

EXECUTIVE SUMMARY

The subject of this Transportation Planning Report (TPR) is the State Route (SR) 384 (Mt. Carmel Road) corridor located in Tipton County. The Tennessee Department of Transportation (TDOT) at the request of the West Tennessee Rural Planning Organization (RPO) is studying approximately 6.25 miles of SR 384, from SR 14 in Tipton County to SR 59 inside the Covington city limits, to determine appropriate strategies and funding of future improvement options for this corridor.

The primary transportation need for this corridor is a safe and efficient connection between SR 14 and SR 59. An improved connection would incorporate standard design elements including full width travel lanes and shoulders. The segment should also accommodate non-motorized users. The corridor should provide ample capacity for growing traffic volumes brought by the development of Interstate 69 and the improvements to SR 14, currently under construction.

The recommended options were developed based on the input from local stakeholders who are interested in improving the safety of the SR 384 corridor. The options for improvement are as follows:

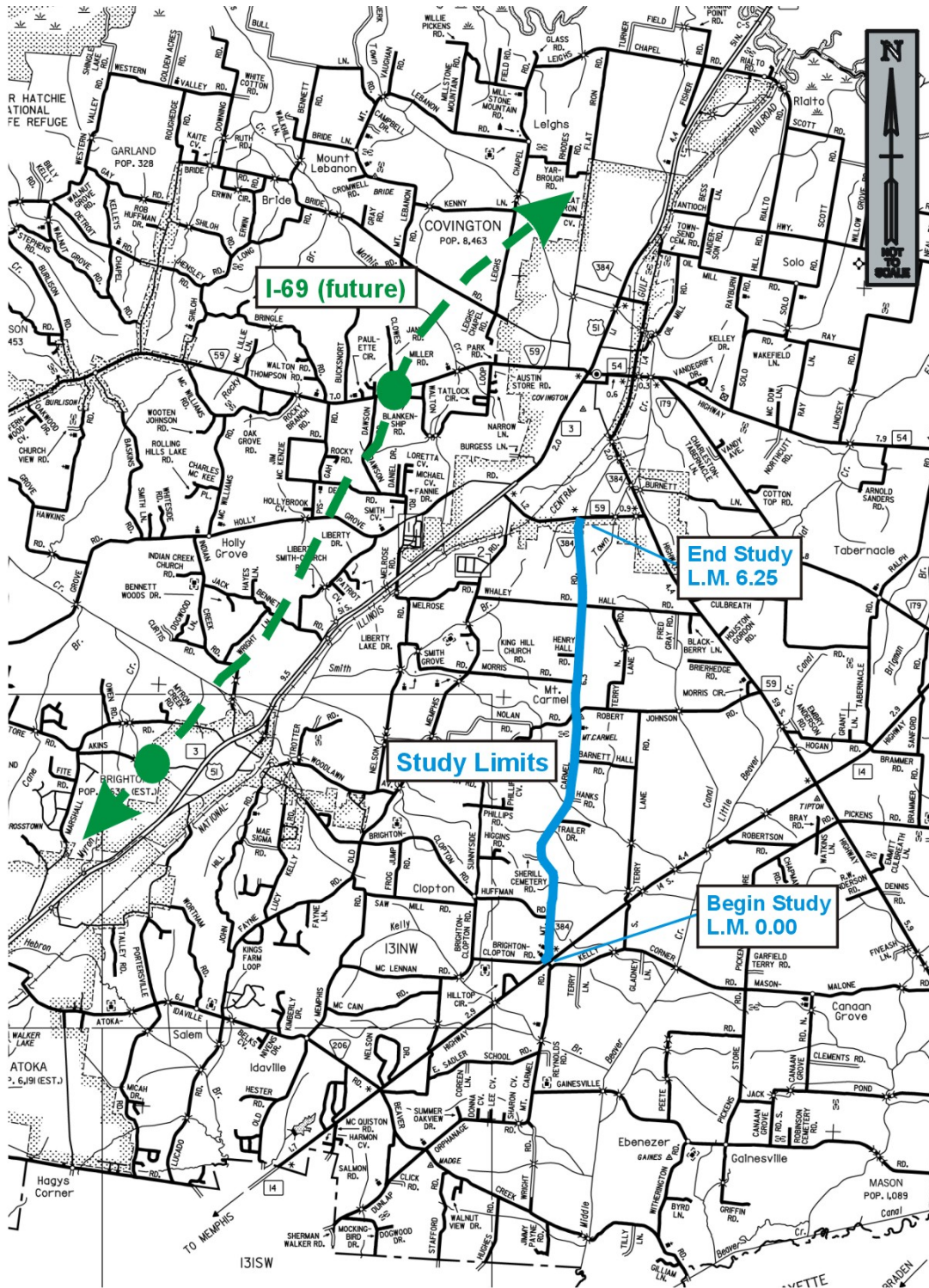
- **Option A – No Build**, there is no cost associated with Option A
- **Option B – Spot Improvements**
 - Location 1: Turn lane construction on SR 384 at Huffman Road and Austin Peay Elementary School access road, the cost associated with this location is \$281,000.
 - Location 2: Turn lane construction at the intersection of SR 384 and Sunnyside Road/Robert Johnson Road, the cost associated with this location is \$198,000.
 - Location 3: Turn lane construction at the intersection of SR 384 and Morris Road, the cost associated with this location is \$175,000.
 - Location 4: Turn lane construction at the intersection of SR 384 and Whaley Road/Hall Road, the cost associated with this location is \$189,000.
 - Location 5.1: The signalization of the intersection of SR 384 and SR 59, the cost associated with this location is \$368,000.
 - Location 5.2: The construction of a roundabout at the intersection of SR 384 and SR 59, the cost associated with this location is \$388,000.


These priorities are based on stakeholder input and on projected traffic demands within the corridor. The prioritization is subject to change in the future as traffic conditions and local objectives change within the corridor. The spot improvements are listed below in descending order with the first being the highest priority:

- **Priority 1**: Location 2 – The intersection of SR 384 and Sunnyside Road/Robert Johnson Road.
- **Priority 2**: Location 1 – Segment of SR 384 at Huffman Road and the Austin Peay Elementary School access road.

- **Priority 3:** Locations 4 – The intersection of SR 384 and Whaley Road/Hall Road.
 - **Priority 4:** Location 3 – The intersection of SR 384 and Morris Road.
 - **Priority 5:** Location 5 – The intersection of SR 384 and SR 59
-
- **Option C – Corridor Improvement** would consist of reconstructing the route to have full width twelve (12) foot travel lanes, eight (8) foot shoulders suitable for use by bicyclists and pedestrians, and completion of grading and earthwork to allow adequate sight distance. The cost associated with this option is \$11,098,000.

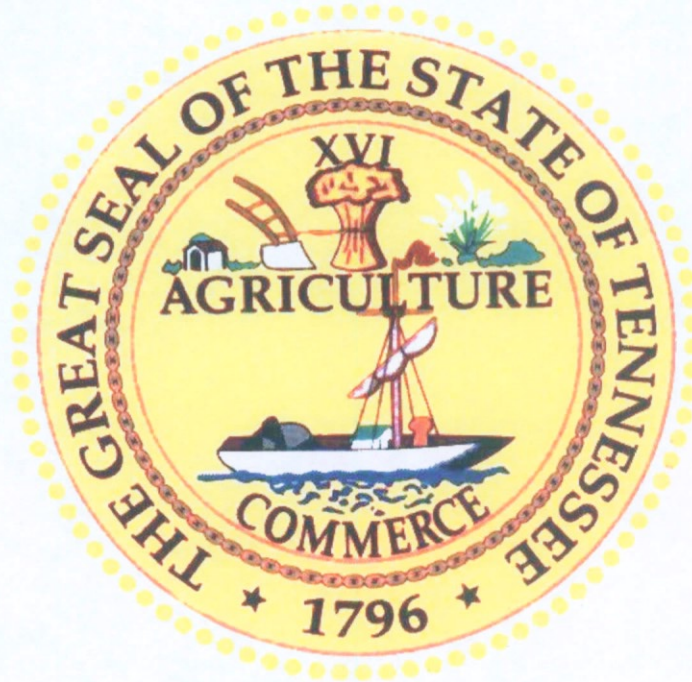
Transportation Planning Report
 State Route 384, From State Route 14 to State Route 59
 Tipton County



 Study Location Map
 (Not to scale)

TRANSPORTATION PLANNING REPORT

**STATE ROUTE 384
FROM STATE ROUTE 14 TO STATE ROUTE 59
TIPTON COUNTY
PIN 112892.00**



**PREPARED BY
RPM TRANSPORTATION CONSULTANTS, LLC
for the
WEST TENNESSEE RURAL PLANNING ORGANIZATION
and the
TENNESSEE DEPARTMENT OF TRANSPORTATION PROJECT PLANNING DIVISION**

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1.0 PURPOSE OF STUDY

The subject of this Transportation Planning Report (TPR) is the State Route (SR) 384 (Mt. Carmel Road) corridor located in Tipton County. The Tennessee Department of Transportation (TDOT) at the request of the West Tennessee Rural Planning Organization (RPO) is studying approximately 6.25 miles of SR 384 to determine appropriate strategies and funding of future improvement options for this corridor. The limits of the study are from SR 14 in Tipton County (L.M. 0.00) to SR 59 (Mueller Brass Road) in Covington (L.M. 6.25). The development of this TPR was requested by the RPO.

This study will analyze existing traffic conditions, roadway geometrics, and crash data to determine current improvement needs. An analysis of other transportation, land use, and development changes will be made to determine future transportation needs for the corridor. Improvement options will then be developed to best provide for the future transportation needs of the corridor. Also, a preliminary environmental assessment will be made to determine the likely impacts to sensitive locations within the study area.

