), Columbia, Maury Co., a distance of 24.95 miles. This assessment was prepared at the request of the South Central West Rural Planning Organization (RPO) who considers the corridor a major route connecting the cities and surrounding regions of Centerville and Columbia. The corridor provides access to manufacturing facilities, Maury Regional Hospital, and Columbia State Community College. The study corridor is the prime study priority for the RPO. The Needs assessment recommended the preparation of a Transportation Planning Report (TPR), for a portion of the RPO's priority corridor.

The limits of the TPR extend from State Route 247 to U.S. 43 (State Route 6) in Maury County, a distance of approximately 9 miles. The western end of the corridor is classified as a rural arterial and the route transitions to an urban arterial upon entering the Columbia urbanized area. The land use to the west is primarily large tract residential and agricultural. On the eastern limits the land use is primary residential on smaller lots. Although the corridor study limits reside entirely within Maury County, many trips from the west originate from neighboring Hickman County.

Purpose & 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 goals and objectives of an improved State Route 50 facility include:

- Improve geometric deficiencies;
- Promote safer operations;
- Support economic development within the region; and
- Improve facility for alternative modes of transportation.

Options Analyzed

This TPR reviewed existing operational and geometric conditions, conducted capacity analyses for future traffic projections and developed a series of conceptual improvements that independently, or in combination, may improve safety and operational conditions along the State Route 50 corridor thereby addressing the purpose, needs, and goals of an improved corridor.

Based on initial findings, 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.

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

The options examined are summarized as:

- No-Build: This option assumes no modifications or improvements are made over the planning horizon.
- Location No. 1 (Eastbound approach to State Route 247): 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 \$25,000.
- Location No. 2 (Williamsport Market area): Safety is a prime consideration at this location due to the number of vehicles parking on the shoulder, the volume of business conducted at this location, and the proximity of several area churches. This option estimate is \$652,000.
- Location No. 3 (Woodrow Community): The roadway improvement at this location would provide an additional margin of safety for emergency vehicles entering and leaving the new fire hall. The cost to implement this improvement is minimal. This option estimate is \$1,177,000.
- Location No. 4 (Area along State Route 50 Near Foster Chapel Road): Due to the urgent need for safety improvements at this location, the cost to implement these improvements, and the amount of time required to implement these improvements. This option estimate is \$41,000.
- Location No. 5 (Area along State Route 50 near Brown Hollow Road): The roadway improvement at this location would provide an additional margin of safety due to improved horizontal alignment. The cost to implement this improvement is minimal. This option estimate is \$383,000.
- Location No. 6 (At-grade Railroad crossing): Due to the positive affect, it would have on the greatest volume of motorists. The cost per mile is relatively low for the benefits gained. This option estimate is \$190,000.
- Location No. 7 (From Tindell Lane (City Limits) to Monsanto Road): Due to the positive affect, it would have on the greatest volume of motorists. The cost per mile is relatively low for the benefits gained. This option estimate is \$2.84 million.
- Location No. 8 (Old Williamsport Pike relocation): The roadway improvement at this location would provide an additional margin of safety by eliminating the existing intersection of Williamsport Pike with State Route 50 and combining traffic in the Monsanto Road intersection. This will improve sight distance looking south through the State Route 6 interchange. The cost to implement this improvement is minimal. This option estimate is \$520,000.
- Location No. 9 (East of US 43 (State Route 6)): Due to the positive affect, it would have on the greatest volume of motorists. The cost per mile is relatively low for the benefits gained. This option estimate is \$471,000.
- Shoulder widening/improvement option: This improvement would provide continuity throughout the corridor and provide safer shoulder areas and improved clear zones in areas other than those identified in other localized improvements. This option estimate is \$2.7 million.
- The new location Option: is low on the priority list due to possible conflicts with Poplar Creek and the relocation of a residence. This option is expensive relative to the alternatives. This option estimate is \$4.33 million.

- All Options (Along Existing): This combines the localized improvements with a general program of shoulder improvement throughout the corridor. For cost estimating purposes, this option assumes that all localized improvements are implemented with shoulder improvements for the remainder of the corridor. The estimate also assumes a full overlay of existing pavement. This option estimated is \$9.1 million.
- All Options (Along New Location): This combines a majority of the localized improvements with a section of new location and a general program of shoulder improvement throughout the corridor. Shoulder improvements throughout with additional geometric improvements at locations and the addition of a center turning lane within the city limits portion of the corridor. This option assumes that improvements to locations 3 & 4 would not be necessary. This option estimate is \$12.1 million.

Route Disposition

Future improvements to the existing State Route 50 corridor are necessary to address the purpose and need. The No-Build option does not address the purpose and need discussed in this report. Some combination or 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 improvement, they could be phased in over the next twenty years to yield the desired benefits.

At this time, the new location option 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 quantify the impacts.

The recommended order of improvements is:

1. Location No. 1 (Eastbound approach to State Route 247)
2. Location No. 2 (Williamsport Market Area)
3. Location No. 4 (Area Along State Route 50 Near Foster Chapel Road)
4. Location No. 7 (From Tindell Lane (City Limits) to Monsanto Road)
5. Location No. 6 (At-Grade Railroad Crossing)
6. Location No. 9 (East of US 43 (State Route 6))
7. Location No. 8 (Old Williamsport Pike Relocation)
8. Location No. 3 (Woodrow Community)
9. Location No. 5 (Area Along State Route 50 Near Brown Hollow Road)
10. Shoulder Widening/Improvement option
11. The new location option

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A – TDOT Traffic Forecast Data and Other Items
B – Field Review Meeting Summary
C – Capacity Analysis
D - Long Range Planning Needs Assessment
E – Cost Estimating Calculations

1.0 PROJECT HISTORY AND BACKGROUND INFORMATION

1.1 Project History

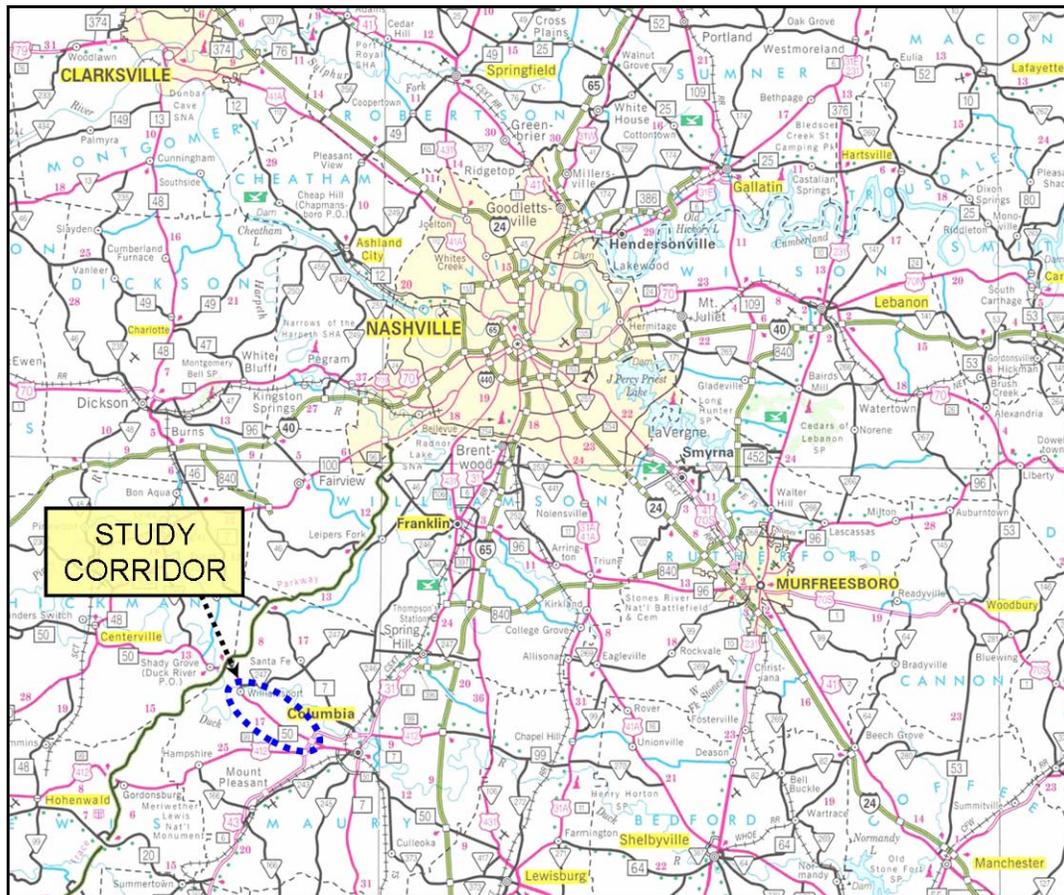
The Tennessee Department of Transportation's (TDOT) Long Range Planning Division conducted a Needs Assessment for State Route 50 from State Route 48, Centerville, Hickman County to U.S. 43 (State Route 6), Columbia, Maury Co., a distance of 24.95 miles. This assessment was prepared at the request of the South Central West Rural Planning Organization (RPO). The RPO considers the corridor a major route connecting the cities and surrounding regions of Centerville and Columbia. The corridor provides access to manufacturing facilities, Maury Regional Hospital, and Columbia State Community College. The study corridor is the prime study priority for the RPO.

From the Needs Assessment, the TDOT Long Range Planning Division recommended the preparation of a Transportation Planning Report (TPR) for a portion of the RPO's priority corridor.

1.2 Project Study Area

The limits of the TPR extend from State Route 247 to U.S. 43 (State Route 6) in Maury County, a distance of approximately 9 miles. **Exhibit 1.1** presents a regional map, **Exhibit 1.2** presents an area map on the Maury County highway map, and **Exhibit 1.3** further details the corridor features on United States Geological Survey Map.

Exhibit 1.1 – Regional Map



MAURY COUNTY

TRANSPORTATION PLANNING REPORT

STATE ROUTE 50

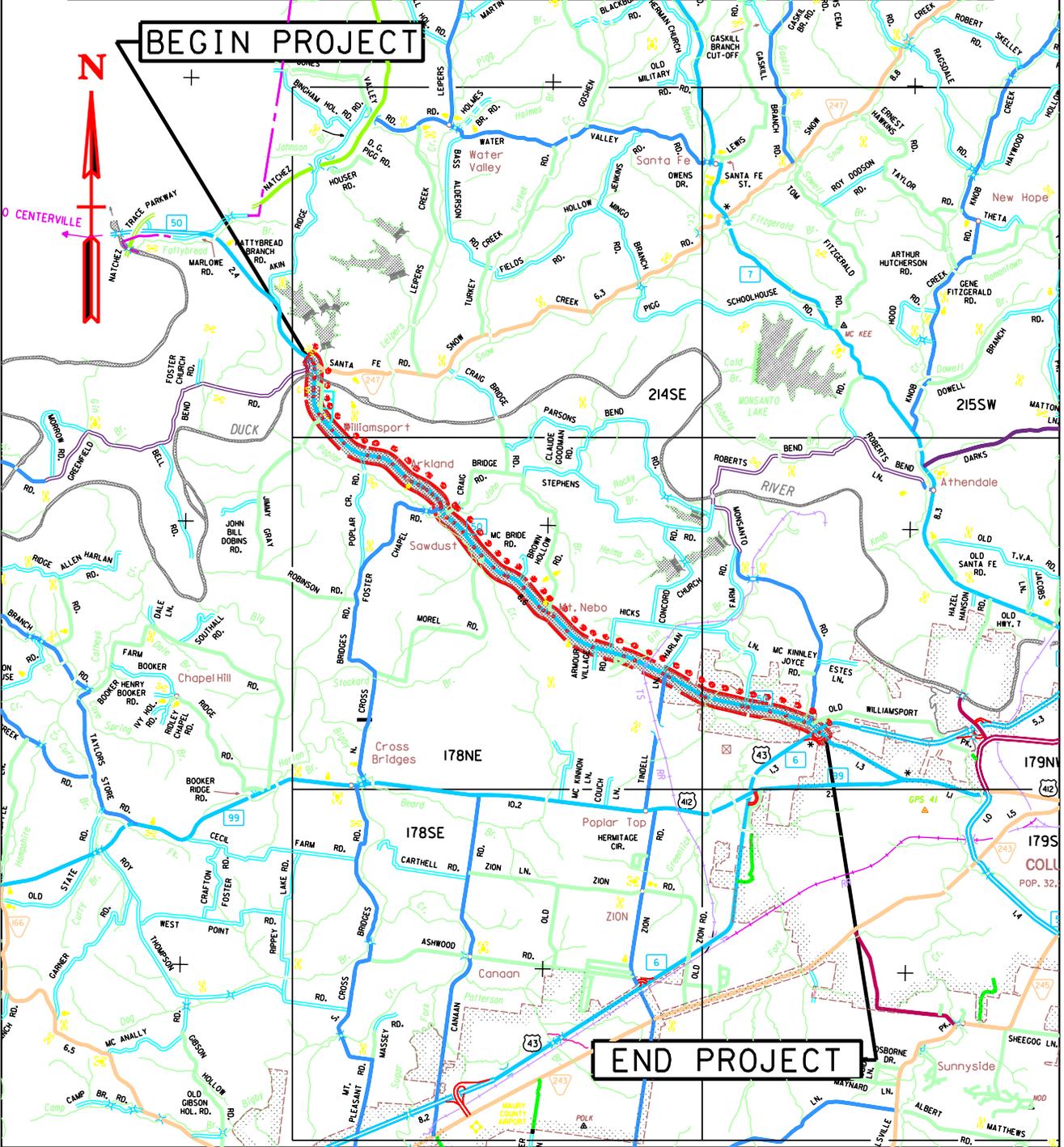
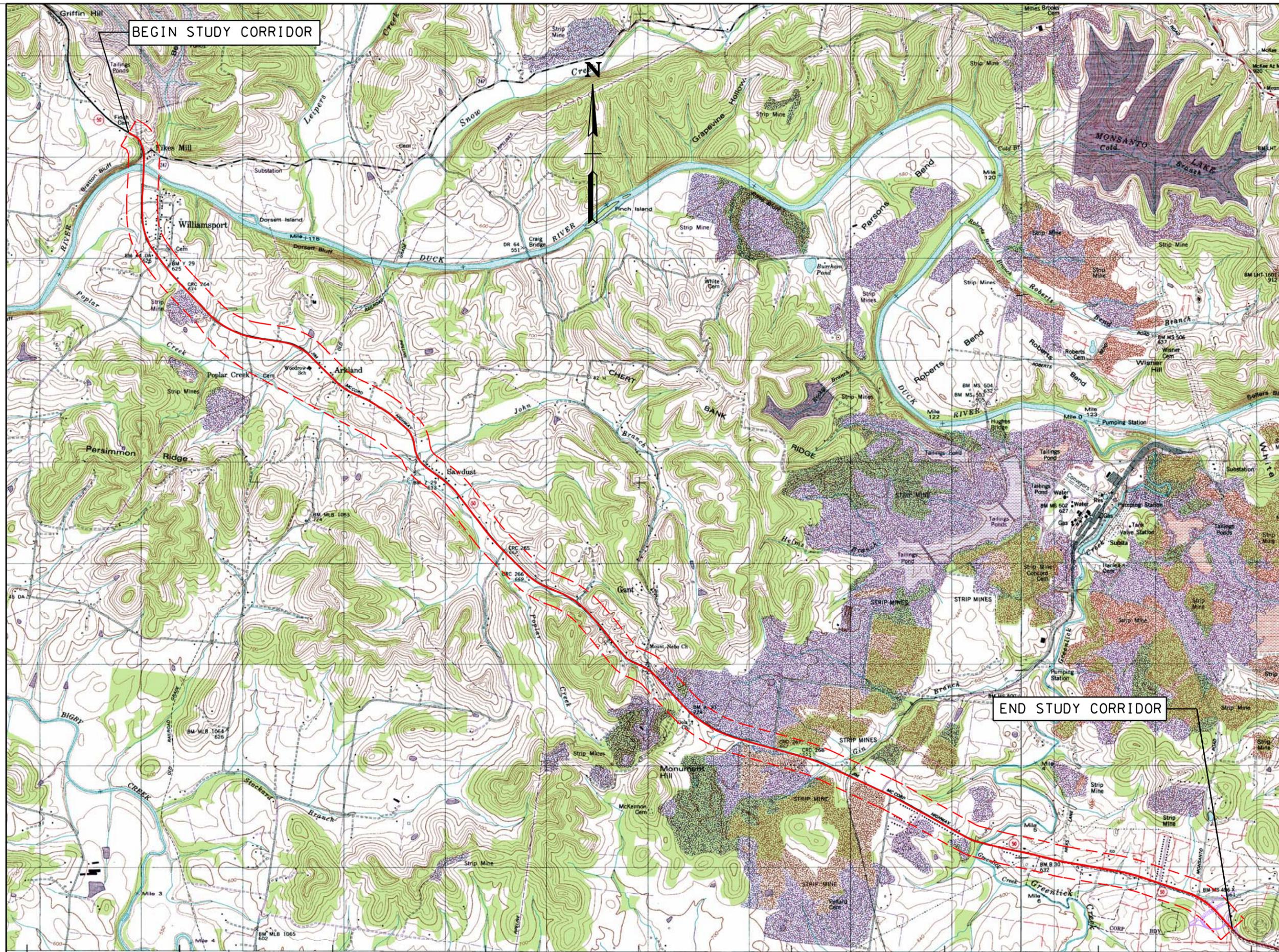


EXHIBIT 1.2 AREA MAP
FROM S.R. 247 TO U.S. 31 (S.R. 6)
MAURY COUNTY



STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

EXHIBIT 1.3
FEATURE
MAP

NOT TO SCALE

1.3 Community Profile

The corridor study limits reside entirely within Maury County. However, many trips from the west originate from neighboring Hickman County. As a result, some of the community descriptions pertain to Hickman County. **Table 1.1** presents geographic data for the area and indicates that Maury County is the more urbanized area with higher densities in the Columbia, Spring Hill, and Mount Pleasant areas. **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

	Maury County	Hickman County
Land Area excluding water covered (Square Miles)	612.86	612.52
Persons per/Square Mile	113.4	36.4
Housing Units/Square Mile	46.8	14.5

Data Source: U.S. Census Data

Table 1.2 – Population Trends

Year	Maury County			Hickman County			State of Tennessee		
	Pop.	Percent Change	Avg. Growth Rate	Pop.	Percent Change	Avg. Growth Rate	Pop.	Percent Change	Avg. Growth Rate
1990	54,812	-	-	16,754	-	-	4.9 Mil.	-	-
2000	69,498	26.8%	2.40%	22,295	33.1%	2.90%	5.7 Mil.	16.3%	1.55%
2006 ¹	78,309	12.7%	2.01%	23,812	7.8%	1.10%	6.0 Mil.	4.0%	1.00%

Data Source: U.S. Census Bureau

Columbia is the county seat of Maury County and Centerville is the county seat of Hickman County. The State Route 50 corridor connects these two county seats and links to I-65 to the east and I-40 to the west. While northern Maury County is approaching bedroom community status to Nashville, much of the Maury County traffic is focused in the Columbia area and the connecting area between Spring Hill and Columbia. The most notable industries near the corridor reside in Maury County. Several significant generators include the Maury County Regional Medical Center, Columbia State Community College, and the automotive support industries predominately concentrated in the Spring Hill area. **Table 1.3** presents a listing of the largest area industry/traffic generators.

¹ 2006 values are estimates as of date of this report.

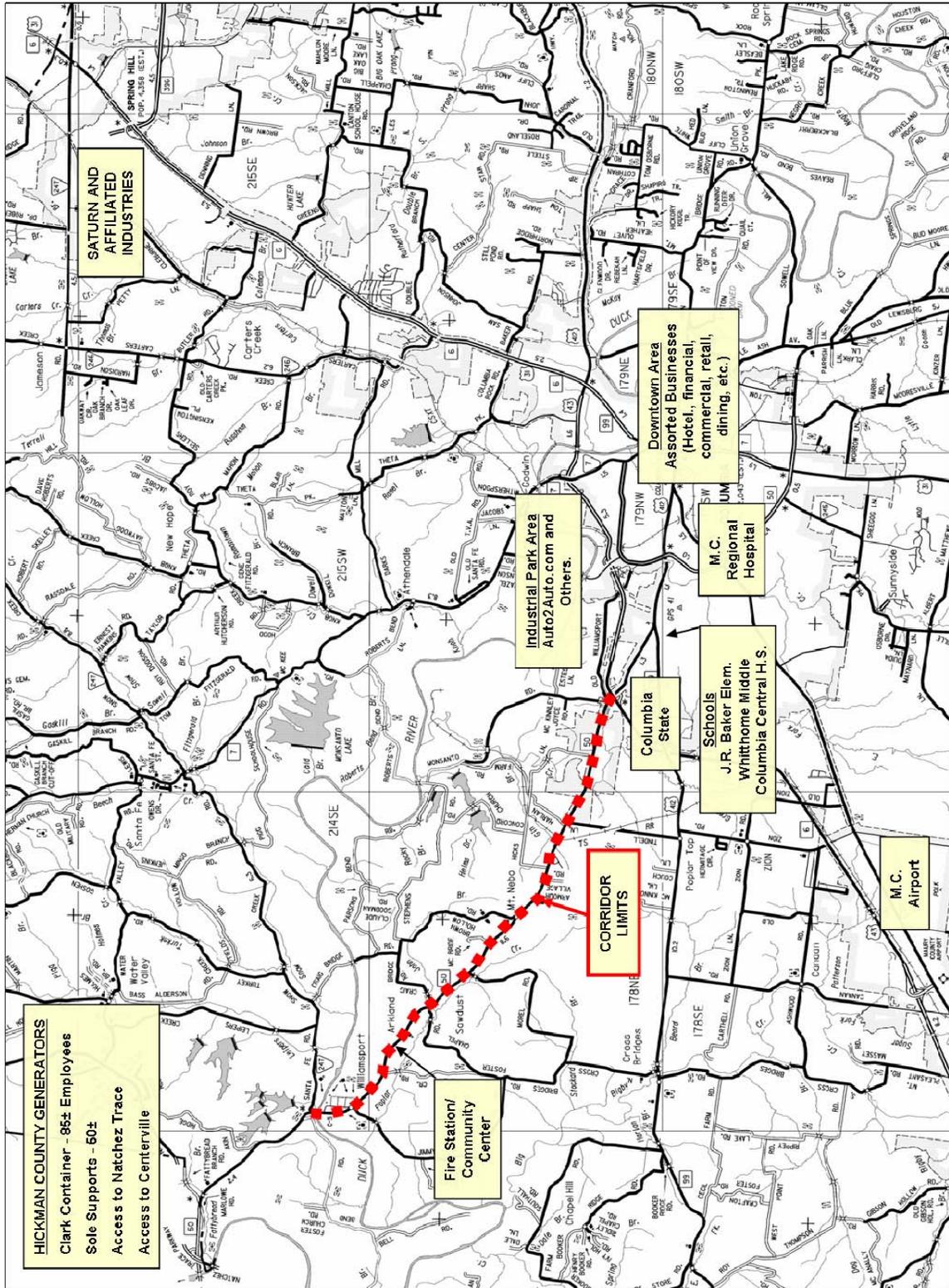
Table 1.3 – Industry/Traffic Generators

Description/Name	Service Type	Employed (Estimated)
GM Spring Hill Manufacturing	Passenger car manufacturing	5,776
Penske Logistics	Distribution/Logistics for automotive industry	196
Spontex, Inc.	Cellulose Sponges	153
Trader Publishing	Publisher of Classifieds & Editorial Magazines	150
Cytec Industries	Specialty Chemicals	145
TN Aluminum Processors	Metal recycling/Aluminum scrap	132
American Bank Note	Commercial Printer	140
Delphi Automotive Systems	Automotive components & systems	118
Kasbar National Industries	Textile Fabrics	115
<i>Other Facts</i>		
Total Manufacturing	82	7,724
Labor Market Area	Labor Market Area includes labor force in Giles, Hickman, Lewis, Marshall, Maury, and Williamson Counties.	172,940

According to the RPO, approximately 10% of the Hickman County workforce travels to Maury County for work. The RPO estimates as many as 1,000 Hickman County residents use State Route 50 to travel to Maury County each day. In addition to work, Maury County offers retail commerce opportunities currently nonexistent in Hickman County.

Exhibit 1.4 presents a schematic of the regional trip generators in relationship to the study corridor.

Exhibit 1.4 – Location of Significant Generators



1.4 Existing Transportation Conditions

Historic Traffic

TDOT collects traffic data at numerous locations along the corridor on a continuing basis. **Exhibit 1.5** depicts the TDOT count stations available along the route and on several adjacent roadways.

Exhibit 1.5 – TDOT Traffic Count Locations

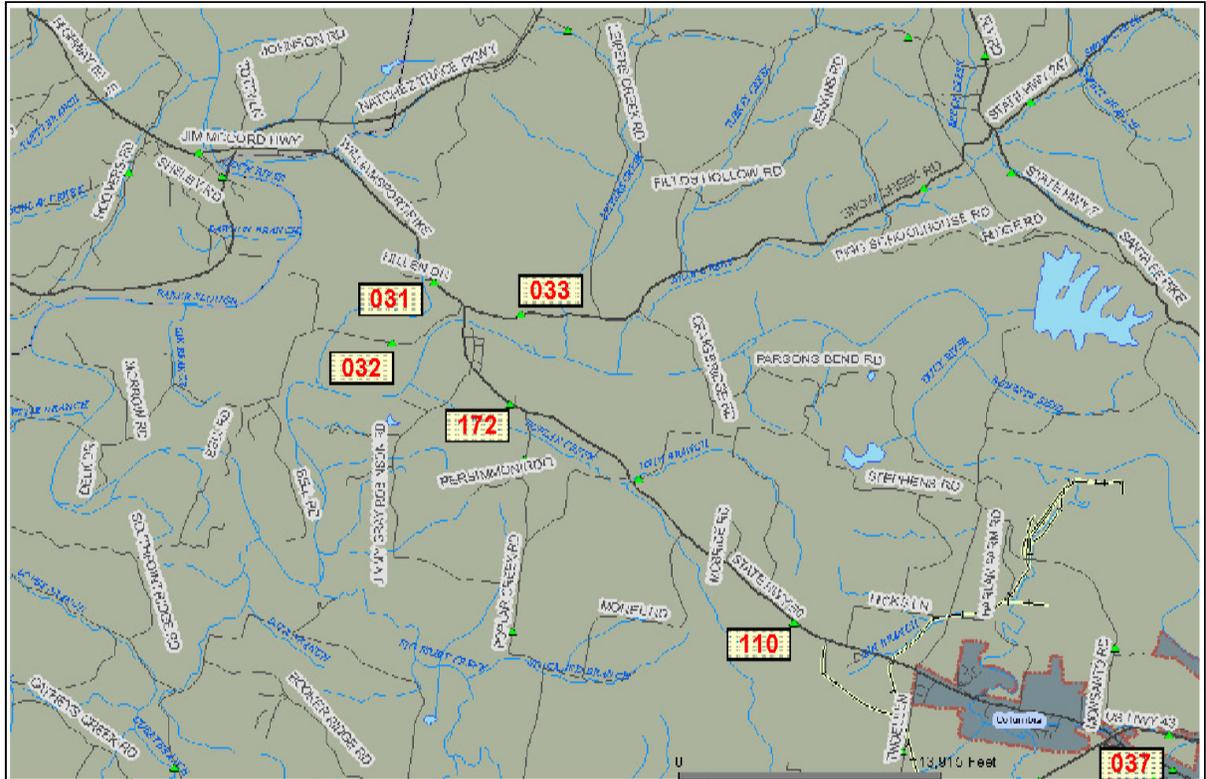


Table 1.4 presents data for six (6) count stations located in the area of the corridor. Four (4) of the locations are on State Route 50. For each of these locations, the 20-year growth has been modest at best. In the Williamsport area, traffic has grown at an average rate of nearly 2.5% over the last 20 years. In contrast, traffic at the far eastern limits has decreased. This decrease can best be attributed to the completion of the US 43 (State Route 6) bypass.

As currently exists, traffic volumes are relatively modest and within acceptable range for a 2-lane facility.

Table 1.4 – Historic Traffic Data

Station Location	COUNT STATION	1986	2006	20-YR Average Growth Rate
State Route 50, West of State Route 247	031	2150	2919	1.62%
Greenfield Bend Road	032	145	256	3.04%
State Route 247	033	212	273	1.34%
State Route 50, East of Williamsport	172	2198	3494	2.47% ²
State Route 50, East of Sawdust	110	3459	4160	0.98%
State Route 50, East of U.S. 43	037	4352	4086	-0.33%

Data Source: TDOT

Level of Service

The TDOT Long Range Planning Division prepared an initial needs assessment for the 24.95-mile corridor from State Route 48 in Hickman County to U.S. 43 (State Route 6) in Maury County. Subsequently, a TPR was recommended for the last two sections of the corridor (Segments C and D according to the Preliminary Purpose and Need Statement). Utilizing updated traffic forecasts provided by TDOT, **Table 1.5** presents the LOS projections for the design years of 2011 and 2031 for the TPR corridor study limits.

Table 1.5 – Capacity Analysis (Existing Roadway)

Segment	2011		2031	
	AADT	LOS	AADT	LOS
State Route 247 to Craig Bridge Road	3,930	C	5,370	C
Craig Bridge Road to Tindell Lane	5,580	C	7,990	D
Tindell Lane to US 43 (State Route 6)	5,700	D	7,440	E

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

² 19-Year History. Count station not operational until 1987.

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 1.6**.

Table 1.6 - 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 exceed the capacity, or ability of the highway to accommodate that number of vehicles. There is little or no room to maneuver. The driver experiences poor levels of physical and psychological comfort.

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

For the study corridor limits, there are no projected failures or deficiencies related to capacity within the planning horizon (2031). Capacity analysis indicates a LOS of E for the section of the corridor that resides within Columbia City Limits by the year 2031. The increased presence of driveway connections and side roads along this 2-mile stretch of State Route 50 attributes to this lower LOS. This initial analysis is based on no geometric improvements being made. Therefore, without adding capacity, there will not be a section with a failing (F) LOS.

Corridor Review of Existing Conditions and Deficiencies

The State Route 50 study corridor begins near the intersection of State Route 247 which has a corresponding log mile (LM) of 2.2 (For reference, LM 0.0 is at the Hickman County line and as State Route 50 proceeds eastbound, the LM increases to approximately 11.2 just east of U.S. 43). The western end of the corridor is classified as a rural arterial and the route transitions to an urban arterial upon entering the Columbia urbanized area. The land use to the west is primarily large tract residential and agricultural. On the eastern limits the land use is primary residential on smaller lots. This corridor connects Hickman County to Maury County and provides regional linkage between the two counties.

The following discussion includes the approximate LM range as well as a general description of the area. By including the LM, it is easy to refer to TDOT information such as the Tennessee Roadway Information Management System (TRIMS) to review additional information such as roadway features or crash data.

SR 247/Greenfield Bend Area (LM 2.2 to 2.4)

There is limited sight distance in this area, particularly for eastbound vehicles as they round the curve and approach the intersections of Greenfield Bend (on the right) and State Route 247 (left). County officials indicated that they were unsuccessful in securing right-of-way on the Greenfield Bend side of the road when they previously tried to address the Greenfield Bend Road intersection. This area is constrained by the Duck River and the bluff on the south side. At a minimum, advanced warning and signing should be explored for the approaches. Some consideration could be given to relocating Greenfield Bend Road but this would be a county issue.

Exhibit 1.6 – State Route 50 at State Route 247



View is eastbound at the State Route 247 intersection on the left. The Greenfield intersection is just west of this location.

Williamsport Area (LM 2.9 to 3.2)

There is an issue with parking on the shoulder of State Route 50 across from the Williamsport Market. Patrons utilize this shoulder to access the Williamsport Market and the U.S. Post Office on the opposite side of the road. There is limited parking at the market and Post Office. This creates a hazard to users of the facility. Parking along the right-of-way should be eliminated through enforcement by local law officials, signing, and pavement marking. In addition, improvements to existing parking and/or additional parking should be considered by the local businesses where possible.

Sight distance from side roads is poor in the curved section of State Route 50 near Old Williamsport Road and Jimmy Gray Robinson Road. Intersection skews create awkward turns for motorists and should be addressed.

This section may merit a turning lane from the Williamsport Baptist Church to east of Jimmy Gray Robinson Road. This area is a focal point that motorists encounter when entering/exiting the county and its rural character should be preserved.

Exhibit 1.7 – State Route 50 at Williamsport Market



View is eastbound with Williamsport market and U.S. Post Office on the left. Vehicles are frequently parked on the right shoulder.

Poplar Creek Road/Woodrow Community Center Area (LM 3.7 to 4.3)

This section begins at Poplar Creek and proceeds eastbound via a sweeping curve to just past the Woodrow Community Center. The most recent three-year crash data indicates seven reported crashes occurring along this stretch. This location includes the community center as well as the Woodrow Fire Department. A review of the geometrics and potential improvements is merited as the land uses indicate potential congestion in the future associated with the community center. This section may benefit from improved geometrics and a potential left-turn lane.

Exhibit 1.8 – State Route 50 in Woodrow Community



The view is eastbound. The Woodrow Community Center and Fire Station is on right side.

Foster Chapel Road/Craig Bridge Road Area (LM 4.6 to 5.5)

This section has multiple curves along the mainline and side road connections (Foster Chapel Road and Craig Bridge Road) are less than ideal. There is an existing bridge in the area and multiple culverts because several branches converge in this area. Sight distance is deficient from the side roads. Some of this could be corrected with significant clearing of trees currently located within the right-of-way. Additional consideration should be given to realigning the side road connections and improving the horizontal geometry through this section. However, further west there are a number of buildings in close proximity to the route and existing ROW and this may prohibit significant alterations. Upon reviewing available maps, there may be potential to construct on new alignment to the south and bypass the Sawdust and Woodrow area.

Exhibit 1.9 – State Route 50 Near Foster Chapel Road



View is westbound just west of Foster Chapel Rd.

Morel Road (LM 5.8 to 6.0)

It is noted that four reported crashes occurred at the Morel Road intersection over the most recently available three-year crash history. County officials indicated that sight distance is limited and they had received numerous complaints. This area could benefit from tree clearing within the ROW.

Brown Hollow Road Area (LM 6.8 to 7.2)

State Route 50 has a pair of curves in the area that should be reviewed further. Brown Hollow Road aligns at a skew to State Route 50 but realignment is constrained by the proximity of the market (currently DooDads) at the intersection. This store generates an appreciable amount of traffic especially during the lunch period where multiple construction vehicles were observed entering/exiting the premises. The market has fuel pumps and underground storage tanks (USTs).

Exhibit 1.10– State Route 50 at DooDad’s Market



View is westbound just before Brown Hollow Rd.

At-Grade Railroad Crossing (LM 8.4 to 8.6)

The existing railroad crossing is difficult to see from either approach due to the vertical grade along the route. The TPR field review team’s collective experience is that the existing crossing is dangerous particularly at high speeds and inclement weather (rain, darkness, fog, etc.). This location is heavily wooded on both sides of the road and deer are frequently observed crossing in this area. Tennessee Southern Railroad owns the line. The existing grade crossing is marked with crossbucks and lights only.

Over the most recent three-year period of collected crash data, there were eight crashes that occurred in close proximity to the crossing. Two of the crashes involved deer. The remaining crashes do not indicate if the rail crossing or vertical bumps had a role to play. During the field trip with local representatives, they indicated that the location was a problem and that they had received numerous complaints about the bumps and poor sight distances in the crossing area.

Due to the significant grade and infrequent activities, a grade separation may not be feasible as it would be very expensive. Consideration should be given to advanced warning techniques or the addition of gates. The vertical grade should be reviewed in the area of the crossing to determine if the approaches can be improved. Ideally, this would require minimal work to the rails.

Rail specialists from the TDOT Safety Planning & Travel Data Office was unable to attend the TPR field review meeting. However, they did convey their thoughts regarding the existing grade crossing. They would like to see installation of advanced warning equipment. This equipment would include solar panels with wireless interconnects. The cost is approximately \$36,000 per pair. The warning devices would be located 8' off the edge of the shoulder and would require continued maintenance to ensure vegetation and tree growth did not impair visibility.

Installing new signals and gates at this location is not recommended. The primary reasons against installing gates are high maintenance costs and the steep approach grades. With steep grades, there is potential that vehicles would slide through the crossing, damaging the gates or worse. The cost of new signals and gates would range from \$150,000 to \$175,000 and this does not include an estimate for maintenance.

Exhibit 1.11 – State Route 50 at RR Crossing



*View is eastbound just before railroad crossing.
There is a significant dip in the road at this
location.*

City Limits Area from Tindell Lane to Monsanto Road (LM 8.7 to 10.7)

The crash history is evenly distributed throughout the 2-mile City of Columbia segment from Tindell Lane to Monsanto Road. Within this section, there are numerous driveway connections to State Route 50 and many residences are in close proximity to the roadway.

A new bridge is recommended to be constructed for the Greenlick Creek crossing on State Route 50. The existing bridge does not have sufficient shoulders for safe operations and the

guardrail and bridge rails are substandard. Current overall conditions are fair. Any improvement or modifications to the route will require that the structure either be rebuilt or replaced. This new bridge could be located on the north side of State Route 50 and would require roadway transitioning on each approach. Locating a new bridge to the south side would be difficult due to multiple residences and a pump station located adjacent to the bridge on this side.

This segment of the corridor has frequent left-turning traffic that could benefit from an additional turning lane. Currently, only one location along this segment has a left-turn bay (Golden Place). A recommended option should include a center turn lane throughout the City Limits segment of the corridor.

Interchange Area (LM 10.6 to 11.2)

There is an apparent sight distance issue for vehicles entering State Route 50 from the US 43 (State Route 6) exit ramp. The corridor limits should extend to the east to include the influence area of the interchange. There may be an opportunity to reduce the impact of the crest curve to the east that limits visibility.

Crash history indicates a potential issue where Old Williamsport Road and State Route 50 intersect. This location is just west of the US 43 overpass. It is difficult to see this location for motorists approaching from the east.

Exhibit 1.12 – State Route 50 at Greenlick Creek



View is westbound at bridge over Greenlick Creek. Pump station is on the left side of the road.

Exhibit 1.13 – State Route 50 at US 43 Ramp



View is eastbound from ramp end of US-43 intersection with State Route 50. Visibility is limited by the hill in the background.

Exhibit 1.14 – State Route 50 at U.S. 43 Overpass



View is westbound from ramp end of US-43 intersection with State Route 50. Visibility is limited to Old Williamsport by the overpass.

Safety (Crash and Geometrics)

Several geometric deficiencies are identified in the previous section as well as discussion on various crash locations and frequency and proximity of crash events.

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

The previous needs assessment (Appendix D) indicated that the study segment from State Route 247 to Foster Chapel Road has excessive curves and grades and the section from Foster Chapel Road to Monsanto Road had crash rates greater than the statewide averages for similar facilities. **Table 1.7** presents currently available summarized crash data for the study corridor.

Table 1.7 – Crash Summary

Section Description	Road Class	Begin Mile	End Mile	Statewide Average Rate	Actual Crash Rate	Critical Crash Rate	Ratio A/C
State Route 247 to Tindell Lane	Rural Minor Arterial	2.35	8.74	1.701	1.809	2.303	0.79
Tindell Lane to US-43 (State Route 6)	Urban Two Lane	8.75	10.87	2.341	2.549	3.402	0.75

State Route 50 from State Route 247 to Tindell Lane

As the TDOT Long Range Planning Division’s Needs Assessment identified, the actual crash rate for this section is slightly higher than the statewide average. However, when factoring in the severity of the crashes and deriving the critical crash rate, the ratio of actual to critical is less than one.