2.0 HISTORY AND BACKGROUND

The TDOT Long Range Planning Division has prepared a Preliminary Purpose and Needs Statement for this segment of SR 384. The statement recommended the completion of a TPR for SR 384, the subject of this report.

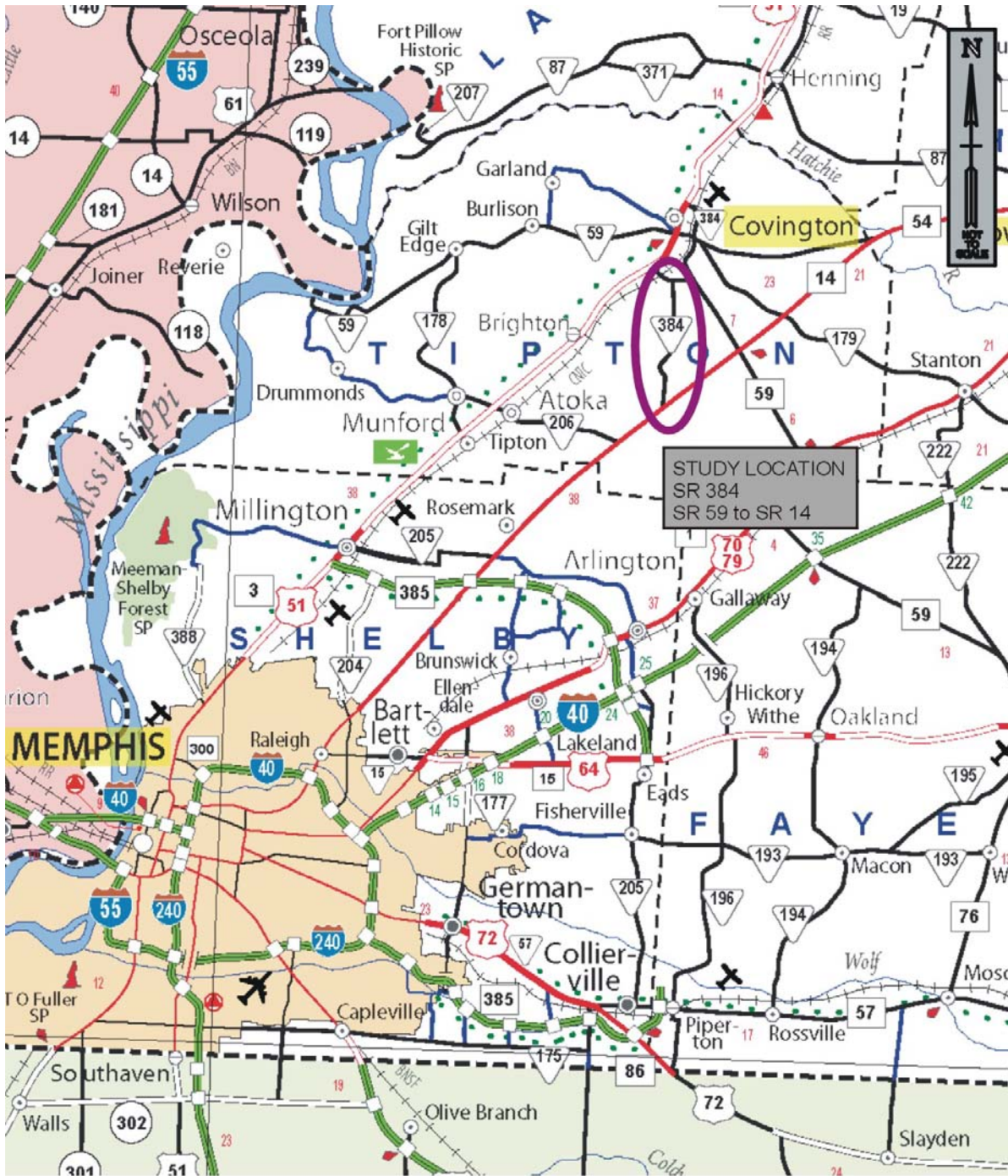
In 2000, TDOT also completed an Advanced Planning Report (APR) for SR 14 from the Tipton/Shelby County Line to SR 59. The APR recommended the improvement of SR 14 from a two (2) lane section to a four (4) lane divided highway section. This segment of SR 14 is currently under construction, and includes the reconstruction of the intersection of SR 14 and SR 384. SR 14 is also identified as a state bicycle route. The shoulder being constructed as part of the widening project will allow accommodation of bicyclists.

Another part of the background of this TPR relates to the planning for the new I-69 alignment in the study area. This planning has resulted in the selection of a preferred alignment for the route from Dyersburg, TN to Millington, TN. In Tipton County, I-69 is proposed to be located just west of the City Limits of Covington. The new interstate will serve as a major regional transportation asset and will serve as a primary origin and destination for trips having origins or destinations in this part of Tipton County.

An interchange is proposed at the intersection of future I-69 and SR 59 west of downtown Covington. Although not included in any official plans of the City or of Tipton County, a connection has been discussed between the proposed interchange and the portion of SR 59 south of Covington extending easterly from SR 3 (US 51). The proposed interchange and future SR 59 connection would provide a more direct access from the SR 384 study corridor to I-69.

A regional vicinity map showing the location of the study area is given as Figure 1 and a location map of the study area and the future I-69 corridor is given as Figure 2.

Transportation Planning Report
State Route 384, From State Route 14 to State Route 59
Tipton County




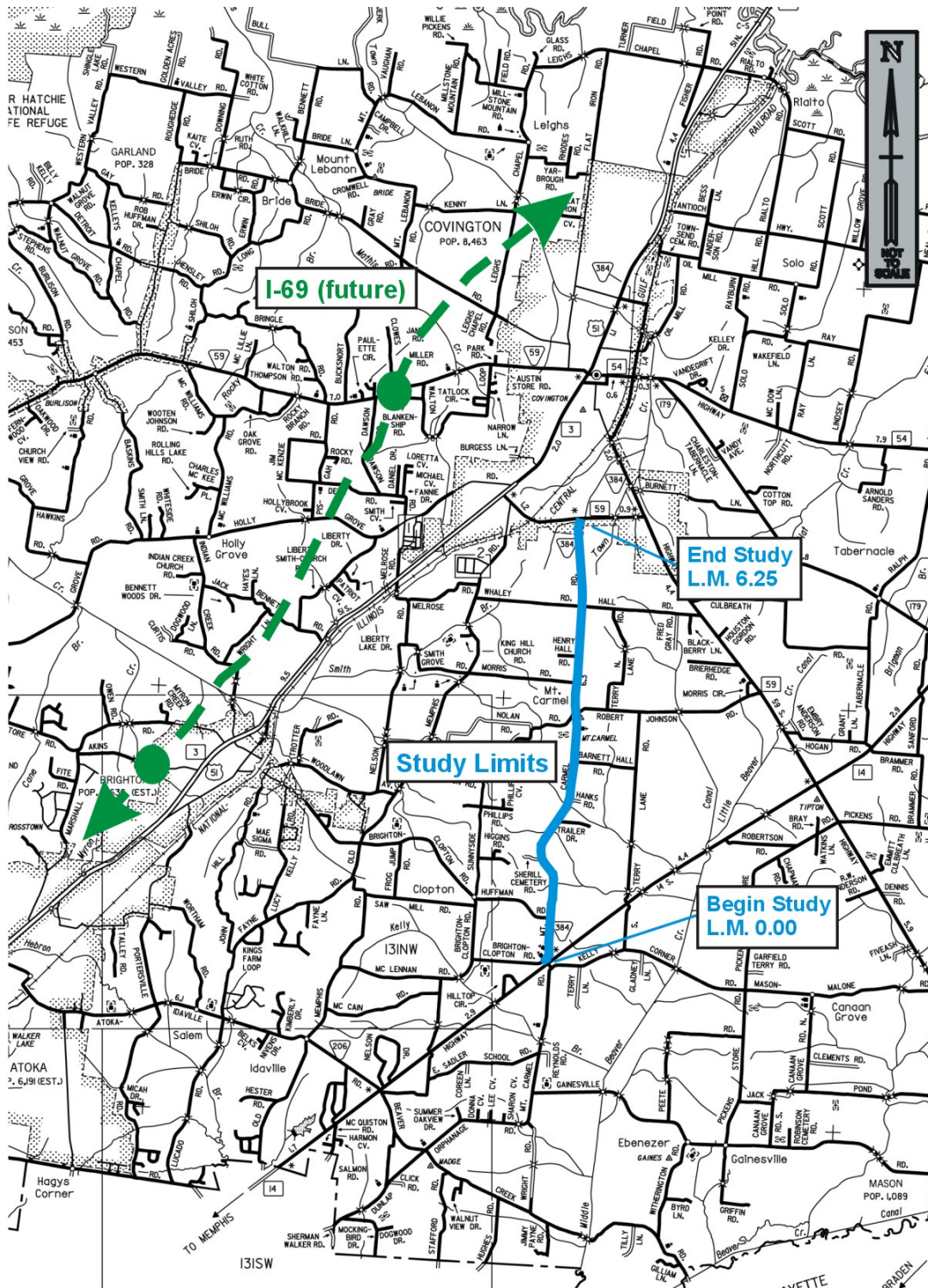
 Study Vicinity Map
(Not to scale)

Figure 1.

Transportation Planning Report
 State Route 384, From State Route 14 to State Route 59
 Tipton County



Study Location Map
 (Not to scale)

Figure 2.

3.0 EXISTING CONDITIONS

3.1 Description of the Study Area

This study begins in an unincorporated area of Tipton County and ends inside the City Limits of Covington. Various land uses exist along the 6.25 mile corridor including commercial, institutional, residential, and agricultural.

The SR 384 corridor provides a portion of a connector between Covington and northeast Memphis via SR 14. As mentioned, SR 14 is currently being widened from north of SR 206 to north of SR 384. SR 14 will retain its designation as a state bicycle route in this area.