Over the most recent three-year period (2003-2005), there were 49 documented crashes resulting in a single fatality, two incapacitating injuries, and 18 categorized as other injuries.

Tindell Lane to US-43 (State Route 6)

Over the most recent three-year period (2003-2005), there were 31 documented crashes resulting in no fatalities or incapacitating injuries, and nine (9) other injuries. The total number of crashes is less than the preceding section and is primarily attributable to the section length. This section is two miles in length as compared to six miles for the section of the study corridor from State Route 247 to Tindell Lane.

Utilities

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

Wastewater

Wastewater facilities along the corridor include:

- A pump station is located on the south side of State Route 50 at Greenlick Creek

- A 12" force main parallels State Route 50 from the pump station to Monsanto Road at which point the main crosses State Route 50.
- A 10" main crosses State Route 50 from the subdivision on north side of State Route 50 and terminates at the pump station.
- A 24" main enters the pump station from the south side.
- The limit of sewer service is at pump station. There is nothing west of the pump station along State Route 50.

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.

Water

Water facilities along the corridor include:

- 8" main running along south side of State Route 50 from Monsanto Road to Tindell Lane.
- 6" main running along south side of State Route 50 from Tindell Lane to Williamsport.

Electric

Electric service is provided throughout the corridor. There are an estimated 230-250 utility poles located along the study corridor.

Telephone

Telephone service is provided throughout the corridor. A telephone utility representative indicated that the route has sections of fiber optic (aerial and buried). Copper is continuous along the entire route.

Gas

Natural gas service is provided along the corridor.

Pipeline

A pipeline crosses the study corridor in the Foster Chapel Road area.

Structures/Bridges

There are three bridges along the corridor. The current bridge inspection reports were reviewed for each. The first bridge is over the Duck River (**Exhibit 1.15**). This bridge is on a tangent with sufficiently wide shoulders. No improvements are planned for this structure and this TPR does not recommend any modifications for this section of the corridor.

The second bridge location is in the Foster Chapel Road/Craig Bridge Road Area. This bridge has a sufficiency rating of 80 and is listed as *fair* in the most recent bridge inspection report dated October 24, 2006. If a roadway improvement option includes widening, then this minor structure would need to be widened or rebuilt to accommodate the changes. There are a number of streams and branches that flow in this area as discussed further above under the **Streams** portion of this section.

Exhibit 1.15 – State Route 50 Bridge over the Duck River

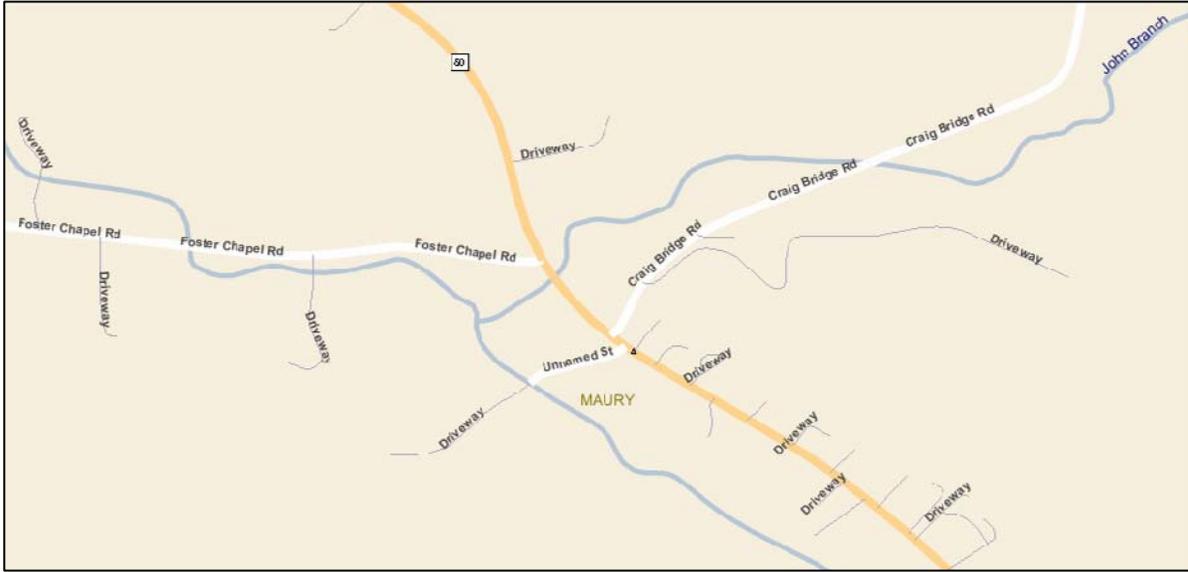


The final bridge location is over Greenlick Creek. As discussed under ***Corridor Review of Existing Conditions and Deficiencies***, this structure has deficient width and may need to be raised depending on a hydraulic study. Depending on an improvement strategy, a new or rebuilt bridge may be necessary at this location. This bridge has a sufficiency rating of 56.9 and is listed as ***fair*** in the most recent bridge inspection report dated November 16, 2006. It does not have sufficient width to accommodate additional travel lanes and the guardrail and bridge rails are functionally obsolete.

Streams

Several water crossings will require permits in conjunction with recommended improvements. A new bridge over Greenlick Creek is one such location. **Exhibit 1.16** depicts another location of concern as it depicts John Branch flowing to Poplar Creek. This is also the location of a BP Pipeline Crossing. Not depicted in the exhibit, is a tributary that flows to John Branch, which parallels State Route 50. The location of these streams and the potential permitting issues is one reason that a new location option is proposed (Section 4) for this section of State Route 50 in lieu of correcting geometric deficiencies along the existing alignment.

Exhibit 1.16 – Stream Locations in Craig Bridge Road Area



1.5 Additional Conditions and Issues

The following discussion presents various items that should be considered as the study corridor moves forward in the planning process. It should be noted that these observations are based on site visits, a field review meeting, discussions with various TDOT personnel, and literature review. Additional study will be required in subsequent phases of the planning process.

Endangered Species

During the site visits, there was no visible evidence of endangered species. However, data review and information provided by the United States Fish and Wildlife Services indicate the following known endangered species that exist in Maury County:

- Gray bat
- Indiana bat
- Birdwing pearly mussel
- Cumberland monkeyface pearly mussel
- Yellow-blossom pearly mussel
- Turgid-blossom pearly mussel
- Tan riffle shell
- Orangefoot pimpleback
- Pale lilliput pearly mussel
- Leafy prairie clover
- Slabside pearly mussel
- Short's bladderpod
- Cumberlandian combshell
- Oyster mussel

As the planning process advances, additional consideration for proposed improvements and modifications should include additional environmental studies to determine if any of the above listed species are in the area of potential impact. Many of the above listed species are associated with watercourses such as the Duck River and its tributaries. Additional consideration must be given when proposing improvements in areas where watercourses may be impacted.

Historic/Cultural Resources

TDOT historians searched TDOT records and conducted a search at the Tennessee State Historic Preservation Office (TN-SHPO). Much of the area was surveyed by the TN-SHPO as a part of their ongoing survey process. The records search identified the properties listed below.

One National Register Listed Property-Currently there is one property listed on the National Register of Historic Places within the general project area. The Skipwith Hall property is located adjacent to State Route 50, on the north side, in the Monument Hill area. This is in the area of the existing at-grade crossing.

One National Register Eligible Property-the Snow Creek Historic District has been identified as eligible for the National Register of Historic Places. This area is along the State Route 247 and outside of the limits of this study corridor.

Additional Survey-The properties surveyed in the proposed project area by the TN-SHPO, will have to be reassessed for National Register eligibility. Further survey and research could indicate additional National Register eligible properties.

Measures should be taken in the planning process to avoid the National Register properties and minimize the project in order to prevent adverse effects or potential Section 4(f) takes. If properties are identified later as being eligible for the National Register, they will also need to be avoided to prevent adverse effects or potential 4(f) takes.

Hazardous Materials

Table 1.8 presents a current Tennessee Department of Environment and Conservation (TDEC) listing of known and registered underground storage tanks (UST) near the study corridor. Known locations adjacent to the corridor, and the ones having the biggest potential for impacts, include DooDad’s Market and the Williamsport Market (shown in italics below).

Table 1.8 – Registered USTs in the Area

Facility ID	Facility Name	Facility Address	Facility City
<i>6-600090</i>	<i>DUNCAN'S GRILL (Currently DooDad's)</i>	<i>Highway 50</i>	<i>Williamsport</i>
6-600101	FARMER CONSTRUCTION CO	Monsanto Road	Columbia
6-600104	FLOYD AND FLOYD CONTRACTORS	Monsanto Road	Columbia
6-600139	J AND P MINI MARKET	Unknown	Columbia
6-600145	JOANNE B PEDS	Rt. 1	Williamsport
6-600149	JONES GROCERY	Highway 50	Williamsport
6-600182	MCCANLESS TRUCKING	Monsanto Road	Columbia
6-600187	MONSANTO CHEMICAL CO	Highway 50 West	Columbia
6-600263	COLUMBIA PIPELINE WAREHOUSE	Unknown Address	Columbia
6-600271	UPTAIN CONSTRUCTION CO INC	2617 Harlan Farms Rd	Columbia
<i>6-600342</i>	<i>WILLIAMSPORT MARKET AND DELI</i>	<i>3566 Highway 50</i>	<i>Williamsport</i>

2.0 PURPOSE AND NEED

2.1 Purpose

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 South Central West Rural Planning Organization (RPO) indicated that this corridor was their priority corridor and petitioned TDOT to conduct additional studies to determine viability of improvements and long-term needs for the corridor. The TDOT Long Range Planning Division completed a Preliminary Purpose and Needs Statement (Appendix D) and recommended a Transportation Planning Report (TPR) for the section from State Route 247 to the U.S. 43 (State Route 6) Bypass. The report indicated that the study corridor currently has deficient roadway geometry, particularly with respect to substandard shoulders and clear zones throughout the entire corridor.

2.2 Need

The State Route 50 corridor, including this section, is a primary east-west route for Hickman and Maury Counties. This route accesses many employment opportunities in the northern Maury County area in addition to the regional hospital in Maury County, and to Columbia State Community College in Columbia. The route also provides users from Hickman County access to retail and commercial opportunities currently unavailable in their county.

Based on initial findings, as documented in Section 3.0 of 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.

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

2.3 Goals and Objectives

The goals and objectives of an improved State Route 50 facility include:

- Improve geometric deficiencies;
- Promote safer operations;
- Support economic development within the region; and
- Improve facility for alternative modes of transportation.

3.0 OPTIONS ANALYZED

3.1 Route Option Discussion

This report examines operational and safety improvement options along the corridor. These options evaluate opportunities for meeting the traffic and economic development needs of the RPO. The options examined are summarized below:

- **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.
- **Localized Improvements:** Nine (9) potential location improvements can be implemented independently or in combination as an overall improvement strategy along the corridor as discussed further above under the **Improvement Options** portion of this section.
- **Shoulder Widening/Improvement:** This option seeks to improve existing shoulder widths and address clear zone issues where appropriate. Existing ROW is 80' for a majority of the corridor. It is assumed that work will occur in areas that can accommodate modifications and only easements would be needed for construction and maintenance. Areas where any improvements would require the taking of property or structures would need additional evaluation. One such area of concern is near the communities of Arkland and Woodrow. A new location option is presented partially because of the proximity to residences along this short stretch.
- **New Location:** This option considers a 2-mile stretch of newly located State Route 50. This option avoids the area of Arkland and the Woodrow Community. It bypasses some existing curved geometry and avoids potential impacts to houses that are in close proximity to existing State Route 50 just east of Craig Bridge Road.
- **All Options (Along Existing):** This combines the localized improvements with a general program of shoulder improvement throughout the corridor. For cost estimating purposes, this option assumes that all localized improvements are implemented with shoulder improvements for the remainder of the corridor. The estimate also assumes a full overlay of existing pavement.
- **All Options (Along New Location):** This combines a majority of the localized improvements with a section of new location and a general program of shoulder improvement throughout the corridor. Shoulder improvements throughout with additional geometric improvements at locations and the addition of a center turning lane within the city limits portion of the corridor.

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 necessary to accommodate future forecasted traffic conditions. Therefore, the proposed cross section for State Route 50 maintains one travel lane in each direction with an additional center turn lane at various locations. The shoulders would be widened to a standard 10' with 8' stabilized (paved). The typical ditch slopes would be 4:1 with some areas having slopes as steep as possibly 3:1 to minimize additional right of way and/or easement. This would also minimize impacts to existing utilities and sensitive areas.

Pedestrians and Bicycles

The proposed cross-section will have accommodations for bicycles. The minimum paved shoulder is eight-feet wide. This, in conjunction with the recommended twelve-foot wide travel lanes, is adequate for bicycle use.

The addition of sidewalks is not necessary because of the sparse building density and lack of walkable destinations.

3.3 Measures of Effectiveness (MOE) Discussion

Level of Service

The quality of service of existing State Route 50 and the options were analyzed utilizing the procedures outlined in the Highway Capacity Manual 2000 (HCM). The Level-of-Service (LOS) Calculations were performed with the Highway Capacity Software (HCS). These calculations assign a LOS along route segments with similar geometric and traffic characteristics. LOS is a quality measure describing operational conditions within a traffic stream, generally in terms of such service measures as speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience. LOS ranges from A to F, with LOS A representing the best operating conditions and LOS F the worst. Each LOS represents a range of operating conditions and the driver’s perception of those conditions.

For 2031, no existing section of State Route 50 operates with a failing LOS of F. A summary of the LOS calculations are presented in Exhibit 1.9 and reproduced below in **Table 3.1**. Detailed calculations area available in Appendix C.

Table 3.1 – Capacity Analysis (Existing Roadway)

Segment	2011		2031	
	AADT	LOS	AADT	LOS
State Route 247 to Craig Bridge Road	3,930	C	5,370	C
Craig Bridge Road to Tindell Lane	5,580	C	7,990	D
Tindell Lane to US 43 (State Route 6)	5,700	D	7,440	E

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 changed based on capacity analysis because left turning vehicles would be removed from the other traffic traveling through the corridor.

During initial planning discussions, a 4-lane median divided and a 5-lane section were considered and subsequently dropped from further evaluation due to the lack of sufficient existing and proposed traffic in the rural areas and the severity of impacts that would be incurred along the section within Columbia’s city limits.

Congestion Reduction

Currently, congestion is minimal along the corridor under current conditions. Travel speeds generally approach free flow speeds and are typically only reduced when traveling behind slower moving vehicles. The only section that merits a discussion for congestion reduction is from Tindell Lane to the U.S. 43 (State Route 6) Bypass. This section resides entirely within Columbia's city limits and has numerous driveway connections and side roads with frequent turns during peak periods. LOS analysis indicates that this section will operate at LOS E by 2031 with existing geometric conditions. During initial planning, a 4-lane and a 5-lane section were considered but due to close proximity of numerous homes and input from city representatives, a 5-lane section was dropped from consideration due to the potential for significant impacts. A 3-lane section will improve operations particularly since there are so many driveways and side roads. For an analysis perspective, a 3-lane section does not increase capacity thereby the LOS will not change. However, from an operational perspective, it is realistic to expect that a 3-lane section will offer improvements.

However, the overall congestion does not merit improvements in and of itself. An improvement program should be based on a combination of factors that include promoting safer operations and accommodating economic development. Congestion relief is a consideration but not a driving factor for this corridor.

3.4 Cost Estimate Discussion

Cost estimates are provided for the corridor. The project is divided into a series of localized improvements in combination with general shoulder improvement throughout the corridor. There is an option for an approximately 2-mile section to be relocated and this is referred to as "New Location."

Each location improvement option has an associated cost. The costs are summarized in the Summary Data Tables and Itemized Cost Estimates provided in this report. The cost of each of the options is further discussed in Section 3.6.

3.5 No-Build

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 rural area of the corridor. For the section within Columbia's City Limits, a LOS E is projected for the 2-lane section. It can be assumed that congestion will increase and the overall operations will be degraded. However, the LOS will still not be failing (LOS F). Regardless of the LOS, there are safety concerns that would not be addressed under the no-build option.

3.6 Improvement Options

These options include corridor wide improvements to increase shoulder widths with additional improvements at various locations (spot improvements).

Location No. 1: Eastbound Approach to State Route 247

Improve signing and advanced warning along southbound State Route 50. This is needed due the proximity of the intersections with State Route 247 and the county maintained Greenfield Bend Road. At a minimum, the existing vegetation along the west side of State Route 50 should be cleared from within the existing right-of-way (ROW). This will help address the limited sight distance and visibility. This work can be accomplished within the existing ROW with no utility relocations required. ***This option estimate is \$25,000.***

Other Options Considered

Realigning Greenfield Bend Road to align with State Route 247 was considered. This was removed from consideration due to right of way constraints and the existing steep grade on Greenfield Bend Road.

Alignment improvements to State Route 50, both horizontally and vertically, were also considered. Due to right of way issues along State Route 50 and the hill on the west side, this was dropped from further consideration.

One option may be to realign Greenfield Bend Road to intersect State Route 50 approximately 1400' to the northwest of the existing intersection (See Concept Plan, Sheet 3). This would require constructing approximately 2150' of new road and acquisition of ROW. This option is a Maury County issue and may be considered further at their discretion.

Exhibit 3.1 – Concept Plan Location No. 1



Location No. 2: Williamsport Market Area

This option recommends holding the north side of existing State Route 50 and widening to the south by adding a third lane, (center turn lane), and adding 10' shoulders to both sides. By widening to the south, conflicts with the Williamsport Market, the Williamsport Baptist Church, the U.S. Post Office, and underground storage tanks at the market can be avoided. This widening would extend approximately 2750' to the south along State Route 50 and include the minor realignment of two side roads. Some ROW acquisition would be required on the south, with none required on the north side. An existing 6" water main and two utility poles on the south side of State Route 50 will require relocating. 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. Two potential parcels may have septic field constraints. ***This option estimate is \$652,000.***

Exhibit 3.2 – Concept Plan Location No. 2



Location No. 3: Woodrow Community

A third lane would be added to this area by widening equally to both sides of State Route 50 for approximately 1650'. This will require additional ROW along both sides of State Route 50. An existing 6" water main on the west side of State Route 50 will require relocating. Up to 12 utility poles will also require relocation. As with most rural areas, there are septic systems in place for the treatment of wastewater. If existing septic fields are located within proposed ROW and cannot be relocated to another area of the property then this can significantly increase right-of-way costs. There are 12 parcels that could have septic field constraints and the estimate assumes that six will have fields that cannot be relocated. This may be adjusted once field investigations verify the locations of existing septic fields and perk tests are conducted to see if they may be relocated on existing property. ***This option estimate is \$1,177,000.***

Exhibit 3.3 – Concept Plan Location No. 3



Location No. 4: Area Along State Route 50 Near Foster Chapel Road

The existing vegetation along the west side of State Route 50 should be cleared from within the existing ROW. This will help address the sight distance and visibility issue at Foster Chapel Road. This work can be accomplished within the existing right of way with no utility relocations required. ***This option estimate is \$41,000.***

Exhibit 3.4 – Concept Plan Location No. 4

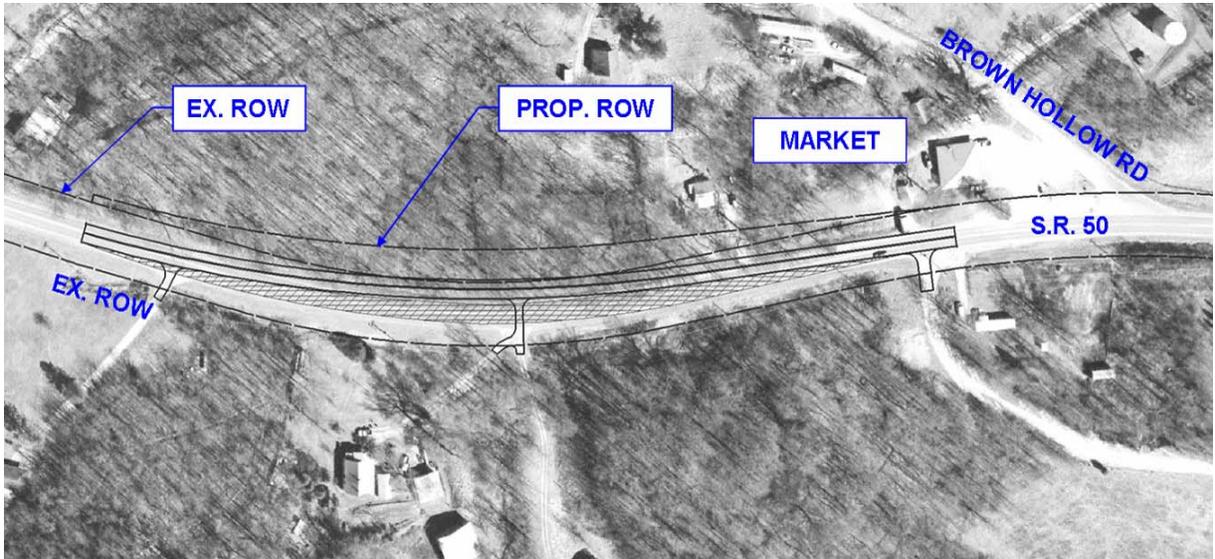


Location No. 5: Area Along State Route 50 Near Brown Hollow Road

This concept proposes a realigned two-lane section constructed to the north for a distance of approximately 1170'. This will improve roadway geometrics, both horizontally and vertically. All widening will be done to the north side of State Route 50, with additional ROW being acquired along the north side. This work can be accomplished with no electric or water utility relocations. The existing curves are approximately designed at 55 MPH. However, while conducting field investigations and the initial site visit meeting with the local jurisdictions it was the collective opinion that visibility was poor especially for vehicles exiting Brown Hollow Road. This location has significant mid-day truck traffic frequenting the market on the corner, which further limits visibility.

If existing septic fields are located within proposed ROW and cannot be relocated to another area of the property then this can significantly increase right-of-way costs. There appears to be one only parcel that may have septic field constraints. Actual septic system issues cannot be confirmed without a perk test on remaining property to determine if an impacted field can be relocated. This estimate assumes that one property will be impacted due to septic field constraints. ***This option estimate is \$383,000.***

Exhibit 3.5 – Concept Plan Location No. 5



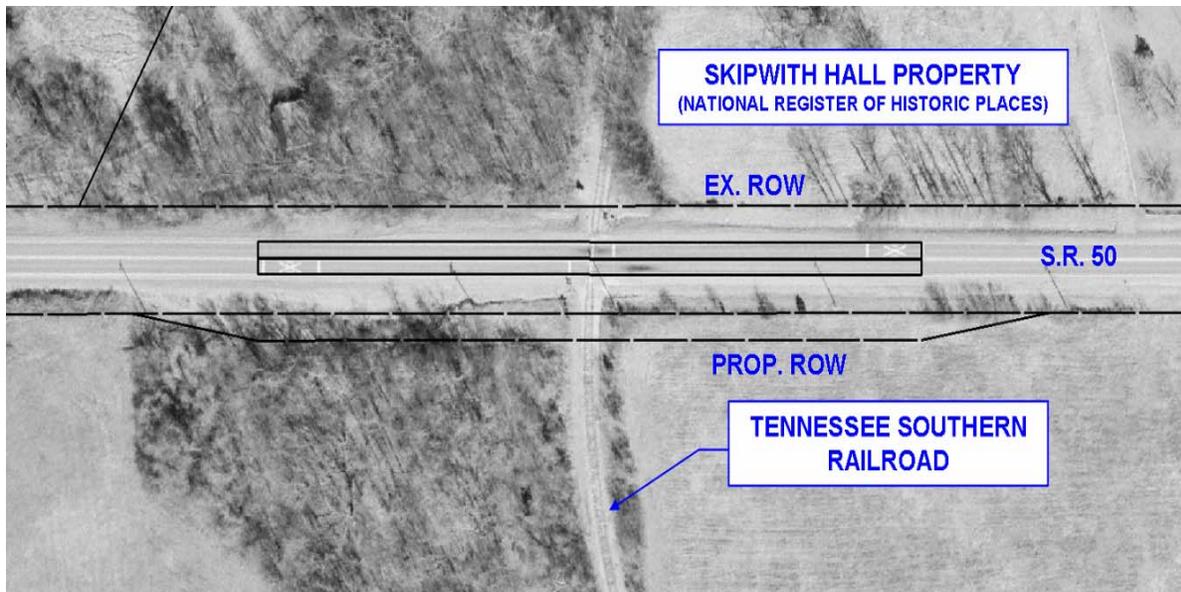
Location No. 6: At-Grade Railroad Crossing

The existing railroad crossing is difficult to see from either approach due to the vertical grade along the route. This location is potentially hazardous, particularly at high speeds and during inclement weather (rain, darkness, fog, etc.).

Over the most recent three-year period of collected crash data, there were eight crashes that occurred in close proximity to the crossing. Two of the crashes involved deer. The remaining crashes do not indicate if the rail crossing or vertical bumps had a role to play. During the field trip with local representatives, they indicated that the location was an issue and that they had received numerous complaints about the bumps and poor sight distances in the crossing area.

Vertical improvements to approximately 600' of State Route 50 would enhance the rideability (remove the dip effect) and safety of State Route 50. Ideally, this approach would not require adjustments or changes to the existing rails through the crossing area. Any improvement plan will need to hold the existing northern most right-of-way as this area is adjacent to an historic property, Skipwith Hall. Additional ROW along the south side of State Route 50 may be required. Construction at this location will require relocating three utility poles and approximately 600' of 6" water line. Assuming minimal adjustments to the rails and installation of a new crossing surface, **this option's estimate is \$306,000**. If it is determined that adjustments to the rails is not necessary, then the estimate could be reduced.

Exhibit 3.6 – Concept Plan Location No. 6

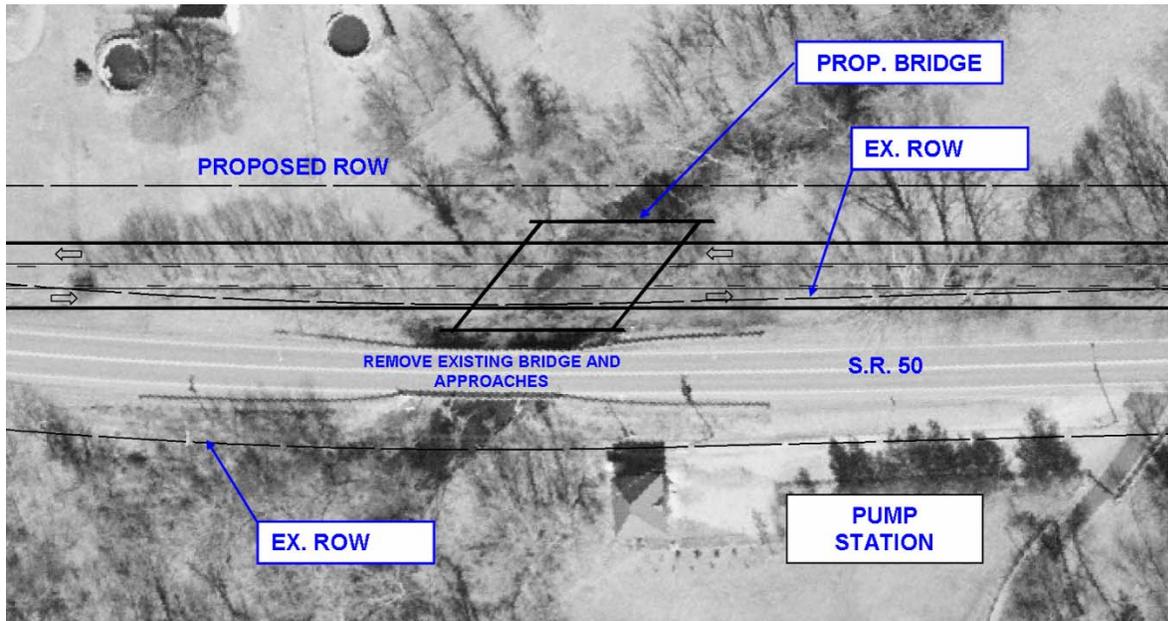


Location No. 7: From Tindell Lane (City Limits) to Monsanto Road

This option considers constructing a three lane section from Tindell Lane, (Columbia city limits), to just east of Monsanto Road. All new construction from the city limits to Hicks Lane will be to the north side of State Route 50, including a new bridge over Greenlick Creek. At Hicks Lane, construction transitions to the south side of State Route 50 to avoid disturbing existing rock walls, which may be potentially historic. Both sides of the road will be upgraded to 10' shoulders. This option will require some additional ROW along State Route 50. Construction at this location will require relocating approximately 30 utility poles and approximately 170' of 10" water line. Approximately 5,000 feet of a gas line will require relocation. All utility facilities considered for relocation are in existing State Route 50 ROW.

During conversations with the Columbia Wastewater Department, it was learned that there may be plans in the future to relocate the existing pump station to the north side of State Route 50. If this occurs, the proposed new bridge and alignment would need to be adjusted. ***This option estimate is \$2.84 million.***

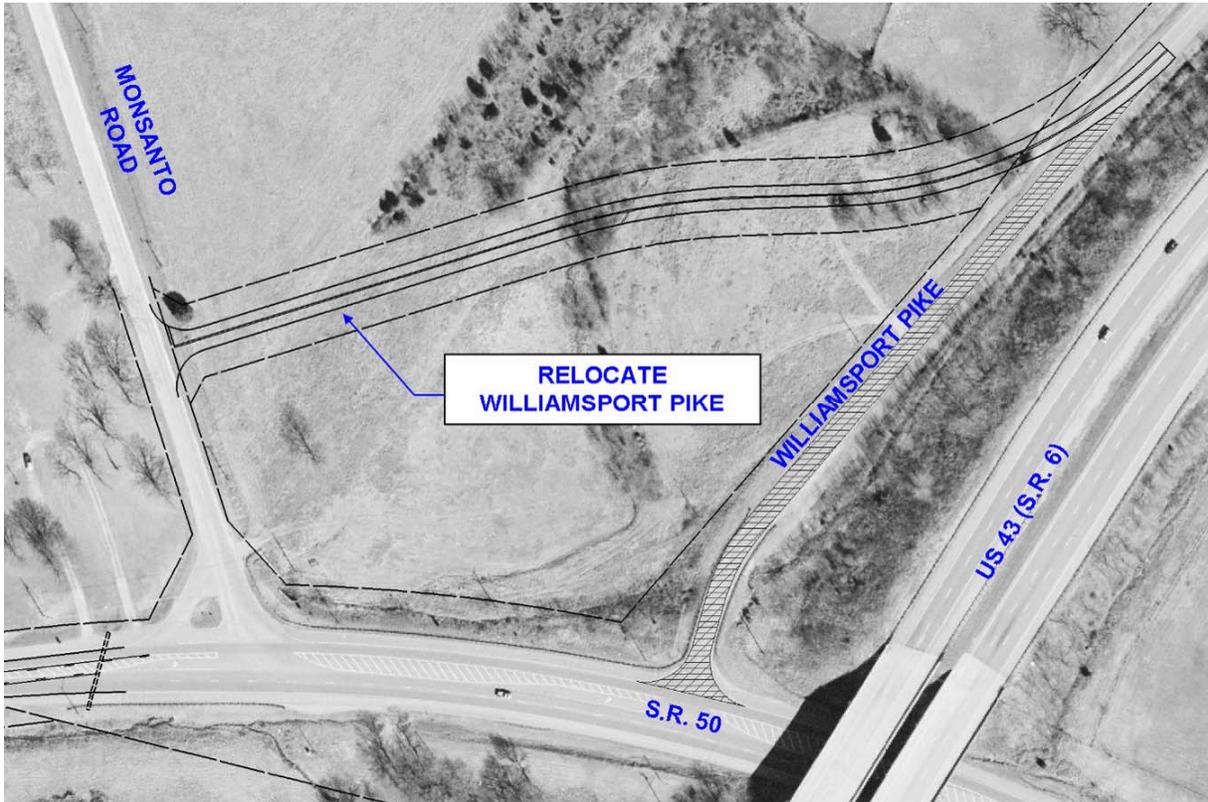
Exhibit 3.7 – Concept Plan Location No. 7



Location No. 8: Old Williamsport Pike Relocation

Old Williamsport Pike currently intersects State Route 50 at a T-intersection just west of the US 43 (State Route 6) Bypass. Several crashes have occurred at this location, most likely due to limited sight distance or visibility of the intersection as it is hidden by the proximity of the US 43 overpass. This option proposes that Old Williamsport Pike be relocated to tie to Monsanto Road. The proposed relocation would be two lanes @ 12' with shoulders of at least 6' in width, constructed within an 80' proposed right of way. This may be a locally funded project. ***This option estimate is \$520,000.***

Exhibit 3.8 – Concept Plan Location No. 8



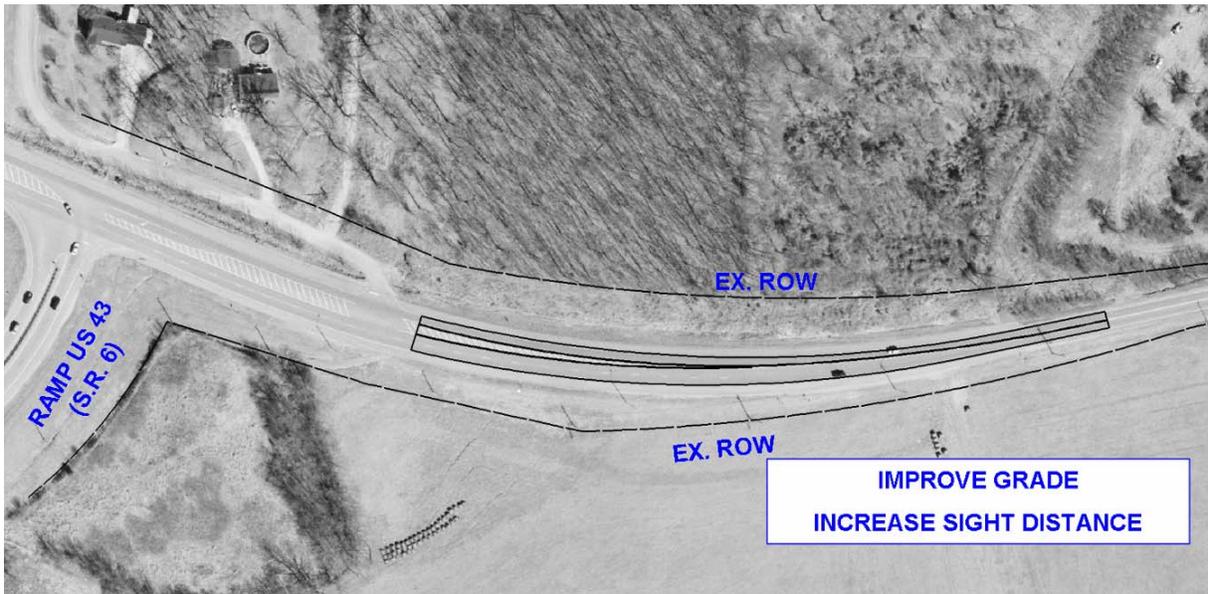
Location No. 9: East of US 43 (State Route 6)

This option proposes lowering the crest of the hill on State Route 50 to increase sight distance between the ramp to US 43 (State Route 6) and vehicles from the east.

From the ramp, the sight distance to the east is limited by the vertical grade. Vehicles on this stretch of State Route 50 were observed to be traveling at a high rate of speed and turning left from the ramp onto State Route 50 must accelerate quickly if they turn in front of a westbound vehicle. Many trucks use the ramp to turn left onto State Route 50 then turn right onto Old Williamsport Pike or Monsanto Road and they never get up to running speed. Local officials indicated that they had received complaints regarding this location. The available crash history concentrates crashes between the overpass and Monsanto Road just to the west.

Construction at this location will require relocating six utility poles, approximately 1000' of 10" sewer line, and approximately 1000' of gas line. ***This option estimate is \$471,000.***

Exhibit 3.9 – Concept Plan Location No. 9



Shoulder Widening/Improvement Option

Continuous throughout route (Except areas covered by Locations 1-9)

There are several segments along State Route 50 where the existing shoulders are proposed to be widened to 10'. The travel lanes are to receive an overlay and new pavement markings installed. This work can be done within existing ROW, but possibly some slope/construction easement may be needed.

Included in this option are improvements to the clear zone where impacts will not exceed existing ROW constraints. This would include general clearing of vegetation in the ROW, improvement to slopes in conjunction with the shoulder work and relocation of fixed objects that clearly present a hazard.