The US Census estimated Covington's 2008 population to be 9,253 residents while Tipton County's population is 58,706 residents. The unemployment rate for Tipton County in July 2009 was 12.4% as compared to the statewide unemployment rate of 10.7%¹. The State Department of Labor and Workforce Development reported the 2008 average annual wage for Tipton County to be \$29,785. Tipton County has the 56th highest wages of Tennessee's 95 counties. The statewide average annual wage for 2008 was \$39,992². The top industries (by percentage of all employment) for Tipton County are presented in Table 1.

Table 1. Leading Employment Industries, Tipton County

Industry	Tipton County	Statewide Average
Local Government	21%	10%
Manufacturing	16%	13%
Retail Trade	14%	12%
Professional and Business Services	10%	12%
Healthcare and Social Assistance	13%	11%

(Source: Quarterly Census of Employment and Wages. Tennessee Dept. of Labor and Workforce Development)

¹ Labor Force Estimates. Tennessee Dept. of Labor and Workforce Development, Employment Security Division.

² Quarterly Census of Employment and Wages. Tennessee Dept. of Labor and Workforce Development. Annual Average 2008.

3.2 Crash History

The crash history for SR 384 covers the entire segment of analysis, SR 14 to SR 59. The summarized results are given in Table 2.

Table 2. Study Segment Crash Experience Summary, 2005 - 2007

Location	Length (mi)	Number of Crashes	Actual Crash Rate (number of crashes per million vehicle-miles)	Statewide Average Crash Rate (number of crashes per million vehicle-miles)
SR 384 - from SR 14 to SR 59	6.25	38	1.81 cr/mvm	1.65 cr/mvm

As shown in Table 2, the study route has a crash history that is slightly higher than the statewide average for rural two (2) lane highways. Most (71%) of the crashes on SR 384 were single vehicle crashes and these occurred evenly throughout the day and night during clear and dry conditions.

3.3 Geometrics

The study segment of SR 384 is a rural major collector having ten (10) foot travel lanes and two (2) foot wide paved shoulders. Several vertical curves exist along the route restricting sight distance in some locations. In one segment of the study area, mid and short-radius horizontal curves exist that also restrict sight distances from some driveways. The major aspects of the SR 384 geometrics are presented in Table 3.

Table 3. Study Segment Geometrics Summary

Geometric Data	SR 384, from SR 14 to SR 59
Functional Classification	Rural Major Collector
Length	6.25 miles
Average Right-of-Way Width	30 feet
Average No. Travel Lanes	Two (one each direction)
Average Lane Width	10 feet
Average Shoulder Width	Two feet (paved)
Median Type	None
Average Median Width	N/A
Bicycle Facilities	None
Average Sidewalk Width	None
Topography	Rolling
Major Intersections	Two way stop control at SR 14
	All way stop control at SR 59
Drainage	Open ditch

The posted speed limit on this segment of SR 384 is 55 mph. For a 55 mph roadway, American Association of State Highway and Transportation Officials (AASHTO) guidelines specify a minimum intersection sight distance of 610 feet. This is the sight distance needed for a vehicle stopped at a side street to turn onto SR 384 without requiring a through vehicle approaching on SR 384 to drastically change speed. At the intersection of Sunnyside Road/Robert Johnson Road and SR 384, sight distance looking south from the side street was measured at 380 feet. Other areas having limited sight distance were noted along the route as well.

3.4 Level of Service Analyses

SR 384 currently carries approximately 3,510 vehicles per day (vpd). With the inclusion of the future traffic generated by a growth rate of 2% per year, the projected base year (2014) Annual Average Daily Traffic (AADT) along the route is 3,860 vpd. The projected future year (2034) AADT is 5,260 vpd. A figure of the projected traffic volumes for the study area is given in the appendix.

The base year and design year operating characteristics for the study segments were analyzed as part of the study. A "Level of Service" (LOS) index was used to gauge the operational performance at each roadway segment. The LOS is a qualitative measure that describes traffic conditions related to speed and travel time, freedom to maneuver, traffic interruptions, etc.

There are six levels ranging from "A" to "F" with "F" being the worst. Each level represents a range of operating conditions. Table 4 shows the traffic flow conditions and approximate driver comfort level at each level of service.

Table 4. Level of Service Operational Criteria

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

The base year and future year projected LOS is given in Table 5.

Table 5. Current and Projected Segment Level of Service

Segment of Analysis	Approach	Peak Hour LOS		
		2009	2014	2034
SR 384 (Two-Lane Segment)	N/A	C	C	C
SR 384 and SR 59 (Existing All Way Stop Control)	Overall	B	C	F
SR 384 and SR 59 (Proposed-Signal)*	Overall	-	B	B
SR 384 and SR 59 (Proposed-Roundabout)*	Overall	-	A	A
SR 384 and SR 14 (Two-Way Stop Control)	Eastbound Left	A	A**	A**
	Southbound Left	B	B**	C**
	Southbound Through, Right		B**	B**
	Northbound Left	B	B**	C**
	Northbound Through, Right		B**	B**

* Alternative forms of traffic control for the intersection of SR 384 and SR 59 are detailed as part of Option B, Section 6.2 of this report.

** Includes capacity improvements currently under construction for this intersection.

As shown in Table 5, the mainline capacity of the study segment is not expected to be deficient through the 2034 design year. With the capacity improvements currently being constructed as part of the SR 14 widening, the stop controlled intersection of SR 384 and SR 14 will operate with a LOS C or better on all approaches through the design year. By 2034, the all-way stop-controlled intersection of SR 384 and SR 59 is expected to operate with a LOS F.

3.5 Major Structures

SR 384 from SR 14 to SR 59 contains only one (1) structure, a bridge spanning an unnamed tributary to Middle Beaver Creek. The bridge has been reconstructed in the past five (5) years.

3.6 Multi-Modal Facilities

This segment of SR 384 is not designated as a bicycle route and does not have any bicycle or pedestrian facilities. Further discussion of the route's non-motorized accommodations is made as part of Option C, in Section 6.4 of this report.

4.0 FIELD REVIEW INFORMATION

A field review with TDOT, local, and regional stakeholders (sign in sheet provided in Appendix) was held in Covington on October 1, 2009 to discuss the purpose and need for this study. The general themes of the meeting were as follows:

- Specific safety concerns exist at the intersection of SR 384 and Sunnyside Road/Robert Johnson Road. The problem here is sight distance from the minor street approaches due to a crest vertical curve.
- A shortage of left turn storage exists for traffic (especially busses) turning from southbound SR 384 to the access road to Austin Peay Elementary School.
- General safety issues related to limited travel lane width (10 feet), lack of shoulders, and horizontal and vertical curvature.
- Route improvements should accommodate bike and pedestrian facilities. It was stated that a bike route exists on SR 14.
- I-69 is an influential project within the area. A conceptual route from the I-69 interchange at SR 59 around the southwest side of Covington to SR 59 (Mueller Brass Rd) has been discussed. This would provide a more direct link for traffic from SR 384 to I-69.

The field review minutes are provided in the Appendix.

5.0 PURPOSE AND NEED

The purpose and need for improvement to the SR 384 corridor was developed based on the findings and analysis of the route's existing conditions, the projections for future traffic growth in the area, and the input from local and regional stakeholders.

The primary transportation need for this location is a safe and efficient connection between SR 14 and SR 59. An improved connection would incorporate standard design

elements including full width travel lanes and shoulders. The connection should also accommodate non-motorized users. The connection should provide ample capacity for growing traffic volumes brought by the development of Interstate 69 and the improvements to SR 14.

6.0 OPTIONS FOR IMPROVEMENT

In consideration of the need for an improved connection between SR 14 and SR 59, three options have been developed and should be considered during the NEPA environmental analysis phase of this study.

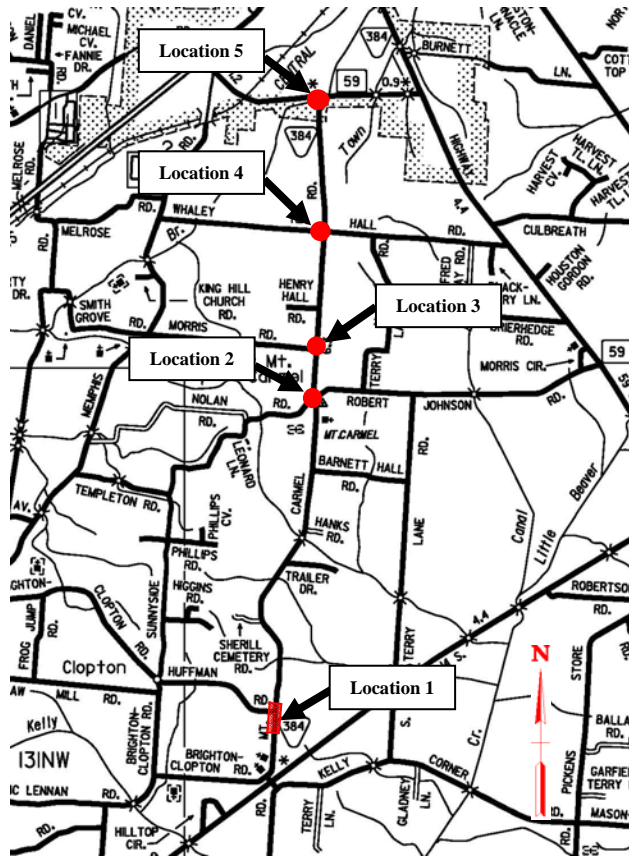
6.1 Option A – No-Build

With no improvements to this segment of SR 384, the operational aspects of the road will remain unchanged. As traffic volumes increase, the impacts of the existing cross-section such as the lack of shoulders will become more pronounced. Under the no-build scenario, capacity will not be exceeded as the existing two (2) lanes of capacity will be adequate through the design year. General maintenance will be provided under the no-build option. However, because the roadway is currently lacking features such as separate turn lanes, standard lane widths, shoulders, and has areas of limited sight distance, the stated purpose and need will not be met under the no-build scenario.

6.2 Option B – Spot Improvements

This option involves the improvement of various locations to address safety and capacity issues that exist at intersections or segments along SR 384. Spot improvements can be implemented independently or in combination with other locations to provide solutions that could be implemented over a set time frame. There are five (5) locations along the study segment in need of spot improvements. These locations are shown below in Figure 3:

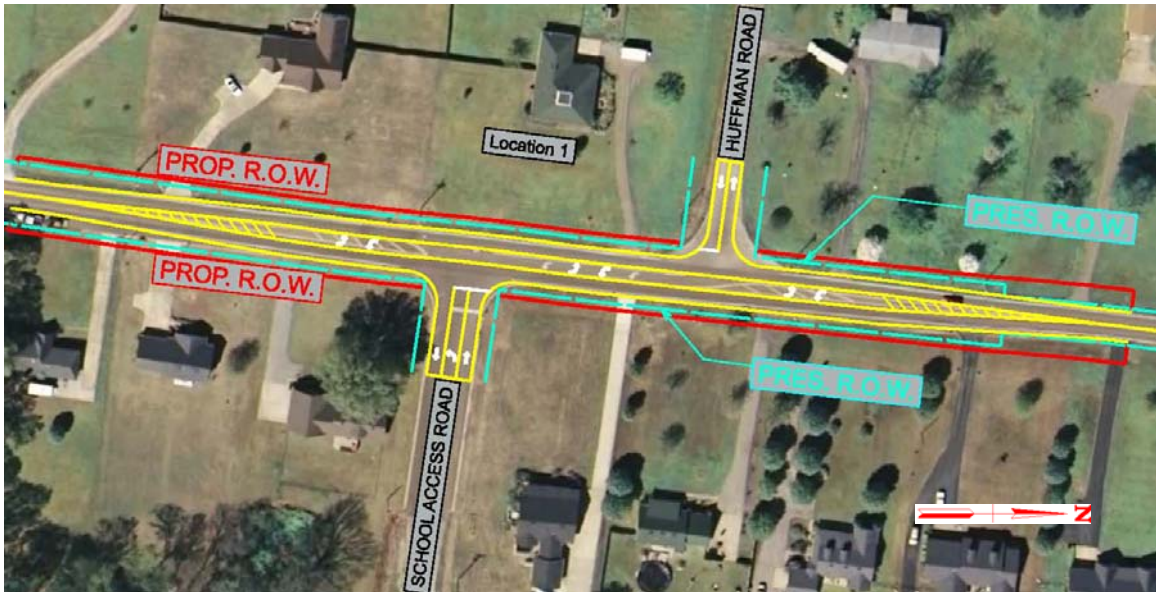
Figure 3 – Spot Improvement Locations



Location 1: Segment of SR 384 at Huffman Road and Austin Peay Elementary School

A short segment of two (2) way left turn lane (TWLTL) should be constructed as a center lane on SR 384 beginning 310 feet north of Huffman Road and extending south 850 feet. This will provide a left turn lane for the intersection of SR 384 and Huffman Road while providing more left turn storage for school traffic at the school access road. This improvement will require the acquisition of right-of-way both north of Huffman Road and south of the school access road. The cost estimate for this location is \$281,000.

Figure 4 – Option B Location 1

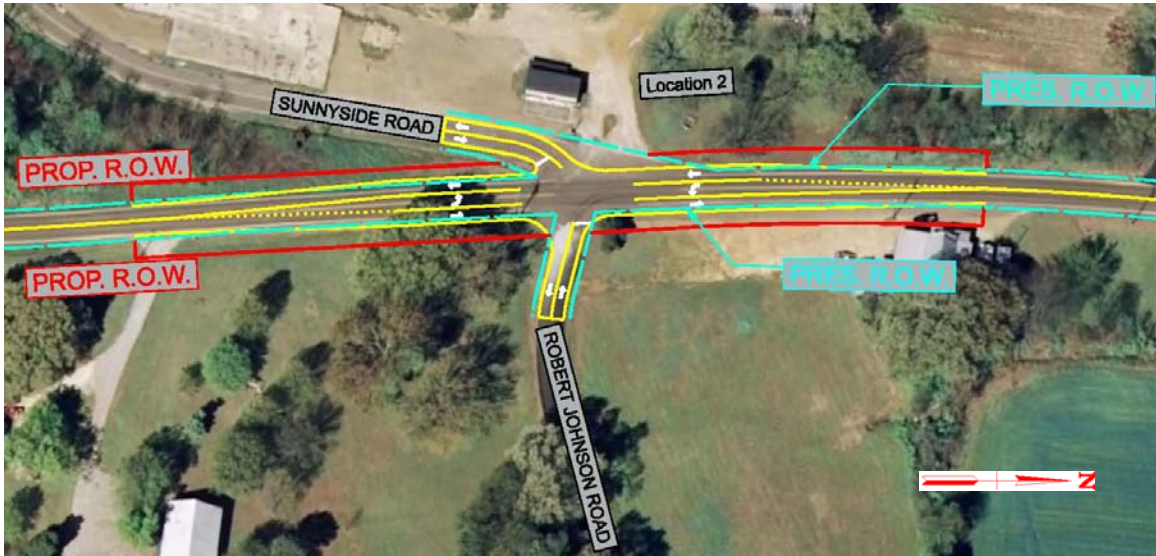


Not to Scale.

Location 2: The Intersection of SR 384 and Sunnyside Road/Robert Johnson Road

Construct left turn lanes with 100 feet of storage and 180 feet of taper for both north and southbound traffic on SR 384. Due to the limited sight distance and the angle at which Sunnyside Road intersects SR 384 the option to realign Sunnyside Road was discussed during the field review. This option was decided to be unfavorable due to the cemetery which exists in the southwest quadrant of the intersection and the grade separation between SR 384 and Sunnyside Road. The cost estimate for this location is \$198,000.

Figure 5 – Option B Location 2

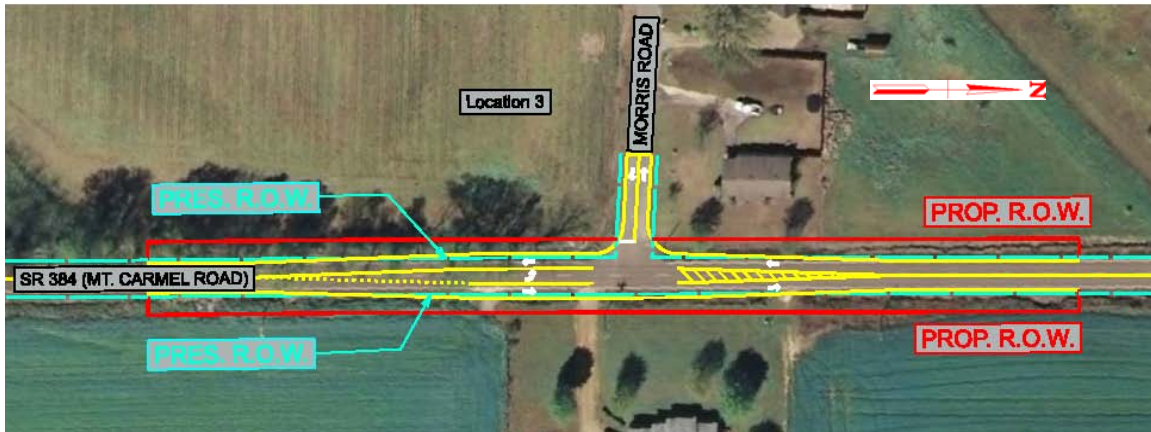


Not to scale.

Location 3: The Intersection of SR 384 and Morris Road

Construct a left turn lane with 100 feet of storage and 180 feet of taper for the northbound approach on SR 384. All signing and striping will be updated to meet current *Manual on Uniform Traffic Control Devices* (MUTCD) standards. This improvement will require the acquisition of right-of-way north and south of Morris Road. The cost estimate for this location is \$175,000.

Figure 6 – Option B Location 3

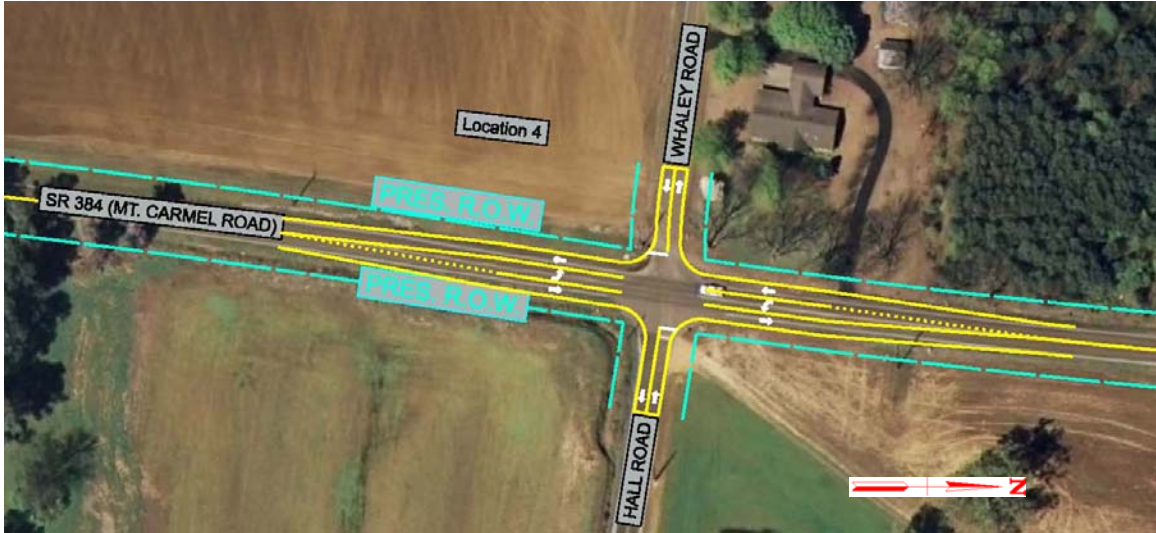


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Location 4: The Intersection of SR 384 and Whaley Road/Hall Road

Construct left turn lanes with 100 feet of storage and 180 feet of taper for both north and southbound approaches on SR 384. All signing and striping at the intersection will be updated to meet current MUTCD standards. This location will not require the acquisition of additional right of way. The cost estimate for this location is \$189,000.