Construction of this option will require relocating approximately 35-40 utility poles and approximately 7,000 feet of 6" water line. ***This option estimate is \$2.7 million.***

New Location Option

A section of State Route 50 potentially suitable for relocation begins at the Williamsport Community and extends to the south to Foster Chapel Road (See Concept Plan Sheets 4-6 or **Exhibit 3.10**), a distance of approximately 10,850' (2.0 miles). This relocation would consist of two lanes @ 12' with 10' shoulders, constructed within a 150' minimum right-of-way. The relocation of one residence is anticipated within this corridor near the Foster Chapel Road intersection with existing State Route 50. The proposed route passes to the north of Poplar Creek. Environmental issues should be further studied if this option is advanced. There are no existing utilities within the corridor, except at the northernmost and southernmost limits where it ties to existing State Route 50. New utilities may be installed along the new route as construction progresses or can be maintained along the existing State Route 50 alignment. The existing State Route 50 alignment would remain as it accesses a number of residences and the Woodrow Community. Maintenance responsibility for the existing route would revert to Maury County. ***This option estimate is \$4.33 million.***

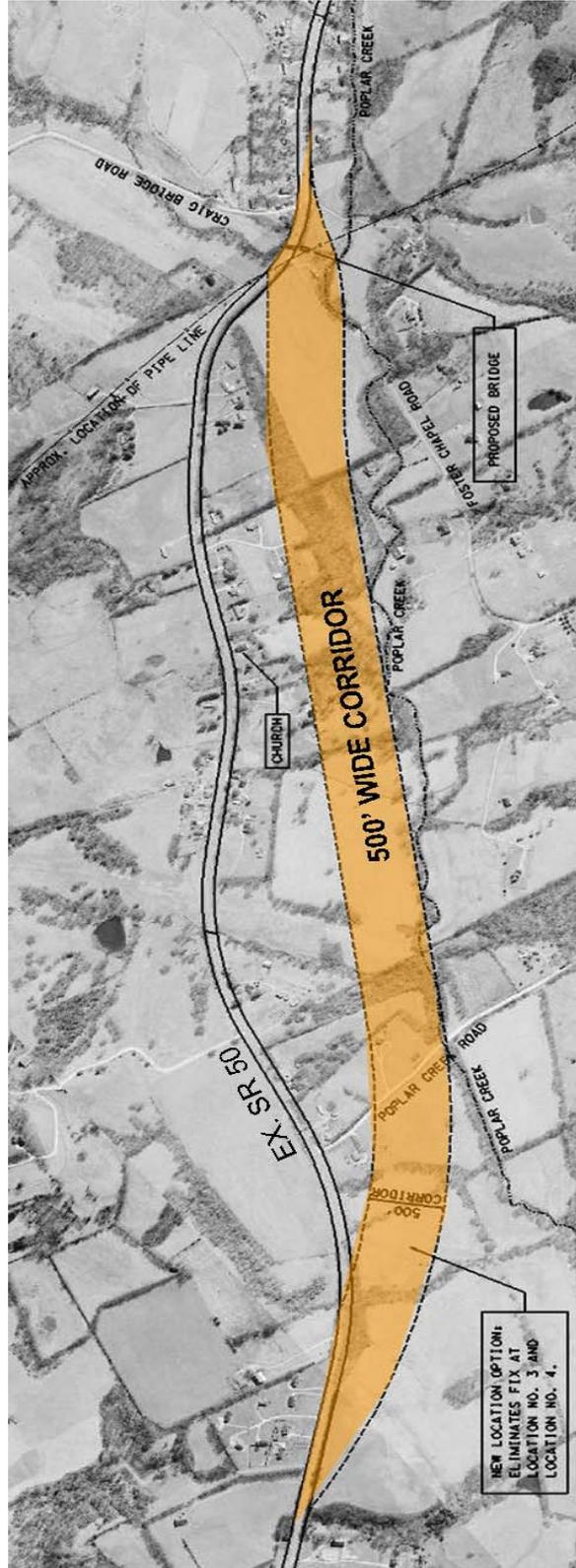
All Options (Along Existing)

This combines the localized improvements with a general program of shoulder improvement throughout the corridor. For cost estimating purposes, this option assumes that all localized improvements are implemented with shoulder improvements for the remainder of the corridor. The estimate also assumes a full overlay of existing pavement. ***This option estimated is \$9.1 million.***

All Options (Along New Location)

This combines a majority of the localized improvements with a section of new location and a general program of shoulder improvement throughout the corridor. Shoulder improvements throughout with additional geometric improvements at locations and the addition of a center turning lane within the city limits portion of the corridor. This option assumes that improvements to locations 3 & 4 would not be necessary. ***This option estimate is \$12.1 million.***

Exhibit 3.10 – Concept Plan New Location



3.7 Recommended Priority of Improvements

**HIGH
PRIORITY**

- **Location No. 1 (Eastbound approach to State Route 247):** Due to the ease of implementation, the relatively low cost to implement these improvements, and the amount of time required to implement these improvements.
- **Location No. 2 (Williamsport Market area):** Safety is a prime consideration at this location due to the number of vehicles parking on the shoulder, the volume of business conducted at this location, and the proximity of several area churches.
- **Location No. 4 (Area along State Route 50 Near Foster Chapel Road):** Due to the urgent need for safety improvements at this location, the cost to implement these improvements, and the amount of time required to implement these improvements.
- **Location No. 7 (From Tindell Lane (City Limits) to Monsanto Road):** Due to the positive affect, it would have on the greatest volume of motorists. The cost per mile is relatively low for the benefits gained.
- **Location No. 6 (At-grade Railroad crossing):** Due to the positive affect, it would have on the greatest volume of motorists. The cost per mile is relatively low for the benefits gained.
- **Location No. 9 (East of US 43 (State Route 6)):** Due to the positive affect, it would have on the greatest volume of motorists. The cost per mile is relatively low for the benefits gained.
- **Location No. 8 (Old Williamsport Pike relocation):** The roadway improvement at this location would provide an additional margin of safety by eliminating the existing intersection of Williamsport Pike with State Route 50 and combining traffic in the Monsanto Road intersection. This will improve sight distance looking south through the State Route 6 interchange. The cost to implement this improvement is minimal.
- **Location No. 3 (Woodrow Community):** The roadway improvement at this location would provide an additional margin of safety for emergency vehicles entering and leaving the new fire hall. The cost to implement this improvement is minimal.
- **Location No. 5 (Area along State Route 50 near Brown Hollow Road):** The roadway improvement at this location would provide an additional margin of safety due to improved horizontal alignment. The cost to implement this improvement is minimal.
- **Shoulder widening/improvement option:** This improvement would provide continuity throughout the corridor and provide safer shoulder areas and improved clear zones in areas other than those identified in other localized improvements.
- **The new location option:** is low on the priority list due to possible conflicts with Poplar Creek and the relocation of a residence. This option is expensive relative to the alternatives.

**LOW
PRIORITY**

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 fiscal 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

By its nature, the options presented for this corridor will enhance the existing facility and provide for a safer route for near and long-term motorists. The No-Build option does the least to manage the existing transportation system and there are deficiencies that exist which exceed typical maintenance activities. The new location option creates a new roadway section and does not necessarily address existing problems along the current route. Therefore, this option is also less favorable in relations to this guiding principle than many of the other options investigated.

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

The options discussed in this report will provide the capacity and safety needed to address the corridor's travel demands. The no-build option is the least attractive option concerning this guiding principle. Various enhancements are needed to ensure that the mobility needs of the region are served. The corridor study limits reside entirely within Maury County. However, many trips from the west originate from neighboring Hickman County. This corridor is important to both communities and provides regional mobility an economic opportunities both residents of both counties.

Guiding Principle 3: Support the State's Economy

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

Guiding Principle 4: Maximize Safety and Security

All options considered, other than No-Build, would meet or exceed current design standards and provide for safer operations. One of the primary goals of each build option is to improve the system and address deficiencies or safety related issues. Creating a safer transportation system is aligned with this guiding principle and further promotes mobility and economic opportunities as desired by the region.

Guiding Principle 5: Build Partnerships for Livable Communities

TDOT's Long Range Transportation Plan promotes and encourages projects that have public and community support. This project study, originated by the RPO, was identified as a need for the region and is supported by public officials from both Hickman and Maury County. 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 any 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, potentially historic stone walls, and homes. The study area contains several blue line streams. 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 correlation to this guiding principle.

Guiding Principle 7: Promote Financial Responsibility

Preliminary construction cost estimates were prepared for each option considered. The estimated cost of options discussed in this report range from \$0 to \$12 million. Doing all options, including the new location section, does not support this guiding principle as the costs for all of the improvements and the benefits to the community are not balanced. Generally, improvements will improve mobility, can spur economic development, and improve the overall transportation system.

How the options address the purpose and need are discussed in Section 5.0 Summary of this report. The options and their associated costs (in millions) are listed below.

No-Build	\$0
Components of Options:	
Location No. 1	\$25k
Location No. 2	\$652k
Location No. 3	\$1.2 million
Location No. 4	\$41k
Location No. 5	\$383k
Location No. 6	\$306k
Location No. 7	\$2.8 million
Location No. 8	\$520K
Location No. 9	\$471K
Shoulder Improvements	\$2.7 million
New Location Section	\$4.3 million
All Improvements:	
(Along Existing)	\$9.1 million
(New Location Option)	\$12.1 million

Table 4.1 assesses the evaluated improvements in relationship to the seven (7) guiding principles.

Table 4.1 – Improvement Options Relationship to Guiding Principles

PRINCIPLE	LOCATION										All Imp. Along Exist.	All Imp. (New Location)	
	No Build	1	2	3	4	5	6	7	8	9			New Location
Preserve and Manage the Existing Transportation System	Fair			Good	Good	Good	Good		Fair	Good	Poor	Good	Good
	Fair			Good	Good	Good	Good		Good	Good	Good	Good	Good
Move a Growing, Diverse, and Active Population	Fair			Fair	Fair	Fair	Fair		Fair	Fair	Fair	Fair	Fair
	Fair			Good	Good	Good	Good		Good	Good	Good	Good	Good
Support the State's Economy	Fair			Good	Good	Good	Good		Good	Good	Good	Good	Good
	Poor			Good	Good	Good	Good		Good	Good	Good	Good	Good
Maximize Safety and Security	Fair			Good	Good	Good	Good		Good	Good	Good	Good	Good
	Fair			Good	Good	Good	Good		Good	Good	Good	Good	Good
Build Partnerships for Livable Communities	Fair			Good	Good	Good	Good		Good	Good	Good	Good	Good
	Fair			Good	Good	Good	Good		Good	Good	Good	Good	Good
Promote Stewardship of the Environment	Fair			Good	Good	Good	Good		Fair	Good	Poor	Good	Fair
	Good			Fair	Good	Fair	Good		Fair	Fair	Poor	Good	Fair
Promote Financial Responsibility	Good			Good	Good	Good	Good		Fair	Fair	Poor	Fair	Poor
	Good			Good	Good	Good	Good		Fair	Fair	Poor	Fair	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

The Tennessee Department of Transportation's (TDOT) Long Range Planning Division conducted a Needs Assessment for SR-50 from SR-48, Centerville, Hickman Co. to US 43 (SR-6), Columbia, Maury Co., a distance of 24.95 miles (See Appendix D). This assessment was prepared at the request of the South Central West Rural Planning Organization (RPO). The RPO considers the corridor a major route connecting the cities and surrounding regions of Centerville and Columbia. The corridor provides access to manufacturing facilities, Maury Regional Hospital, and Columbia State Community College. The study corridor is the prime study priority for the RPO. From the Needs Assessment, the TDOT Long Range Planning division recommended the preparation of a Transportation Planning Report (TPR) for a portion of the RPO's priority corridor.

This TPR reviewed existing operational and geometric conditions, conducted capacity analyses for future traffic projections and developed a series of conceptual improvements that independently, or in combination, may improve safety and operational conditions along the State Route 50 corridor thereby addressing the purpose, needs, and goals of an improved corridor.

Criteria for choosing route options should incorporate the purpose, needs, and goals listed in **Section 2.0** Purpose and Need of this report. The route options are summarized as follows:

- **No Build:** This option assumes no modifications or improvements are made over the planning horizon.
- **Localized Improvements:** There are nine (9) potential location improvements that can be implemented independently or in combination as an overall improvement program
- **Shoulder Widening/Improvement:** This option seeks to improve existing shoulder widths and address clear zone issues where appropriate. Existing ROW is 80 feet for a majority of the corridor. It is assumed that work will occur in areas that can accommodate modifications and only easements would be needed for construction and maintenance. Areas where any improvements would require the taking of property or structures would need additional evaluation. One such area of concern is near Arkland and Woodrow. A new location option is presented partially because of the proximity to residences along this short stretch.
- **New Location:** This option introduces an approximately 2-mile stretch of newly located State Route 50. This option avoids the area of Arkland and the Woodrow Community. It bypasses some existing curved geometry and avoids potential impacts to houses that are in close proximity to existing State Route 50 just east of Craig Bridge Road.
- **All Options (Along Existing):** This combines the localized improvements with a general program of shoulder improvement throughout the corridor. For cost estimating purposes, this option assumes that all localized improvements are implemented with shoulder improvements for the remainder of the corridor. The estimate also assumes a full overlay of existing pavement.
- **All Options (Along New Location):** This combines a majority of the localized improvements with a section of new location and a general program of shoulder improvement throughout the corridor. Shoulder improvements throughout with additional geometric improvements at locations and the addition of a center turning lane within the city limits portion of the corridor.

Table 5.1 displays the adequacy of each option to meet the purpose, needs, and goals of the project. The rating system uses a yes/no or marginal criteria to evaluate each stated goal.

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

Goals	LOCATION											All Imp. Along Exist.	All Imp. (New Location)		
	No Build	1	2	3	4	5	6	7	8	9	New Location			Shoulder Only	
Improve geometric deficiencies	N	-	Y	Y	-	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Promote Safer Operations	N	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Support Economic Development within Region	-	-	-	-	-	-	-	-	-	-	-	-	-	-	Y
Improve Facility for alternative modes of transportation	N	-	-	-	-	-	-	-	-	-	-	-	-	Y	Y

Y = Yes
 N = No
 - = Marginal benefit

Route Disposition

Future improvements to the existing State Route 50 corridor are necessary to address the purpose and need. The “No Build” option does not address the purpose and need discussed in this report. Some combination or 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 improvement, they could be phased in over the next twenty years to yield the desired benefits.

At this time, the new location option 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.

The recommended order of improvements is:

1. Location No. 1 (Eastbound approach to State Route 247)
2. Location No. 2 (Williamsport Market Area)
3. Location No. 4 (Area Along State Route 50 Near Foster Chapel Road)
4. Location No. 7 (From Tindell Lane (City Limits) to Monsanto Road)
5. Location No. 6 (At-Grade Railroad Crossing)
6. Location No. 9 (East of US 43 (State Route 6))
7. Location No. 8 (Old Williamsport Pike Relocation)
8. Location No. 3 (Woodrow Community)
9. Location No. 5 (Area Along State Route 50 Near Brown Hollow Road)
10. Shoulder Widening/Improvement option
11. The new location option

CHECKLIST OF DETERMINANTS FOR LOCATION STUDY

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

- | | | |
|-----|---|---------------------------------|
| 1. | Agricultural land usage..... | X |
| 2. | Airport (existing or proposed)..... | |
| 3. | Commercial area, shopping center..... | |
| 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..... | |
| 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..... | X |
| | | (For portion in City
Limits) |
| | 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..... | X |
| 15. | Hazardous Material Site..... | |
| | Underground Storage Tanks – U.S.T..... | |
| 16. | Other..... | Pipelines |

DATA TABLE

Item	Exist.	Proposed Localized Improvements		
		Location No. 1	Location No. 2	Location No. 3
Functional Class	N/A	Rural Arterial	Rural Arterial	Rural Arterial
System Class	N/A	STP	STP	STP
Length - Miles	N/A	0.095	0.521	0.310
Cross Section - Feet	N/A	24/80	36/100	36/100
Base Year AADT (2011)	N/A	3600	3930	3930
Design Year AADT (2031)	N/A	5070	5370	5370
Design Year DHV (2031) (10%)	N/A	507	537	537
Percent Trucks (DHV)	N/A	8%	8%	8%
Estimated Right-Of-Way Cost	N/A	\$ -	\$ 187,000	\$ 789,000
Estimated Utility Cost	N/A	\$ -	\$ 85,000	\$ 73,000
Estimated Construction Cost	N/A	\$ 23,000	\$ 350,000	\$ 290,000
Estimated Prelim.Eng Cost	N/A	\$ 2,000	\$ 30,000	\$ 25,000
Total Estimated Cost per Mile	N/A	\$ 264,000	\$ 1,251,000	\$ 1,797,000
Total Estimated Cost	N/A	\$ 25,000	\$ 652,000	\$ 1,177,000

DATA TABLE (CONTINUED)

Item	Proposed Localized Improvements		
	Location No. 4	Location No. 5	Location No. 6
Functional Class	Rural Arterial	Rural Arterial	Rural Arterial
System Class	STP	STP	STP
Length - Miles	0.256	0.220	0.114
Cross Section - Feet	24/80	24/100	24/100
Base Year AADT (2011)	3930	5580	5580
Design Year AADT (2031)	5370	7990	7990
Design Year DHV (2031) (10%)	537	799	799
Percent Trucks (DHV)	8%	8%	8%
Estimated Right-Of-Way Cost	\$ -	\$ 91,000	\$ 11,000
Estimated Utility Cost	\$ -	\$ -	\$ 24,000
Estimated Construction Cost	\$ 41,000	\$ 269,000	\$ 249,000
Estimated Prelim. Eng Cost	\$ 0	\$ 23,000	\$ 22,000
Total Estimated Cost per Mile	\$ 160,000	\$ 1,741,000	\$ 2,684,000
Total Estimated Cost	\$ 41,000	\$ 383,000	\$ 306,000

DATA TABLE (CONTINUED)

Item	Proposed Localized Improvements		
	Location No. 7	Location No. 8	Location No. 9
Functional Class	Urban Arterial	Urban Arterial	Urban Arterial
System Class	STP	STP	STP
Length - Miles	2.099	0.211	0.189
Cross Section - Feet	36/100	24/80	Variable
Base Year AADT (2011)	5700	5700	5400
Design Year AADT (2031)	7400	7400	5780
Design Year DHV (2031) (10%)	740	740	578
Percent Trucks (DHV)	8%	8%	8%
Estimated Right-Of-Way Cost	\$ 127,000	\$ 48,000	\$ 53,000
Estimated Utility Cost	\$ 134,000	\$ -	\$ 75,000
Estimated Construction Cost	\$ 2,376,000	\$ 434,000	\$ 316,000
Estimated Prelim.Eng Cost	\$ 206,000	\$ 38,000	\$ 27,000
Total Estimated Cost per Mile	\$ 1,354,000	\$ 2,465,000	\$ 2,487,000
Total Estimated Cost	\$ 2,843,000	\$ 520,000	\$ 471,000

DATA TABLE (CONTINUED)

Item	New Location	Shoulder Improvements
Functional Class	Rural Arterial	Rural/Urban
System Class	STP	STP
Length - Miles	2.056	4.915
Cross Section - Feet	24/150	24/80
Base Year AADT (2011)	3930	3600-5700
Design Year AADT (2031)	5370	5070-7990
Design Year DHV (2031) (10%)	537	507-799
Percent Trucks (DHV)	8%	8%
Estimated Right-Of-Way Cost	\$ 343,000	\$ -
Estimated Utility Cost	\$ -	\$ 310,000
Estimated Construction Cost	\$ 3,664,000	\$ 2,163,000
Estimated Prelim.Eng Cost	\$ 318,000	\$ 188,000
Total Estimated Cost per Mile	\$ 2,103,000	\$ 541,000
Total Estimated Cost	\$ 4,325,000	\$ 2,661,000

DATA TABLE (CONTINUED)

Item	ALL LOCATION IMPROVEMENTS (ALONG EXISTING)	ALL LOCATION IMPROVEMENTS (NEW LOCATION OPTION)
Functional Class	Rural/Urban	Rural/Urban
System Class	STP	STP
Length - Miles	8.929	10.420
Cross Section - Feet	Varies	Varies
Base Year AADT (2011)	3600-5700	3600-5700
Design Year AADT (2031)	5070-7990	5070-7990
Design Year DHV (2031) (10%)	507-799	507-799
Percent Trucks (DHV)	8%	8%
Estimated Right-Of-Way Cost	\$ 255,000	\$ 606,000
Estimated Utility Cost	\$ 701,000	\$ 628,000
Estimated Construction Cost	\$ 6,404,000	\$ 9,723,000
Estimated Prelim.Eng Cost	\$ 555,000	\$ 843,000
Total Estimated Cost per Mile	\$ 892,300	\$ 1,132,000
Total Estimated Cost	\$ 7,968,000	\$ 11,800,000

Tennessee Department of Transportation
 Design Criteria for Location and Design Phase

Route:	SR-50	Alternate:	ALL
Section:	All	Region:	3
County:	Maury	Project:	99107-7086-04

Location

From:	State Route 247
To:	U.S. 31 (State Route 6)

Parameter	Criteria
2011 AADT – SR 247 to City limits	Varies 3600 - 5700
2031 AADT – SR 247 to City limits	Varies 5070 - 7400
2011 AADT – City limits to End Project	5700
2031 AADT – City limits to End Project	7400
Percent Trucks (DHV)	8%
Functional Classification:	
Begin Project to City Limits	Rural Arterial
City Limits to End Project	Urban Arterial
Minimum Design Speed	45 MPH
Access Control	No
Maximum Curve	760'± = 7°30'
Maximum Grade	6.5%
Minimum Stopping Sight Distance	400'
Surface Width	2 @ 12'
Number of Lanes	2 (See note 1 below)
Usable Shoulder Width	10' (See note 2 below)
Median Width	N/A
Minimum R.O.W	80'
Signalization	None

1. A third lane (center turn lane) will be added at several locations.
2. The existing shoulder width is approximately 4' through most areas. The proposed shoulder width is 10'.

COST DATA SHEET - LOCATION NO. 1

Section: Location No. 1
X-Sect: 24/80 (Existing)
Length: 500' (0.095 Mi.)