Figure 7 – Option B Location 4

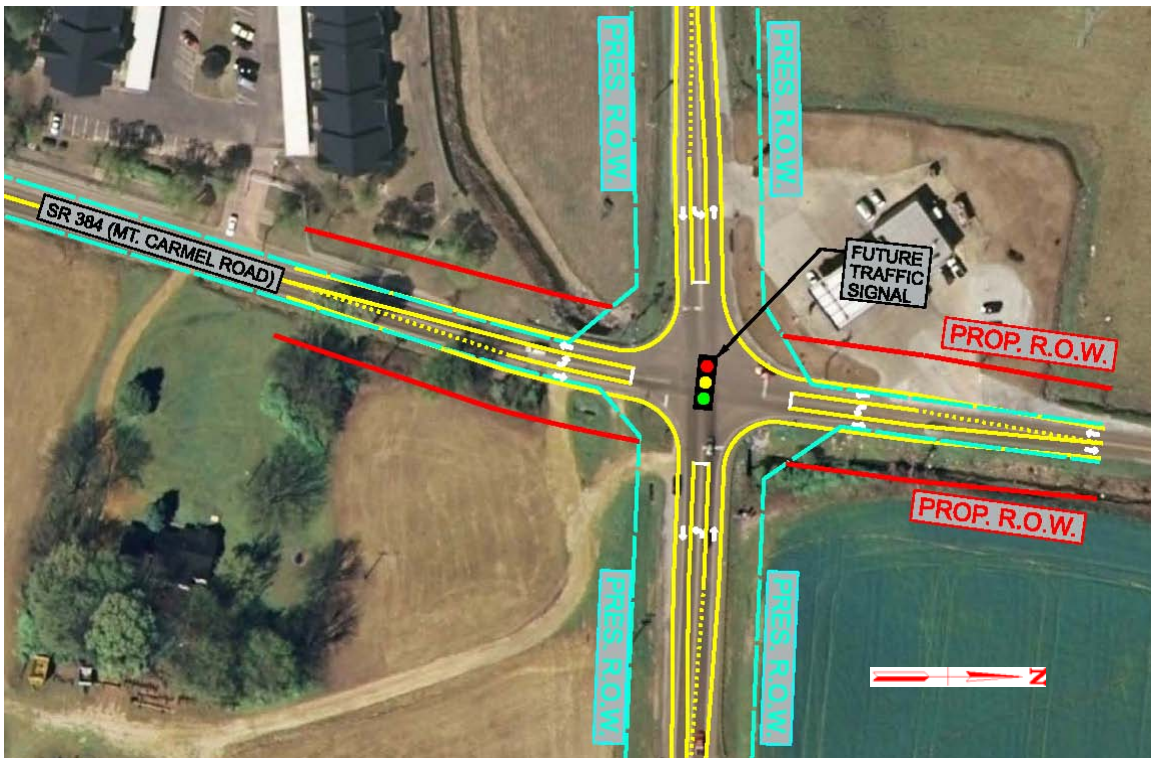


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Location 5: The Intersection of SR 384 and SR 59 (Alternative 5.1)

The all-way stop-controlled intersection of SR 384 and SR 59 is expected to operate at a LOS F by the 2034 design year. To mitigate this isolated future capacity deficiency, an alternative form of traffic control should be implemented as traffic volumes warrant. One alternative for the traffic control at this intersection is a traffic signal and the construction of left turn lanes with 100 feet of storage and 180 feet of taper on all approaches. All signing and striping at the intersection will be updated to meet current MUTCD standards. This alternative will require the acquisition of right-of-way along the north and southbound approaches. The cost estimate for this alternative is \$368,000.

Figure 8 – Option B Location 5 (Alternative 5.1)

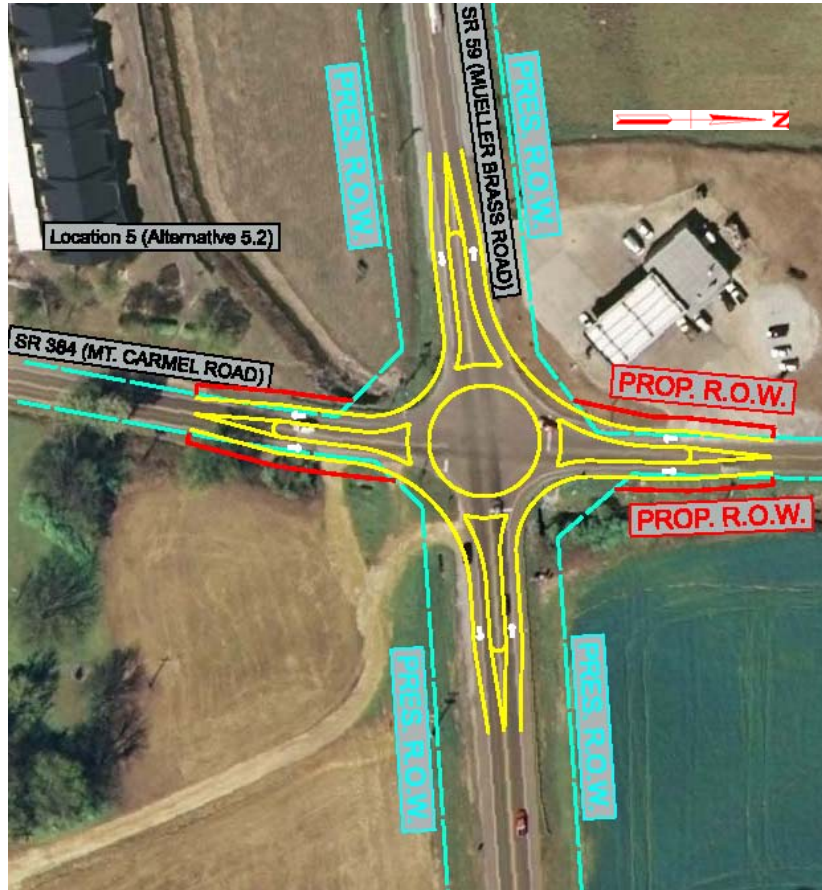


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Location 5: The intersection of SR 384 and SR 59 (Alternative 5.2)

A single lane roundabout is another alternative for the intersection of SR 384 and SR 59. All signing and striping will be updated to meet current MUTCD standards. This alternative will require the acquisition of right-of-way in all quadrants of the intersection. The cost estimate for this alternative is \$388,000.

Figure 9 – Option B Location 5 (Alternative 5.2)



Not to scale.

The selection of an alternative form of traffic control at Location 5 should be based on traffic conditions, pertinent warrants, and other design and operational considerations at the time that the improvements are to be made. Table 6 provides some of the advantages and disadvantages of roundabouts as compared to traffic signals.

Table 6. Advantages and Disadvantages of Roundabouts vs. Traffic Signal

Category	Advantages	Disadvantages
Safety	<p>Reduced number of conflict points compared to other non-circular intersections.</p> <p>Elimination of high angles of conflict and lower operational speeds result in fewer and less severe accidents.</p> <p>Reduction in speed differentials when passing through the intersection.</p> <p>Long splitter islands and other geometric features provide good advance warning of the intersection.</p>	<p>Crashes may temporarily increase due to improper driver education or lack of familiarity.</p> <p>Cannot preempt control in favor of emergency vehicles like traffic signals can.</p>
Capacity	<p>Traffic yields, resulting in continuous traffic flow.</p>	<p>Cannot be coordinated like traffic signal systems can to increase capacity of the network.</p> <p>Require approximately balanced volumes on all approaches to operate most efficiently.</p>
Delay	<p>Generally reduced delay as compared with an equivalent volume for signalized intersection.</p> <p>No undue delay during periods of low traffic.</p>	<p>As queues develop, drivers accept smaller gaps, which may result in crashes.</p>
Cost	<p>No regular maintenance of signal equipment (heads, loop detectors, controllers).</p> <p>Lower accident rate and severity result in reduced accident costs.</p>	<p>Maintenance of central island.</p> <p>Illumination cost.</p> <p>May require more right-of-way.</p>
Pedestrians & Bicyclists	<p>Splitter islands provide pedestrian refuge.</p> <p>Low speed conditions beneficial for bicycle and pedestrian safety.</p>	<p>Pedestrians may experience increased delay in finding acceptable gaps to cross.</p> <p>Longer travel path around roundabout.</p>
Environmental	<p>Reduced starts and stops; reduced air pollution and fuel consumption.</p>	

Source: Wisconsin DOT and RPM.

6.3 Recommended Priority of Spot Improvements

These priorities are based on stakeholder input and on projected traffic demands within the corridor. The prioritization is subject to change in the future as traffic conditions and local objectives change within the corridor. The spot improvements are listed below in descending order with the first being the highest priority. It should be noted that implementation of Option B will not result in significant modifications to the non-motorized accommodations within the corridor.

Priority 1: Location 2 – The intersection of SR 384 and Sunnyside Road/Robert Johnson Road.

Priority 2: Location 1 – Segment of SR 384 at Huffman Road and the Austin Peay Elementary School access road.

Priority 3: Locations 4 – The intersection of SR 384 and Whaley Road/Hall Road.

Priority 4: Location 3 – The intersection of SR 384 and Morris Road.

Priority 5: Location 5 – The intersection of SR 384 and SR 59

6.4 Option C – Corridor Improvement

This option involves the need to make improvements to the cross-section of the existing SR 384 alignment. This would consist of reconstructing the route to have full width twelve (12) foot travel lanes, eight (8) foot shoulders suitable for use by bicyclists and pedestrians, and completion of grading and earthwork to allow adequate sight distance.

Option C also includes the implementation of all previously described spot improvements listed in Option B.

Guardrail should also be used where appropriate to protect segments having significant side slope drop-offs beyond the shoulder.

As shown in Table 5, the existing two lane cross-section will be adequate at least through the 2034 design year. Option C does not result in significant changes to the capacity of SR 384. The non-motorized levels of service, however, will improve as shown in Table 7. Table 7 provides the route's pedestrian level of service (PLOS) and bicycle level of service (BLOS). The PLOS and BLOS are measures of the route's adequacy for pedestrian and bicycle travel. These values range from A (most adequate) to F (least adequate) and are based on the cross-sectional and operational characteristics of the roadway as defined in NCHRP 616³. Table 7 provides the existing route's current and projected non-motorized levels of service.

³ "Multimodal Level of Service Analysis for Urban Streets". National Cooperative Highway Research Program (NCHRP) Report 616. Transportation Research Board.

Table 7. Current and Projected Non-Motorized Level of Service (with existing conditions and proposed Option C improvements)

Segment of Analysis	Analysis Type		Non-Motorized Level of Service		
			2009	2014	2034
SR 384 from SR 14 to SR 59	Pedestrian LOS	Existing	E	E	E
		Option C*	-	D	D
	Bicycle LOS	Existing	E	E	E
		Option C*	-	A	A

* Options A and B did not result in significant changes to the non-motorized level of service

To construct these improvements and allow for the appropriate local classification of SR 384 as a major collector, the right-of-way of this segment will require expansion. For planning and cost estimating purposes, a proposed right-of-way of 60 feet has been assumed.

The estimated cost for Option C is \$11,098,000 including \$801,000 for right-of-way acquisition, \$1,980,000 for utility relocation, \$7,319,000 for construction, and \$998,000 for preliminary engineering.

6.5 Preliminary Environmental and Cultural Considerations

The potential environmental impacts of this study have been investigated and the presence of common environmental items has been summarized in the “Preliminary Environmental Evaluation” form. A comprehensive analysis of the impacts will be completed in a later phase of the study in accordance with the National Environmental Policy Act (NEPA).

An Early Environmental Screening (EES) was performed by TDOT for this corridor. The EES found that concentrations of minority and low-income populations exist along the study alignment. A moderate impact to a National Register historic property site within 2,000 feet of the corridor was identified (Mt. Carmel Presbyterian Church). Major impacts can likely be avoided, but will require coordination with the State Historic Preservation Office. A cemetery exists along the route, approximately 0.17 miles south of the intersection of SR 386 and Sunnyside Road. No impacts are expected to the cemetery.

Option C will cross several unnamed branch drainage courses along its alignment that have been identified by the United States Geological Survey (USGS). Most of these are small, intermittent streams that are crossed by culverts. One crossing, located approximately 0.29 miles north of Trailer Drive over an unnamed tributary to Middle Beaver Creek, is on structure; however the structure has previously been widened and no modifications to this structure or crossing will be required. Crossings of USGS identified water features will require appropriate permitting and coordination with the State of Tennessee, US Corps of Engineers, US Fish and Wildlife Service (USFWS), and/or the Environmental Protection Agency (EPA). The EES analysis found no impacts to any terrestrial or aquatic species.

Research of the Federal Emergency Management Agency’s (FEMA) published flood maps shows that there is a short segment of SR 384 within the 100-year flood zone where the route crosses the unnamed tributary to Middle Beaver Creek. This segment is

located 0.29± miles north of Trailer Drive. The flood zone map for the area is provided in the Appendix.

Other than the floodplains crossed by the alignment, no other significant wetland areas were identified immediately adjacent to the route alignment. The EES did find, however, that more than five (5) acres of wetland areas exist within 4,000 feet of the alignment. This results in the identification of substantial large area wetland impacts by the EES.

One facility along the route, New Artesian Management Co., located at 24 Mt. Carmel Road, reports to the EPA in accordance with the agency's Air Facility System, Resource Conservation and Recovery Act Information System, and the Toxic Release Inventory System. This facility manufactures plastic plumbing fixtures and would not be expected to undergo significant disruption as part of the construction of Option C.

Preliminary Environmental Evaluation

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

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

6.6 Preliminary Structural Considerations

Option C will affect one (1) bridge structure along the existing route. As mentioned, this structure is located approximately 0.29 miles north of Trailer Drive and crosses an unnamed tributary to Middle Beaver Creek. This structure has recently been widened and no modifications to this structure or the crossing will be required.

7.0 ASSESSMENT OF CORRIDOR OPTIONS

TDOT has developed a set of seven (7) guiding principles by which all transportation studies are to be evaluated. These principles evaluate how the SR 384 improvement study meets the established long-range statewide planning objectives. These guiding principles are discussed in the following paragraphs as they relate to the improvement of the SR 384 corridor in Tipton County.

Guiding Principle 1: Preserve and Manage the Existing Transportation System

Option B and Option C meet this objective by planning for the continued efficiency and improved safety of the existing SR 384 corridor. Option A would make no improvements and will result in partial degradation of service for all users along the existing SR 384 alignment as traffic continues to grow. Routine maintenance will continue as part of Option A, however, preserving the existing safety conditions found along the existing route.

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

With the construction of the future I-69 corridor in Tipton County, improved access to I-69 from southeastern portions of the county will be needed. Some industry-related growth may also be expected in this area. With this will likely be new residential growth as well. While it has been demonstrated that additional lane capacity is not needed, the improvements as recommended along the corridor will enhance the function of the corridor for a growing population. Also, the addition of shoulders as proposed in Option C will make non-motorized travel safer and more efficient within the corridor and could present new opportunities for bicycle routing from the existing state bicycle route along SR 14 into Covington.

Guiding Principle 3: Support the State's Economy

The improvement of the SR 384 corridor has the potential to support future development by improving access between I-69 and southeastern portions of Tipton County. Option A has the potential to discourage or restrict new development in the areas served either directly or indirectly by SR 384.

Guiding Principle 4: Maximize Safety and Security

In the event that existing SR 384 becomes impassable, an alternative route is available via a series of county roads on the west side of and roughly parallel to SR 384. SR 59 and SR 3 (US 51) are also alternative routes to SR 384. Option C improves the safety of the existing road through standard width travel lanes and wider shoulders. The crash experience which includes predominately single-vehicle, off-road crashes would be expected to be lessened through reconstruction of the road. Non-motorized users would also be provided with a safer facility on which to travel than the existing roadway provides.

Guiding Principle 5: Build Partnerships for Livable Communities

Improvement Options B and C have been developed with input from local stakeholders who are interested in improving the safety and efficiency of the SR 384 corridor. The study options have also been planned in coordination with the West Tennessee Rural Planning Organization. Option C is consistent with livable communities principles in that it will enhance access and safety for motorized as well as non-motorized travel modes.

Guiding Principle 6: Promote Stewardship of the Environment

Initial site documentation including the Early Environmental Screening (EES) for this study indicates that environmental impacts along the route can be mitigated using typical methods. This study is subject to all of the regulations of NEPA and these will be addressed in detail in the environmental phase of the study.

Guiding Principle 7: Emphasize Financial Responsibility

Planning level cost estimates were prepared for the improvement options. Some of TDOT's financial objectives are to follow a comprehensive transportation planning process, promote coordination among public and private operators of transportation systems, and support efforts to provide stable funding for the public component of the transportation system. One or more of these strategies are being and/or will be considered in this study to promote financial responsibility.

8.0 SUMMARY

The existing deficiencies of the SR 384 cross-section along with the opportunities brought by the future I-69 alignment has brought about a need for an improved SR 384 corridor through either spot locations or improvement of the entire length of the corridor. The stated primary transportation need for this location, a safe and efficient connection between SR 14 and SR 59, is most comprehensively met by the roadway improvements described in this TPR as Option C. Option B addresses the locations of greatest need through a series of spot improvements. These improvements have been planned in cooperation with and based on input from local officials, local technical staffs, and the West Tennessee Rural Planning Organization.

Traffic data have shown that, from a capacity standpoint, the two (2) traffic lanes of SR 384 will adequately accommodate growing traffic volumes through the 2034 design year. However, this corridor will benefit from an improved cross-section including standard lane widths and shoulders and sight distances commensurate with its 55 mph operating speed. Improvement of the entire length of the corridor would provide these operational and safety benefits as described in Option C and has an estimated cost of \$11,098,000.

Option C is expected to have some minor environmental impacts, but ones which can be mitigated using typical methods. A comprehensive analysis of the impacts will be completed in a later phase of the study in accordance with NEPA requirements.