Right-of-Way

Land	x	acres	\$ _____
Incidentals	x	tracts	\$ _____
Relocation Payments	x	residences	\$ _____
		businesses	
		non-profits	

Total Right-of-Way Cost \$ _____ -

Utility Relocation

Reimbursable	\$ _____
Non-Reimbursable	\$ _____
Total Utility Cost	\$ _____ -

Construction

Clear and Grubbing	\$ 15,000
Earthwork	\$ -
Pavement Removal	\$ -
Drainage	\$ -
Structures	\$ -
Railroad Crossing or Separation	\$ -
Paving	\$ -
Retaining Walls	\$ -
Maintenance of Traffic	\$ 1,000
Topsoil	\$ -
Seeding	\$ -
Sodding	\$ -
Signing	\$ 1,000
Lighting	\$ -
Signalization	\$ -
Fence	\$ -
Guardrail	\$ -
Rip Rap or Slope Protection	\$ -
Construction Items Subtotal	\$ 17,000
Other Construction Items	\$ 2,000
Erosion Control	\$ 1,000
Mobilization	\$ 1,000
Construction Cost	\$ 21,000
10% Engineering & Cont.	\$ 2,000

Total Construction Cost \$ **23,000**

Preliminary Engineering \$ **2,000**

TOTAL COST \$ **25,000**

Cost Per Mile \$ **264,000**

COST DATA SHEET - LOCATION NO. 2

Section: Location No. 2
X-Sect: 36/100
Length: 2750' (0.521 Mi.)

Right-of-Way

Land	x	acres	\$ _____
Incidentals	x	tracts	\$ _____
Relocation Payments	x	residences	\$ _____
		businesses	
		non-profits	

Total Right-of-Way Cost **\$ 187,000**

Utility Relocation

Reimbursable	\$ _____
Non-Reimbursable	\$ _____
Total Utility Cost	\$ <u>85,000</u>

Construction

Clear and Grubbing	\$ 83,000
Earthwork	\$ 26,000
Pavement Removal	\$ 2,000
Drainage	\$ -
Structures	\$ -
Railroad Crossing or Separation	\$ -
Paving	\$ 148,000
Retaining Walls	\$ -
Maintenance of Traffic	\$ 3,000
Topsoil	\$ 9,000
Seeding	\$ 1,000
Sodding	\$ -
Signing	\$ -
Lighting	\$ -
Signalization	\$ -
Fence	\$ -
Guardrail	\$ -
Rip Rap or Slope Protection	\$ -
Construction Items Subtotal	\$ <u>272,000</u>
Other Construction Items	\$ 28,000
Erosion Control	\$ 3,000
Mobilization	\$ 17,000
Construction Cost	\$ 411,000
10% Engineering & Cont.	\$ 30,000

Total Construction Cost **\$ 350,000**

Preliminary Engineering **\$ 30,000**

TOTAL COST **\$ 652,000**

Cost Per Mile **\$ 1,251,000**

COST DATA SHEET - LOCATION NO. 3

Section: Location No. 3
X-Sect: 36/100
Length: 1,638' (0.310 Mi.)

Right-of-Way

Land	x	acres	\$	
Incidentals	x	tracts	\$	
Relocation Payments	x	residences	\$	
		businesses		
		non-profits		

Total Right-of-Way Cost **\$ 789,000**

Utility Relocation

Reimbursable	\$	
Non-Reimbursable	\$	
Total Utility Cost		\$ <u>73,000</u>

Construction

Clear and Grubbing	\$ 98,000
Earthwork	\$ 32,000
Pavement Removal	\$ -
Drainage	\$ -
Structures	\$ -
Railroad Crossing or Separation	\$ -
Paving	\$ 79,000
Retaining Walls	\$ -
Maintenance of Traffic	\$ 3,000
Topsoil	\$ 11,000
Seeding	\$ 2,000
Sodding	\$ -
Signing	\$ -
Lighting	\$ -
Signalization	\$ -
Fence	\$ -
Guardrail	\$ -
Rip Rap or Slope Protection	\$ -
Construction Items Subtotal	\$ <u>225,000</u>
Other Construction Items	\$ 23,000
Erosion Control	\$ 3,000
Mobilization	\$ 14,000
Construction Cost	\$ 265,000
10% Engineering & Cont.	\$ 25,000

Total Construction Cost **\$ 290,000**

Preliminary Engineering **\$ 25,000**

TOTAL COST **\$ 1,177,000**

Cost Per Mile **\$ 3,797,000**

COST DATA SHEET - LOCATION NO. 4

Section: Location No. 4
X-Sect: 24/80
Length: 1,350' (0.256 Mi.)

Right-of-Way

Land	x	acres	\$ _____
Incidentals	x	tracts	\$ _____
Relocation Payments	x	residences	\$ _____
		businesses	
		non-profits	

Total Right-of-Way Cost \$ _____ -

Utility Relocation

Reimbursable	\$ _____
Non-Reimbursable	\$ _____
Total Utility Cost	\$ _____ -

Construction

Clear and Grubbing	\$ 30,000
Earthwork	\$ -
Pavement Removal	\$ -
Drainage	\$ -
Structures	\$ -
Railroad Crossing or Separation	\$ -
Paving	\$ -
Retaining Walls	\$ -
Maintenance of Traffic	\$ 1,000
Topsoil	\$ -
Seeding	\$ -
Sodding	\$ -
Signing	\$ -
Lighting	\$ -
Signalization	\$ -
Fence	\$ -
Guardrail	\$ -
Rip Rap or Slope Protection	\$ -
Construction Items Subtotal	\$ <u>31,000</u>
Other Construction Items	\$ 3,000
Erosion Control	\$ 1,000
Mobilization	\$ 2,000
Construction Cost	\$ 37,000
10% Engineering & Cont.	\$ 4,000

Total Construction Cost \$ 41,000

Preliminary Engineering \$ 0

TOTAL COST \$ 41,000

Cost Per Mile \$ 160,000

COST DATA SHEET - LOCATION NO. 5

Section: Location No. 5
X-Sect: 24/100
Length: 1,164' (0.220 Mi.)

Right-of-Way

Land	x	acres	\$	
Incidentals	x	tracts	\$	
Relocation Payments	x	residences	\$	
		businesses		
		non-profits		

Total Right-of-Way Cost **\$ 91,000**

Utility Relocation

Reimbursable	\$	
Non-Reimbursable	\$	
Total Utility Cost	\$	<u>-</u>

Construction

Clear and Grubbing	\$	70,000
Earthwork	\$	22,000
Pavement Removal	\$	-
Drainage	\$	-
Structures	\$	-
Railroad Crossing or Separation	\$	-
Paving	\$	94,000
Retaining Walls	\$	-
Maintenance of Traffic	\$	3,000
Topsoil	\$	8,000
Seeding	\$	1,000
Sodding	\$	-
Signing	\$	-
Lighting	\$	-
Signalization	\$	-
Fence	\$	-
Guardrail	\$	-
Rip Rap or Slope Protection	\$	-
Construction Items Subtotal	\$	<u>198,000</u>
Other Construction Items	\$	20,000
Erosion Control	\$	2,000
Mobilization	\$	12,000
Construction Cost	\$	232,000
10% Engineering & Cont.	\$	22,000

Total Construction Cost **\$ 269,000**

Preliminary Engineering **\$ 23,000**

TOTAL COST **\$ 383,000**

Cost Per Mile **\$ 1,741,000**

COST DATA SHEET - LOCATION NO. 6

Section: Location No. 6

X-Sect: 24/100

Length: 600' (0.114 Mi.)

Right-of-Way

Land	x	acres	\$	
Incidentals	x	tracts	\$	
Relocation Payments	x	residences	\$	
		businesses		
		non-profits		

Total Right-of-Way Cost **\$ 11,000**

Utility Relocation

Reimbursable	\$	
Non-Reimbursable	\$	

Total Utility Cost **\$ 24,000**

Construction

Clear and Grubbing	\$ 18,000
Earthwork	\$ 6,000
Pavement Removal	\$ -
Drainage	\$ -
Structures	\$ -
Railroad Crossing or Separation	\$ 115,000
Paving	\$ 46,000
Retaining Walls	\$ -
Maintenance of Traffic	\$ 3,000
Topsoil	\$ 2,000
Seeding	\$ 1,000
Sodding	\$ -
Signing	\$ -
Lighting	\$ -
Signalization	\$ -
Fence	\$ -
Guardrail	\$ -
Rip Rap or Slope Protection	\$ -
Construction Items Subtotal	\$ <u>191,000</u>
Other Construction Items	\$ 19,000
Erosion Control	\$ 5,000
Mobilization	\$ 12,000
Construction Cost	\$ 227,000
10% Engineering & Cont.	\$ 22,000

Total Construction Cost **\$ 249,000**

Preliminary Engineering **\$ 22,000**

TOTAL COST **\$ 306,000**

Cost Per Mile **\$ 2,684,000**

COST DATA SHEET - LOCATION NO. 7

Section: Location No. 7
X-Sect: 36/100
Length: 11,083' (2.099 Mi.)

Right-of-Way

Land	x	acres		\$	
Incidentals	x	tracts		\$	
Relocation Payments	x	residences		\$	
		businesses			
		non-profits			

Total Right-of-Way Cost **\$ 127,000**

Utility Relocation

Reimbursable				\$	
Non-Reimbursable				\$	
Total Utility Cost					\$ <u>134,000</u>

Construction

Clear and Grubbing	\$	332,000	
Earthwork	\$	107,000	
Pavement Removal	\$	-	
Drainage	\$	8,000	
Structures	\$	522,000	
Railroad Crossing or Separation	\$	-	
Paving	\$	838,000	
Retaining Walls	\$	-	
Maintenance of Traffic	\$	16,000	
Topsoil	\$	38,000	
Seeding	\$	5,000	
Sodding	\$	-	
Signing	\$	4,000	
Lighting	\$	-	
Signalization	\$	-	
Fence	\$	-	
Guardrail	\$	28,000	
Rip Rap or Slope Protection	\$	14,000	
Construction Items Subtotal	\$	<u>1,912,000</u>	
Other Construction Items	\$	139,000	
Erosion Control	\$	12,000	
Mobilization	\$	107,000	
Construction Cost	\$	2,170,000	
10% Engineering & Cont.	\$	206,000	

Total Construction Cost **\$ 2,376,000**

Preliminary Engineering **\$ 206,000**

TOTAL COST **\$ 2,843,000**

Cost Per Mile **\$ 1,354,000**

COST DATA SHEET - LOCATION NO. 8

Section: Location No. 8
X-Sect: 24/80
Length: 1,114' (0.211 Mi.)

Right-of-Way

Land	x	acres		\$	
Incidentals	x	tracts		\$	
Relocation Payments	x	residences		\$	
		businesses			
		non-profits			

Total Right-of-Way Cost **\$ 48,000**

Utility Relocation

Reimbursable	\$	
Non-Reimbursable	\$	
Total Utility Cost	\$	<u>-</u>

Construction

Clear and Grubbing	\$	167,000
Earthwork	\$	54,000
Pavement Removal	\$	7,000
Drainage	\$	-
Structures	\$	-
Railroad Crossing or Separation	\$	-
Paving	\$	93,000
Retaining Walls	\$	-
Maintenance of Traffic	\$	2,000
Topsoil	\$	8,000
Seeding	\$	2,000
Sodding	\$	-
Signing	\$	2,000
Lighting	\$	-
Signalization	\$	-
Fence	\$	-
Guardrail	\$	-
Rip Rap or Slope Protection	\$	-
Construction Items Subtotal	\$	<u>335,000</u>
Other Construction Items	\$	34,000
Erosion Control	\$	6,000
Mobilization	\$	21,000
Construction Cost	\$	396,000
10% Engineering & Cont.	\$	38,000

Total Construction Cost **\$ 434,000**

Preliminary Engineering **\$ 38,000**

TOTAL COST **\$ 520,000**

Cost Per Mile **\$ 2,465,000**

COST DATA SHEET - LOCATION NO. 9

Section: Location No. 9
X-Sect: Variable
Length: 1,000' (0.189 Mi.)

Right-of-Way

Land	x	acres	\$	
Incidentals	x	tracts	\$	
Relocation Payments	x	residences	\$	
		businesses		
		non-profits		

Total Right-of-Way Cost **\$ 53,000**

Utility Relocation

Reimbursable	\$	
Non-Reimbursable	\$	

Total Utility Cost **\$ 75,000**

Construction

Clear and Grubbing	\$ 90,000
Earthwork	\$ 29,000
Pavement Removal	\$ -
Drainage	\$ -
Structures	\$ -
Railroad Crossing or Separation	\$ -
Paving	\$ 114,000
Retaining Walls	\$ -
Maintenance of Traffic	\$ 3,000
Topsoil	\$ 7,000
Seeding	\$ 1,000
Sodding	\$ -
Signing	\$ 2,000
Lighting	\$ -
Signalization	\$ -
Fence	\$ -
Guardrail	\$ -
Rip Rap or Slope Protection	\$ -
Construction Items Subtotal	\$ <u>246,000</u>
Other Construction Items	\$ 25,000
Erosion Control	\$ 3,000
Mobilization	\$ 15,000
Construction Cost	\$ 289,000
10% Engineering & Cont.	\$ 27,000

Total Construction Cost **\$ 316,000**

Preliminary Engineering **\$ 27,000**

TOTAL COST **\$ 471,000**

Cost Per Mile **\$ 2,487,000**

COST DATA SHEET - NEW LOCATION

Section: New Location
X-Sect: 24/150
Length: 10,857' (2.056 Mi.)

Right-of-Way

Land	x	acres		\$ _____
Incidentals	x	tracts		\$ _____
Relocation Payments	x	residences		\$ _____
		businesses		
		non-profits		

Total Right-of-Way Cost **\$ 343,000**

Utility Relocation

Reimbursable		\$ _____	
Non-Reimbursable		\$ _____	
Total Utility Cost			\$ _____ -

Construction

Clear and Grubbing	\$ 250,000
Earthwork	\$ 1,045,000
Pavement Removal	\$ -
Drainage	\$ 47,000
Structures	\$ 360,000
Railroad Crossing or Separation	\$ -
Paving	\$ 1,011,000
Retaining Walls	\$ -
Maintenance of Traffic	\$ 5,000
Topsoil	\$ 145,000
Seeding	\$ 21,000
Sodding	\$ -
Signing	\$ 4,000
Lighting	\$ -
Signalization	\$ -
Fence	\$ -
Guardrail	\$ 28,000
Rip Rap or Slope Protection	\$ -
Construction Items Subtotal	\$ <u>2,916,000</u>
Other Construction Items	\$ 257,000
Erosion Control	\$ 10,000
Mobilization	\$ 163,000
Construction Cost	\$ 3,346,000
10% Engineering & Cont.	\$ 318,000

Total Construction Cost **\$ 3,664,000**

Preliminary Engineering **\$ 318,000**

TOTAL COST **\$ 4,325,000**

Cost Per Mile **\$ 2,103,000**

COST DATA SHEET - SHOULDER & OVERLAY

Section: Shoulder & Overlay

X-Sect: 24/80

Length: 25,951' (4.915 Mi.)

Right-of-Way

Land	x	acres		\$ _____
Incidentals	x	tracts		\$ _____
Relocation Payments	x	residences		\$ _____
		businesses		
		non-profits		

Total Right-of-Way Cost \$ _____ -

Utility Relocation

Reimbursable \$ _____

Non-Reimbursable \$ _____

Total Utility Cost \$ 310,000

Construction

Clear and Grubbing	\$ 250,000
Earthwork	\$ 500,000
Pavement Removal	\$ -
Drainage	\$ 26,000
Structures	\$ -
Railroad Crossing or Separation	\$ -
Paving	\$ 532,000
Retaining Walls	\$ -
Maintenance of Traffic	\$ 5,000
Topsoil	\$ 178,000
Seeding	\$ 25,000
Sodding	\$ -
Signing	\$ 25,000
Lighting	\$ -
Signalization	\$ -
Fence	\$ -
Guardrail	\$ 155,000
Rip Rap or Slope Protection	\$ -
Construction Items Subtotal	\$ <u>1,696,000</u>
Other Construction Items	\$ 171,000
Erosion Control	\$ 10,000
Mobilization	\$ 98,000
Construction Cost	\$ 1,975,000
10% Engineering & Cont.	\$ 188,000

Total Construction Cost \$ 2,163,000

Preliminary Engineering \$ 188,000

TOTAL COST \$ 2,661,000

Cost Per Mile \$ 541,000

**TPR
CONCEPT PLAN**

Index Of Sheets

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

STATE OF TENNESSEE DEPARTMENT OF TRANSPORTATION BUREAU OF ENGINEERING

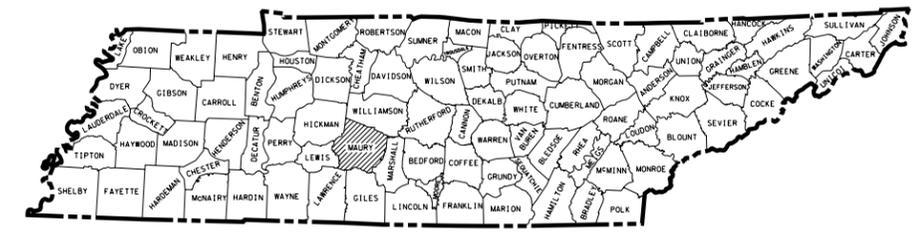
TENN.	YEAR	SHEET NO.
	2007	1
FED. AID PROJ. NO.		
STATE PROJ. NO.		

MAURY COUNTY

STATE ROUTE 50 FROM STATE ROUTE 247
TO U. S. 31 (STATE ROUTE 6)

T.P.R.