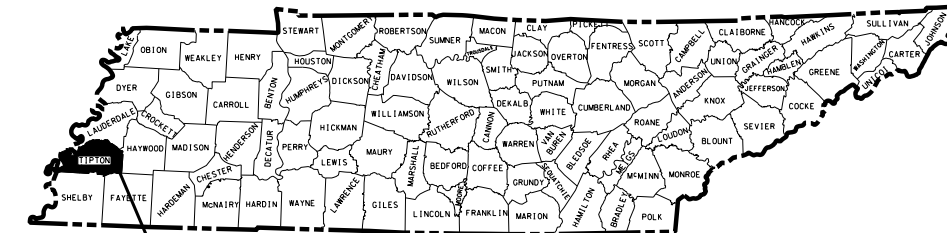
STATE OF TENNESSEE DEPARTMENT OF TRANSPORTATION PROJECT PLANNING DIVISION

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FED. AID PROJ. NO.		
STATE PROJ. NO.		99108-7018-04

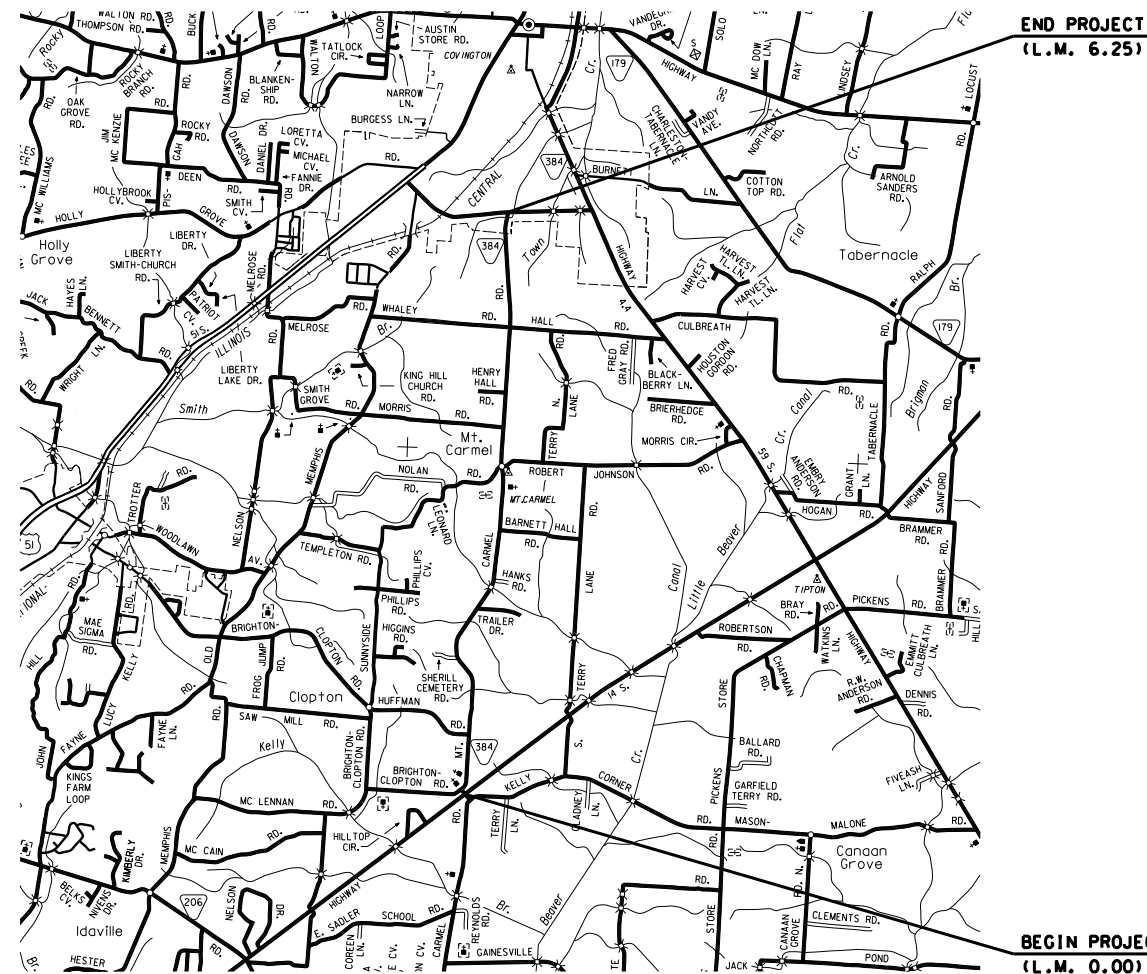
SHEET NO.	DESCRIPTION
1 TITLE SHEET
2 TYPICAL SECTIONS
3-15 PROPOSED LAYOUTS

TIPTON COUNTY TRANSPORTATION PLANNING REPORT STATE ROUTE 384 (MT. CARMEL ROAD) FROM STATE ROUTE 14 TO STATE ROUTE 59

STATE HIGHWAY NO. N/A F.A.H.S. NO. N/A



**PROJECT LOCATION
TIPTON COUNTY**



SPECIAL NOTES

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

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

TDOT C.E. MANAGER 1 _____
 DESIGNED BY RPM Transportation Consultants, LLC
 DESIGNER _____ CHECKED BY _____
 P.E. NO. _____
 PIN NO. _____

APPROVED: _____
 CHIEF ENGINEER

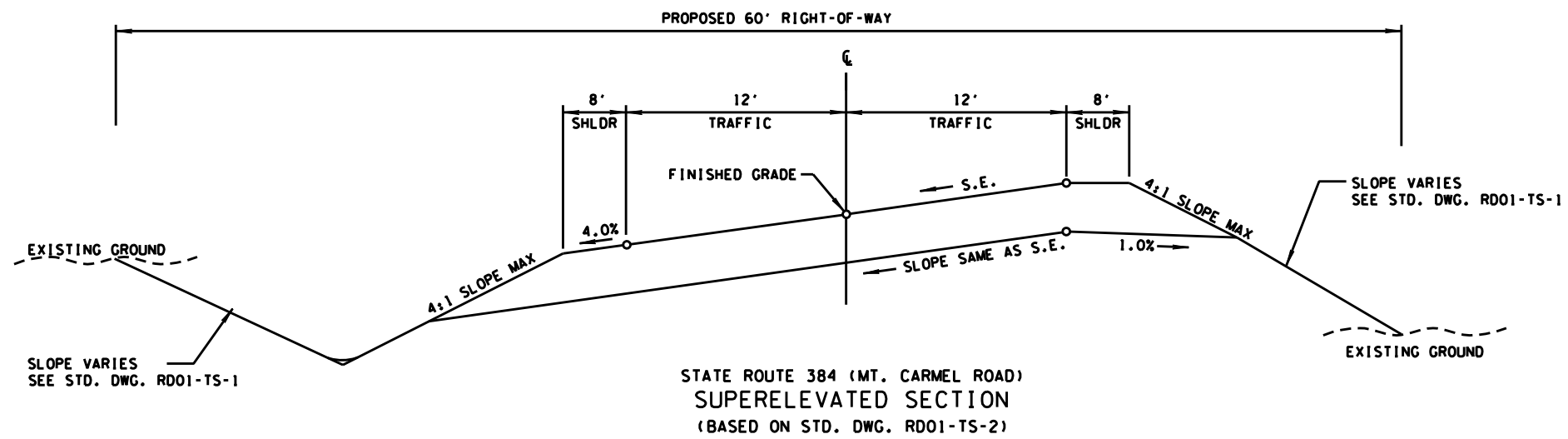
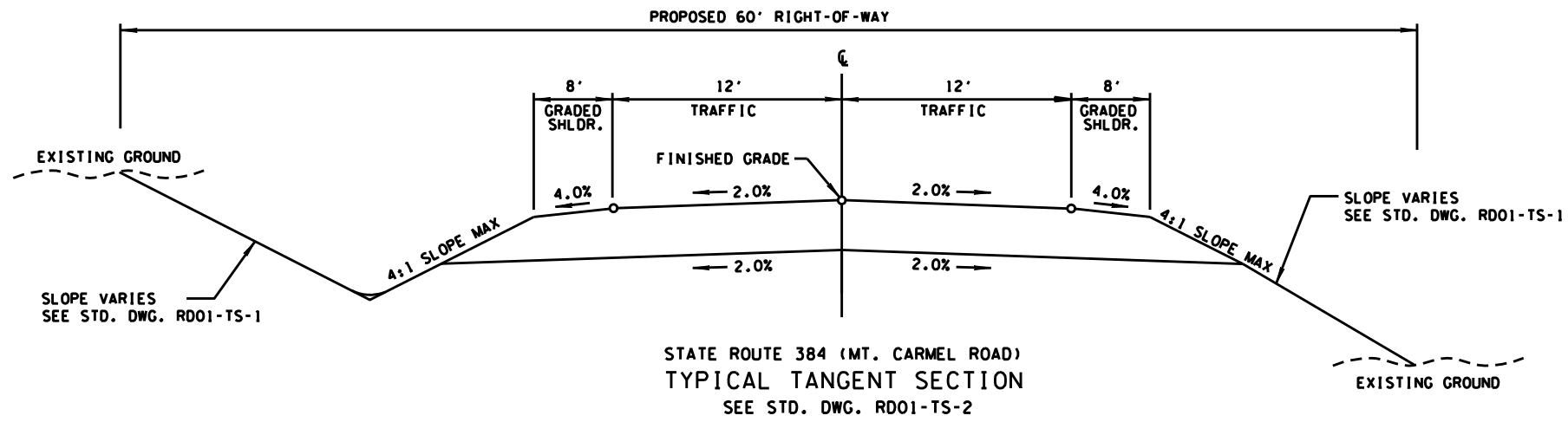
DATE: _____