STATE HIGHWAY NO. 50 F.A.H.S. NO. 50



BEGIN CORRIDOR STUDY
STATE ROUTE 50



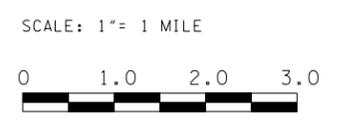
END CORRIDOR STUDY
STATE ROUTE 50

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 CHECKED BY _____
P.E. NO. _____



APPROVED: _____
CHIEF ENGINEER

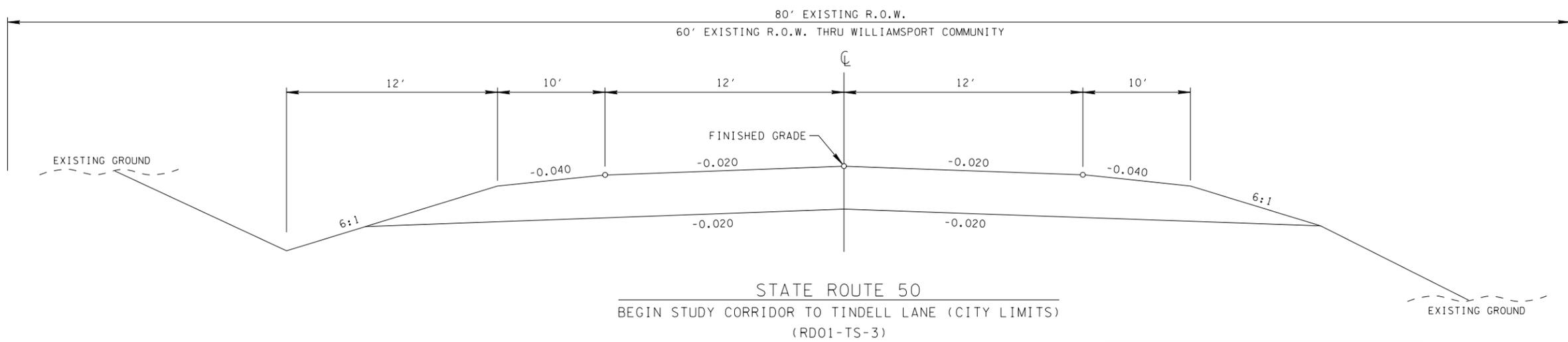
DATE: _____

APPROVED: _____
COMMISSIONER

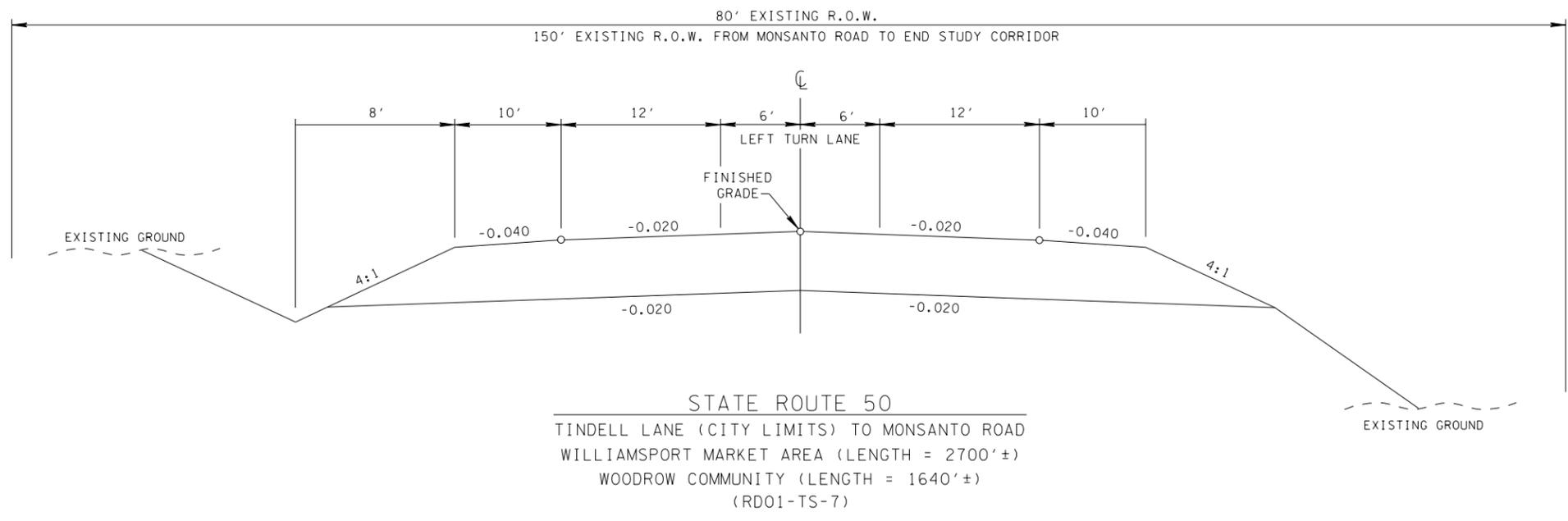
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED: _____
DIVISION ADMINISTRATOR DATE

TYPE	YEAR	PROJECT NO.	SHEET NO.
TPR	2007	CONCEPT	2

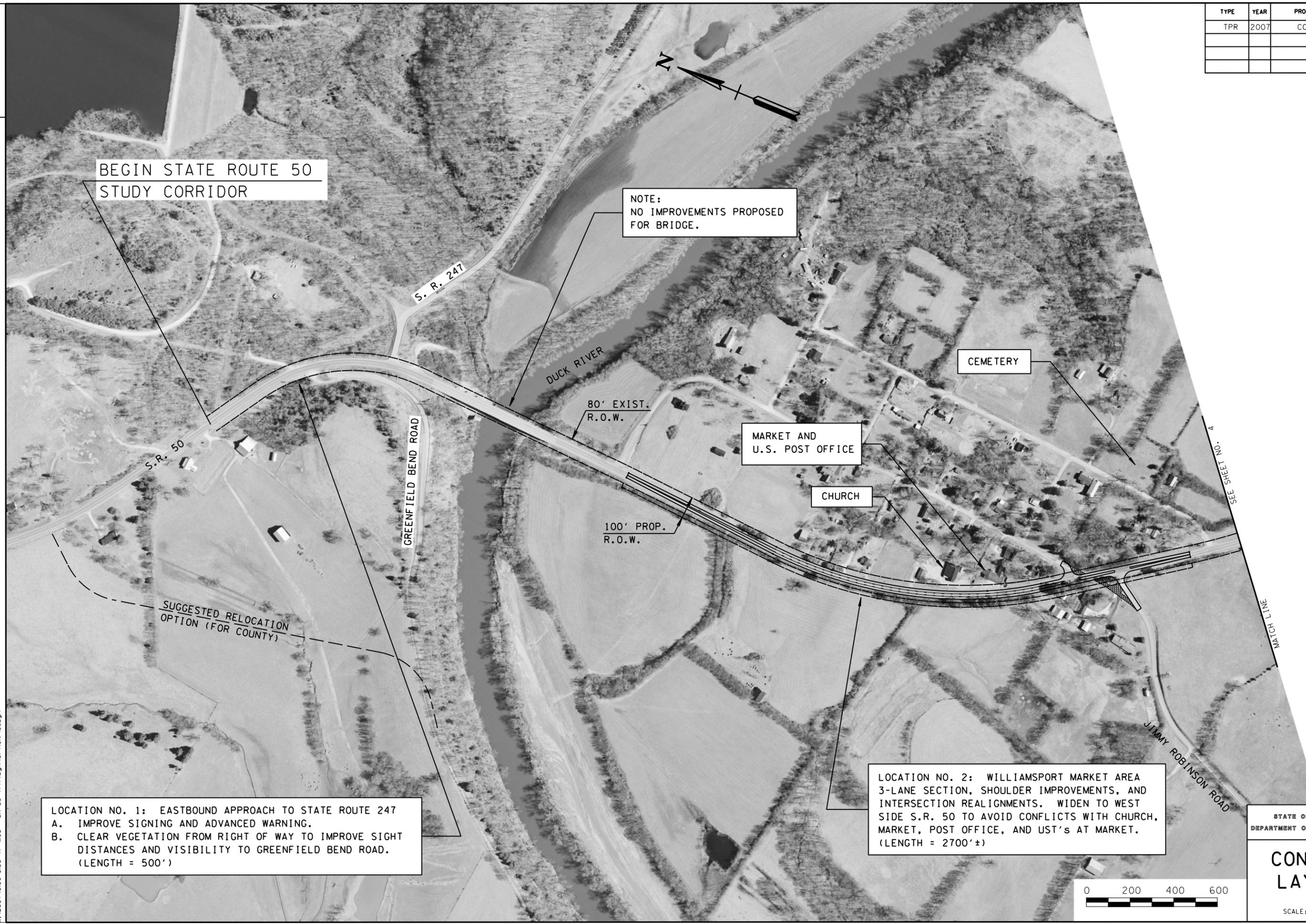


SOME AREAS HAVE A TURN LANE. SEE NOTE FOR LOCATIONS BELOW 3-LANE SECTION TYPICAL.



STATE ROUTE 50
 MATCH EXISTING SECTION
 MONSANTO ROAD TO END STUDY CORRIDOR

TYPE	YEAR	PROJECT NO.	SHEET NO.
TPR	2007	CONCEPT	3



BEGIN STATE ROUTE 50
 STUDY CORRIDOR

NOTE:
 NO IMPROVEMENTS PROPOSED
 FOR BRIDGE.

CEMETERY

MARKET AND
 U.S. POST OFFICE

CHURCH

80' EXIST.
 R.O.W.

100' PROP.
 R.O.W.

SUGGESTED RELOCATION
 OPTION (FOR COUNTY)

LOCATION NO. 1: EASTBOUND APPROACH TO STATE ROUTE 247
 A. IMPROVE SIGNING AND ADVANCED WARNING.
 B. CLEAR VEGETATION FROM RIGHT OF WAY TO IMPROVE SIGHT
 DISTANCES AND VISIBILITY TO GREENFIELD BEND ROAD.
 (LENGTH = 500')

LOCATION NO. 2: WILLIAMSPORT MARKET AREA
 3-LANE SECTION, SHOULDER IMPROVEMENTS, AND
 INTERSECTION REALIGNMENTS, WIDEN TO WEST
 SIDE S.R. 50 TO AVOID CONFLICTS WITH CHURCH,
 MARKET, POST OFFICE, AND UST'S AT MARKET.
 (LENGTH = 2700'±)



STATE OF TENNESSEE
 DEPARTMENT OF TRANSPORTATION

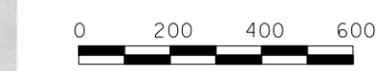
CONCEPT
 LAYOUT

SCALE: 1"=200'

TYPE	YEAR	PROJECT NO.	SHEET NO.
TPR	2007	CONCEPT	4



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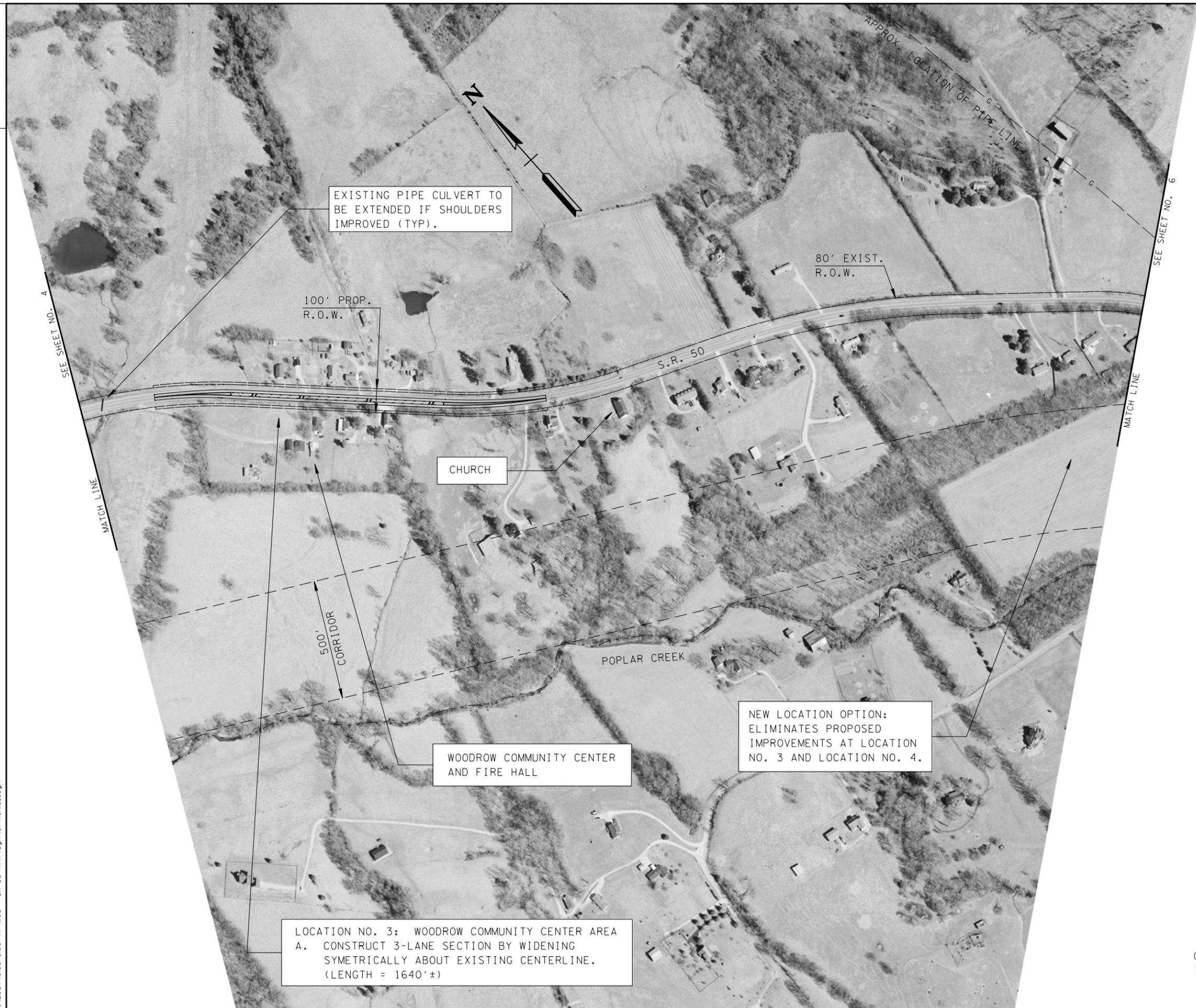


STATE OF TENNESSEE
 DEPARTMENT OF TRANSPORTATION

CONCEPT LAYOUT

SCALE: 1"=200'

TYPE	YEAR	PROJECT NO.	SHEET NO.
TPR	2007	CONCEPT	5



EXISTING PIPE CULVERT TO BE EXTENDED IF SHOULDERS IMPROVED (TYP).

100' PROP. R.O.W.

80' EXIST. R.O.W.

CHURCH

WOODROW COMMUNITY CENTER AND FIRE HALL

NEW LOCATION OPTION: ELIMINATES PROPOSED IMPROVEMENTS AT LOCATION NO. 3 AND LOCATION NO. 4.

LOCATION NO. 3: WOODROW COMMUNITY CENTER AREA A. CONSTRUCT 3-LANE SECTION BY WIDENING SYMETRICALLY ABOUT EXISTING CENTERLINE. (LENGTH = 1640'±)

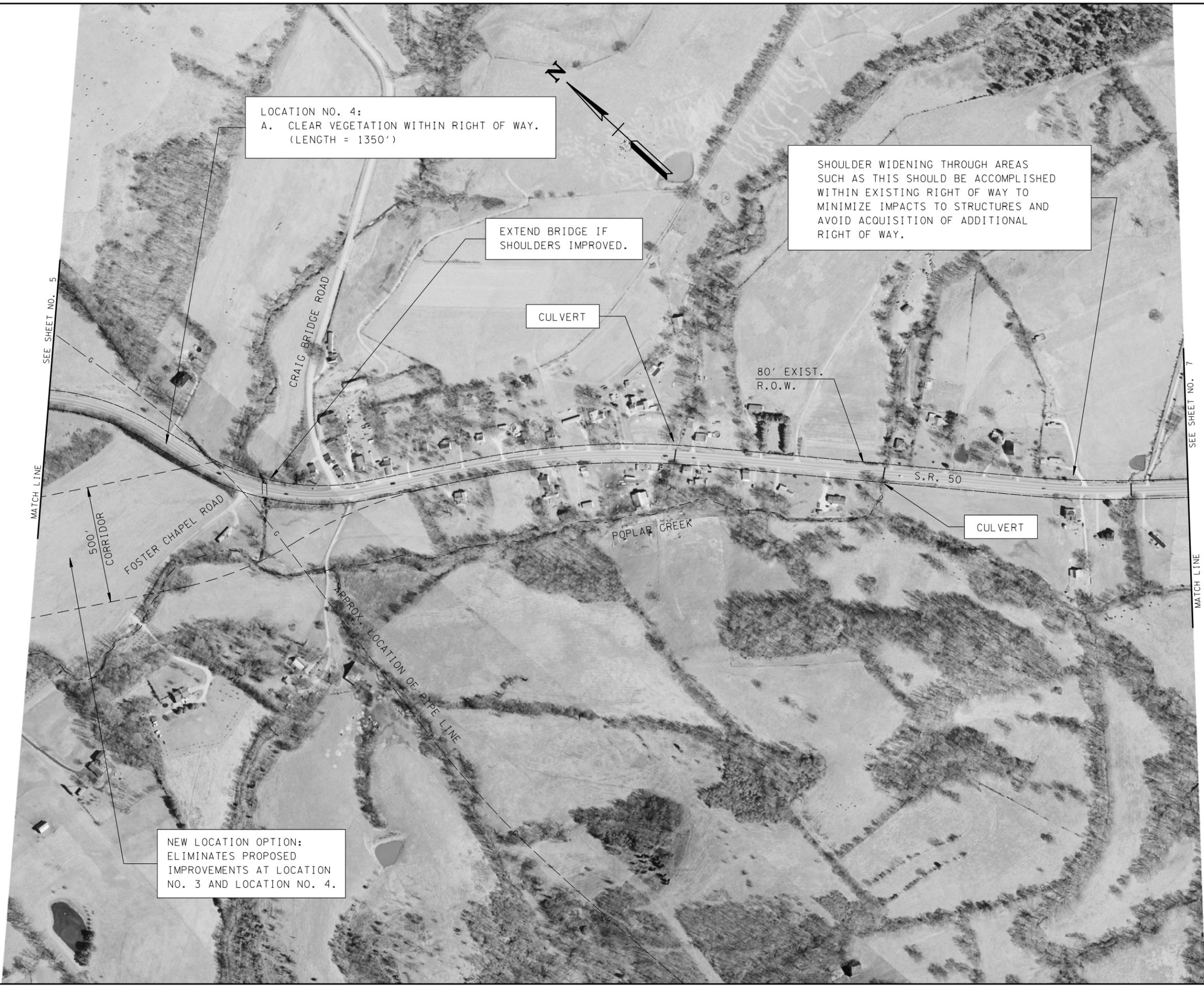


STATE OF TENNESSEE
 DEPARTMENT OF TRANSPORTATION

CONCEPT LAYOUT

SCALE: 1"=200'

TYPE	YEAR	PROJECT NO.	SHEET NO.
TPR	2007	CONCEPT	6



NEW LOCATION OPTION:
 ELIMINATES PROPOSED
 IMPROVEMENTS AT LOCATION
 NO. 3 AND LOCATION NO. 4.



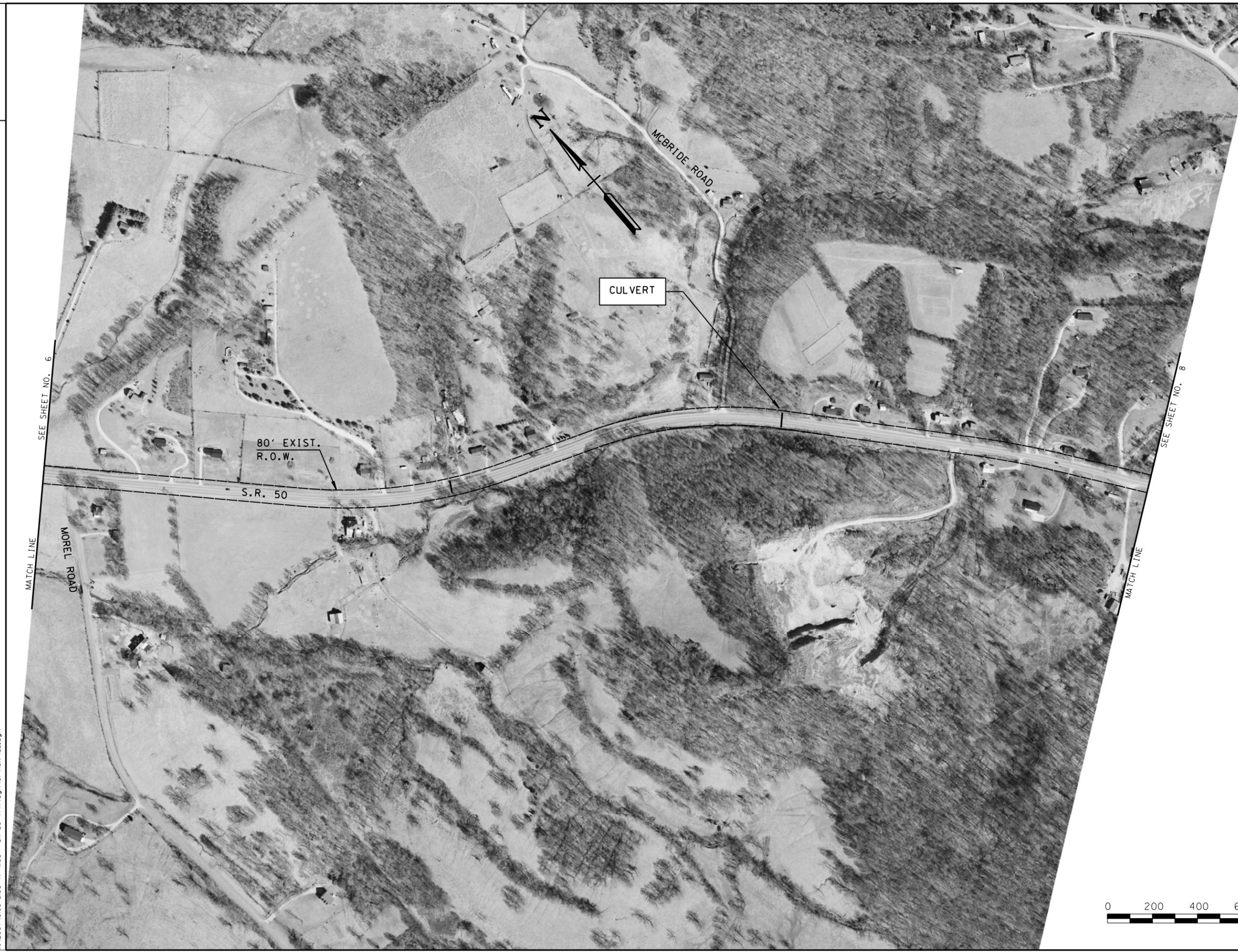
STATE OF TENNESSEE
 DEPARTMENT OF TRANSPORTATION

CONCEPT
 LAYOUT

SCALE: 1"=200'

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

TYPE	YEAR	PROJECT NO.	SHEET NO.
TPR	2007	CONCEPT	7



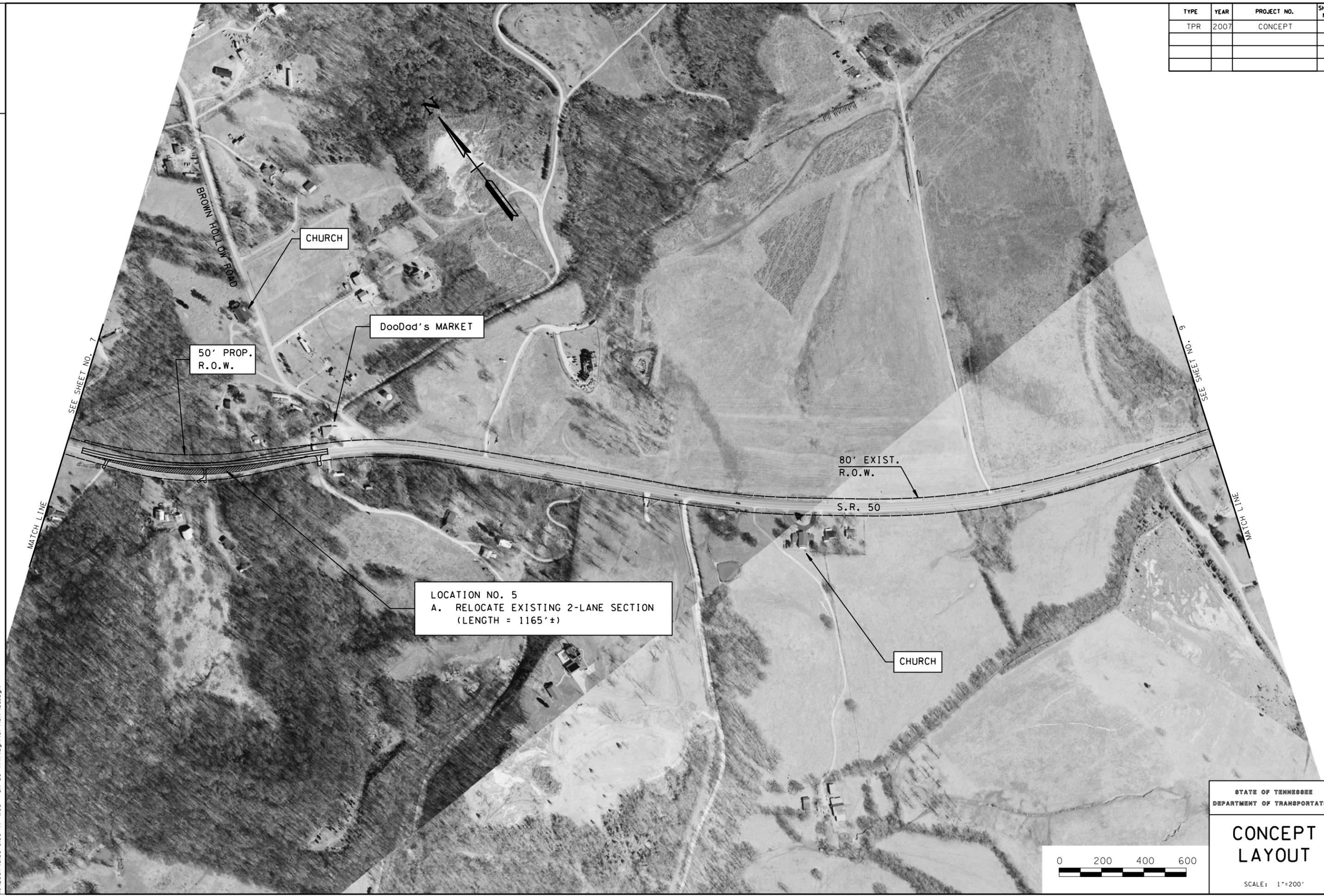
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STATE OF TENNESSEE
 DEPARTMENT OF TRANSPORTATION
CONCEPT LAYOUT
 SCALE: 1"=200'

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

TYPE	YEAR	PROJECT NO.	SHEET NO.
TPR	2007	CONCEPT	8



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STATE OF TENNESSEE
 DEPARTMENT OF TRANSPORTATION

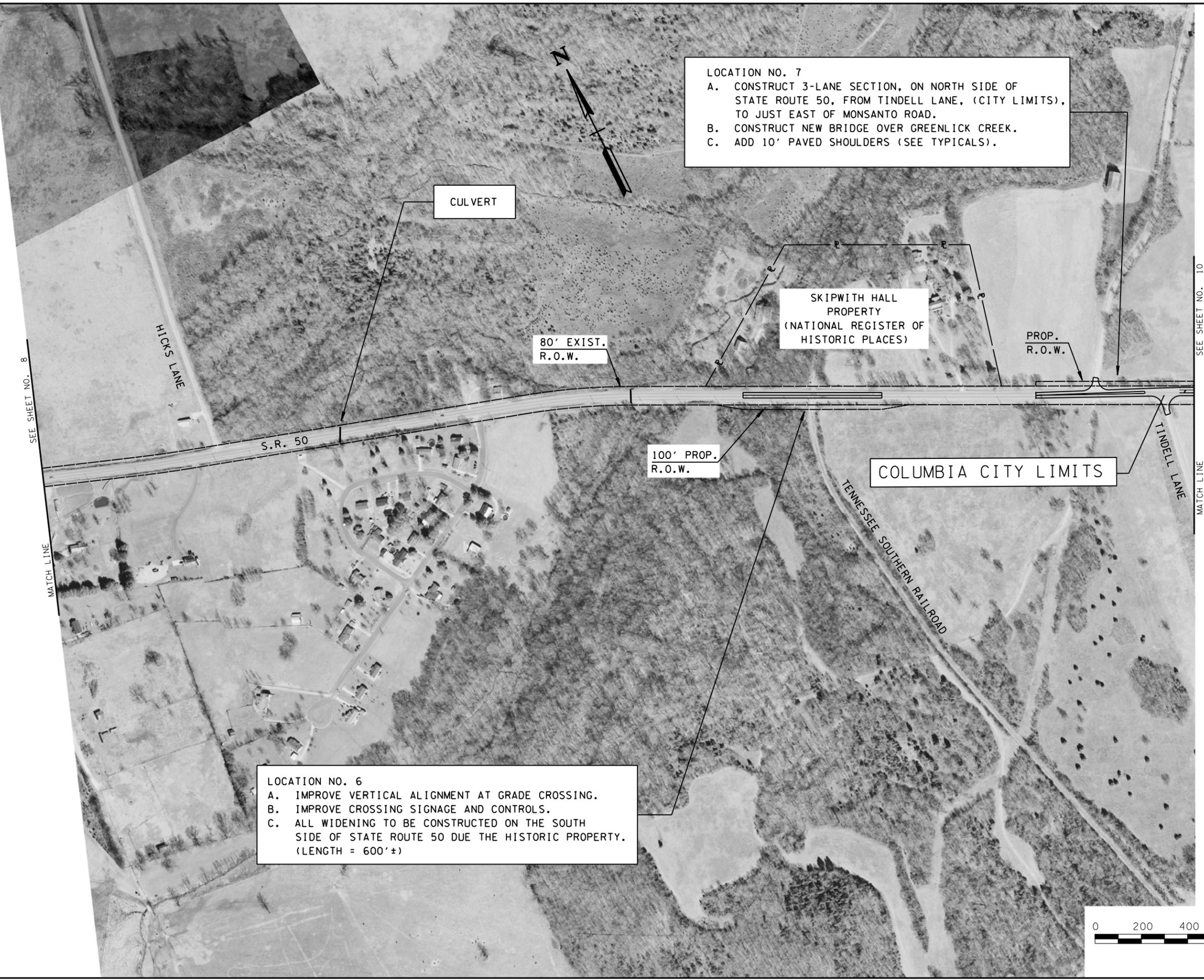
CONCEPT LAYOUT

SCALE: 1"=200'

TYPE	YEAR	PROJECT NO.	SHEET NO.
TPR	2007	CONCEPT	9

LOCATION NO. 7
 A. CONSTRUCT 3-LANE SECTION, ON NORTH SIDE OF STATE ROUTE 50, FROM TINDELL LANE, (CITY LIMITS), TO JUST EAST OF MONSANTO ROAD.
 B. CONSTRUCT NEW BRIDGE OVER GREENLICK CREEK.
 C. ADD 10' PAVED SHOULDERS (SEE TYPICALS).

LOCATION NO. 6
 A. IMPROVE VERTICAL ALIGNMENT AT GRADE CROSSING.
 B. IMPROVE CROSSING SIGNAGE AND CONTROLS.
 C. ALL WIDENING TO BE CONSTRUCTED ON THE SOUTH SIDE OF STATE ROUTE 50 DUE THE HISTORIC PROPERTY. (LENGTH = 600' ±)



SEE SHEET NO. 8

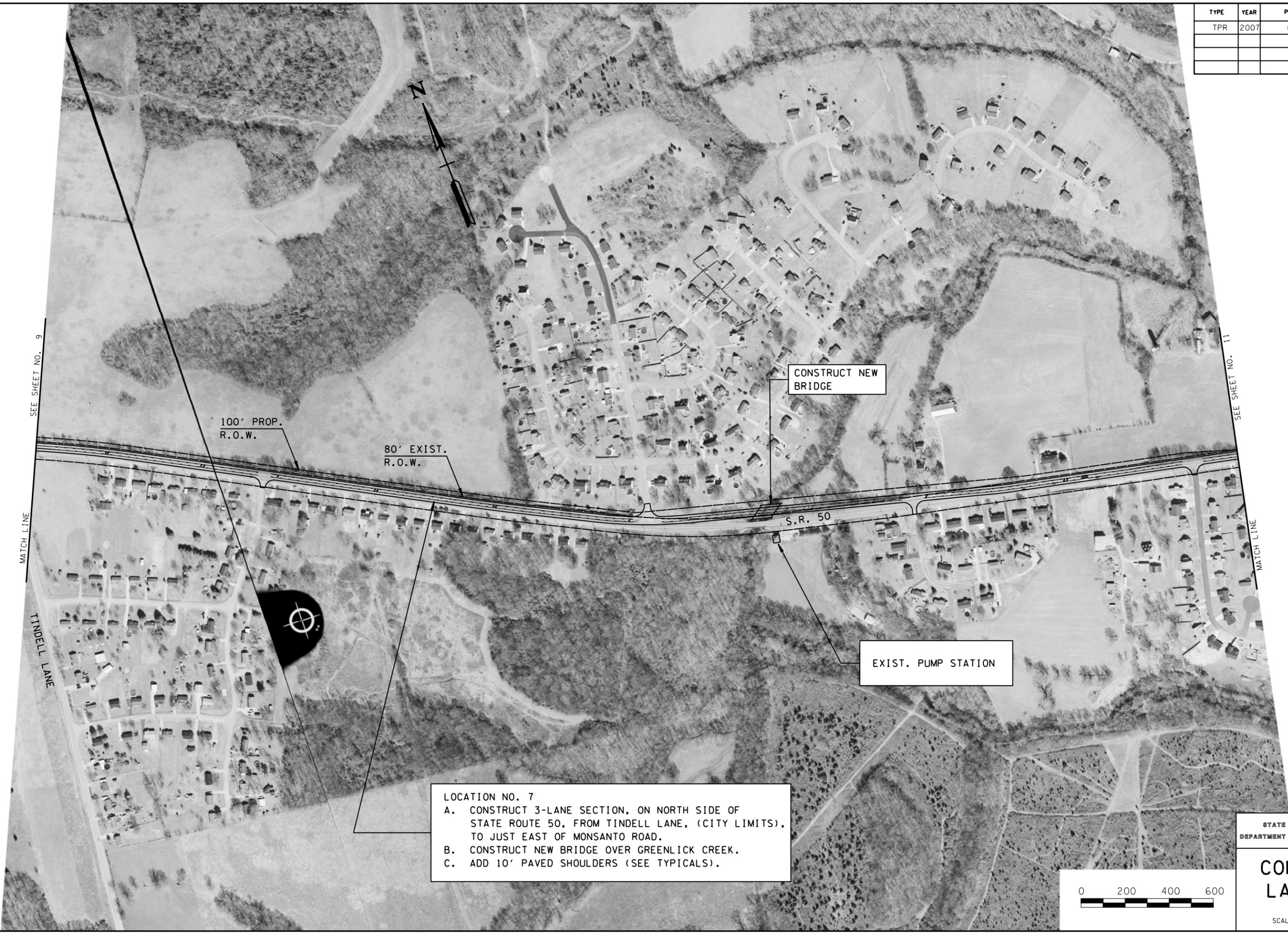
MATCH LINE

SEE SHEET NO. 10

MATCH LINE



TYPE	YEAR	PROJECT NO.	SHEET NO.
TPR	2007	CONCEPT	10



SEE SHEET NO. 9

SEE SHEET NO. 11

100' PROP.
R.O.W.

80' EXIST.
R.O.W.

CONSTRUCT NEW
BRIDGE

EXIST. PUMP STATION

S.R. 50

TINDELL LANE

LOCATION NO. 7
 A. CONSTRUCT 3-LANE SECTION, ON NORTH SIDE OF STATE ROUTE 50, FROM TINDELL LANE, (CITY LIMITS), TO JUST EAST OF MONSANTO ROAD.
 B. CONSTRUCT NEW BRIDGE OVER GREENLICK CREEK.
 C. ADD 10' PAVED SHOULDERS (SEE TYPICALS).



STATE OF TENNESSEE
 DEPARTMENT OF TRANSPORTATION

CONCEPT
 LAYOUT

SCALE: 1"=200'

TYPE	YEAR	PROJECT NO.	SHEET NO.
TPR	2007	CONCEPT	11

LOCATION NO. 7
 A. CONSTRUCT 3-LANE SECTION, WIDENING TO SOUTH SIDE OF STATE ROUTE 50, FROM TINDELL LANE, (CITY LIMITS), TO JUST EAST OF MONSANTO ROAD.
 B. CONSTRUCT NEW BRIDGE OVER GREENLICK CREEK.
 C. ADD 10' PAVED SHOULDERS (SEE TYPICALS).

SHIFT IMPROVEMENTS TO AVOID EXISTING ROCK WALLS THIS AREA.

CULVERT

80' EXIST. R.O.W.

100' PROP. R.O.W.

OAK PARK DRIVE

SEE SHEET NO. 10

MATCH LINE

SEE SHEET NO. 12

MATCH LINE

EXISTING PIPE CULVERT TO BE EXTENDED (TYP).

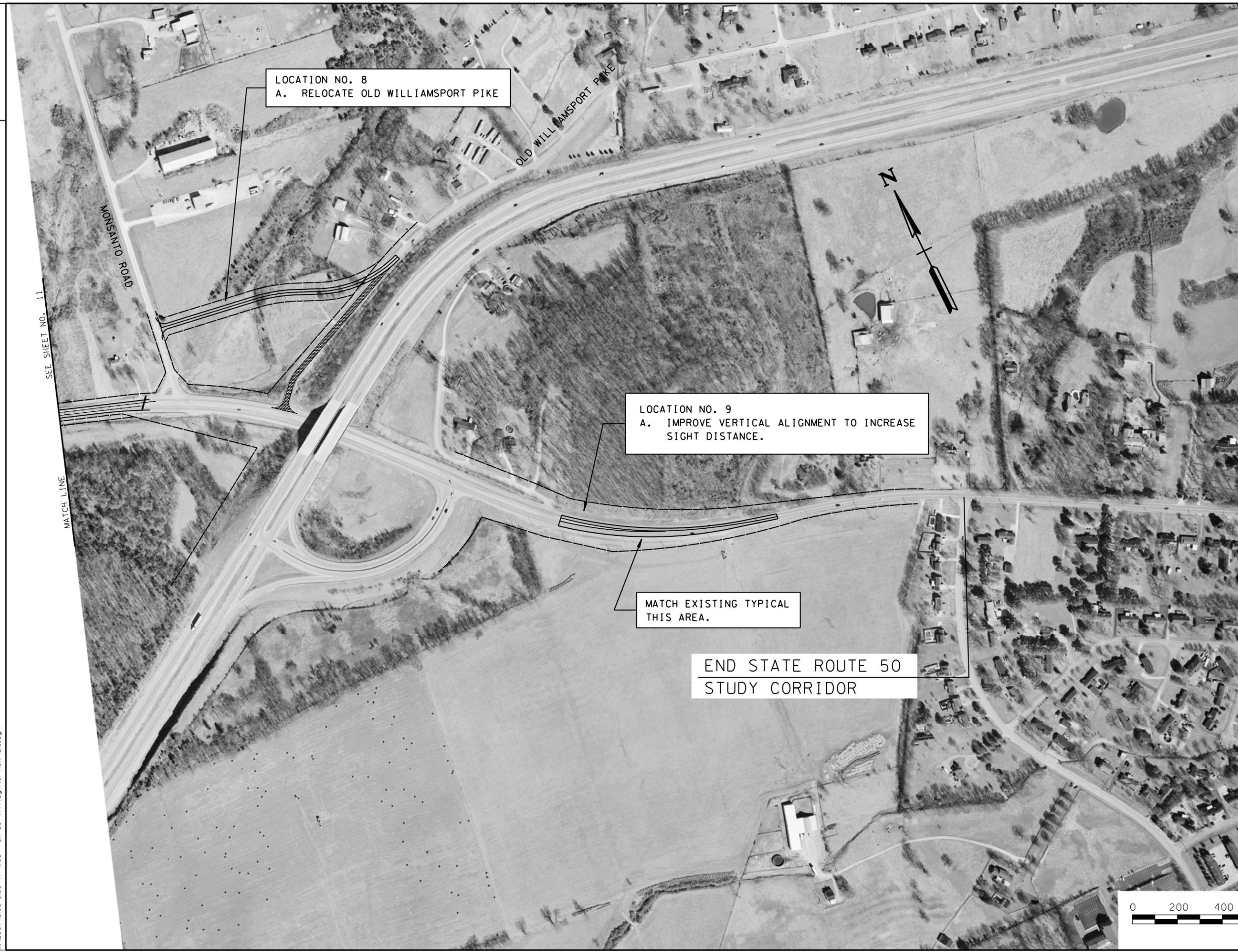


STATE OF TENNESSEE
 DEPARTMENT OF TRANSPORTATION

CONCEPT LAYOUT

SCALE: 1"=200'

TYPE	YEAR	PROJECT NO.	SHEET NO.
TPR	2007	CONCEPT	12



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STATE OF TENNESSEE
 DEPARTMENT OF TRANSPORTATION

**CONCEPT
 LAYOUT**

SCALE: 1"=200'