APPROVED: _____
 COMMISSIONER

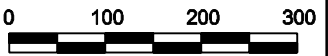
U.S. DEPARTMENT OF TRANSPORTATION
FEDERAL HIGHWAY ADMINISTRATION

APPROVED: _____
 DIVISION ADMINISTRATOR DATE

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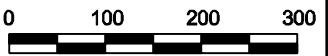
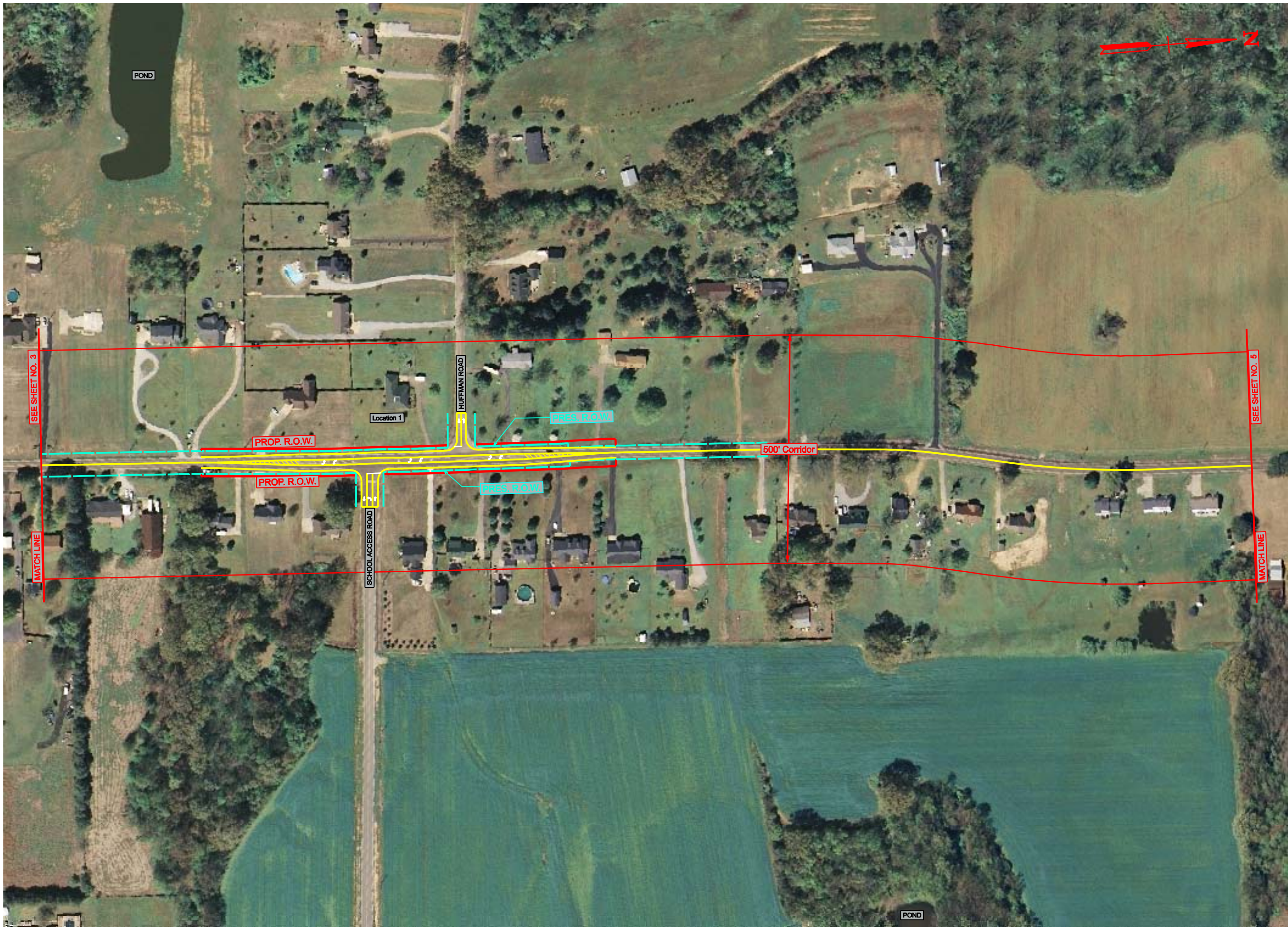
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TPR	2009	TIPON	3



STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

TRANSPORTATION
PLANNING
REPORT
STATE ROUTE 384
(MT. CARMEL ROAD)

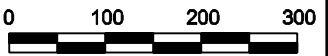
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TPR	2009	TIPON	4



STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

TRANSPORTATION
PLANNING
REPORT
STATE ROUTE 384
(MT. CARMEL ROAD)

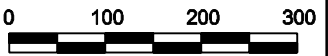
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TPR	2009	TIPON	5



STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

TRANSPORTATION
PLANNING
REPORT
STATE ROUTE 384
(MT. CARMEL ROAD)

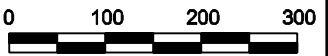
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TPR	2009	TIPON	6



STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

TRANSPORTATION
PLANNING
REPORT
STATE ROUTE 384
(MT. CARMEL ROAD)

TYPE	YEAR	COUNTY	SHEET NO.
TPR	2009	TIPON	7



STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

TRANSPORTATION
PLANNING
REPORT
STATE ROUTE 384
(MT. CARMEL ROAD)

TYPE	YEAR	COUNTY	SHEET NO.
TPR	2009	TIPON	8



500' Corridor

SEE SHEET NO. 7

SEE SHEET NO. 9

MATCH LINE

MATCH LINE

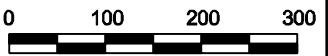
POND



STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

TRANSPORTATION
PLANNING
REPORT
STATE ROUTE 384
(MT. CARMEL ROAD)

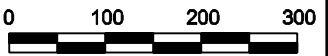
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TPR	2009	TIPON	9



STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

TRANSPORTATION
PLANNING
REPORT
STATE ROUTE 384
(MT. CARMEL ROAD)

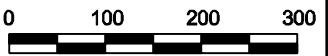
TYPE	YEAR	COUNTY	SHEET NO.
TPR	2009	TIPON	10



STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

TRANSPORTATION
PLANNING
REPORT
STATE ROUTE 384
(MT. CARMEL ROAD)

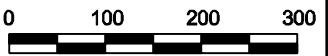
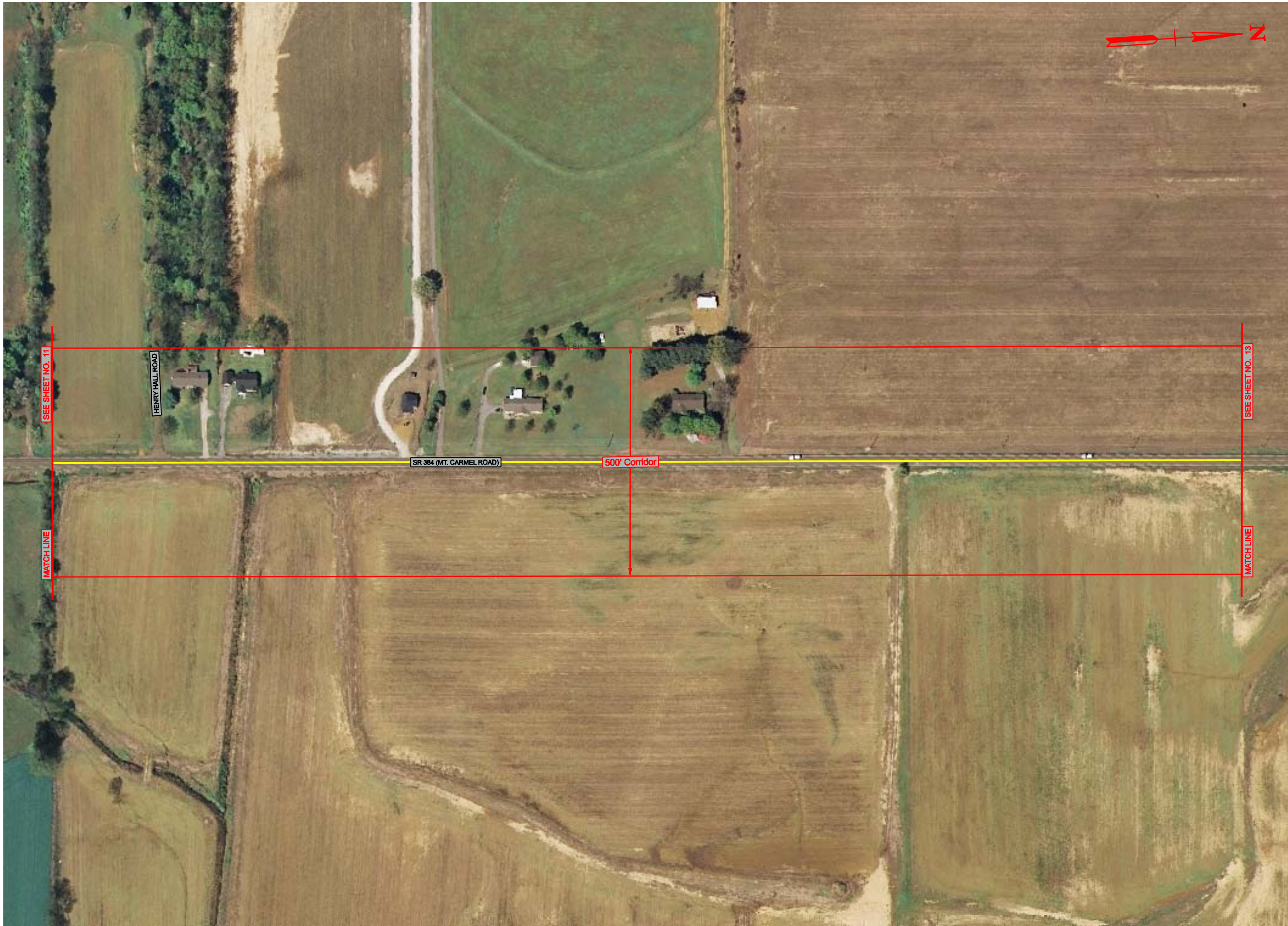
TYPE	YEAR	COUNTY	SHEET NO.
TPR	2009	TIPON	11



STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

TRANSPORTATION
PLANNING
REPORT
STATE ROUTE 384
(MT. CARMEL ROAD)

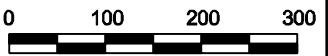
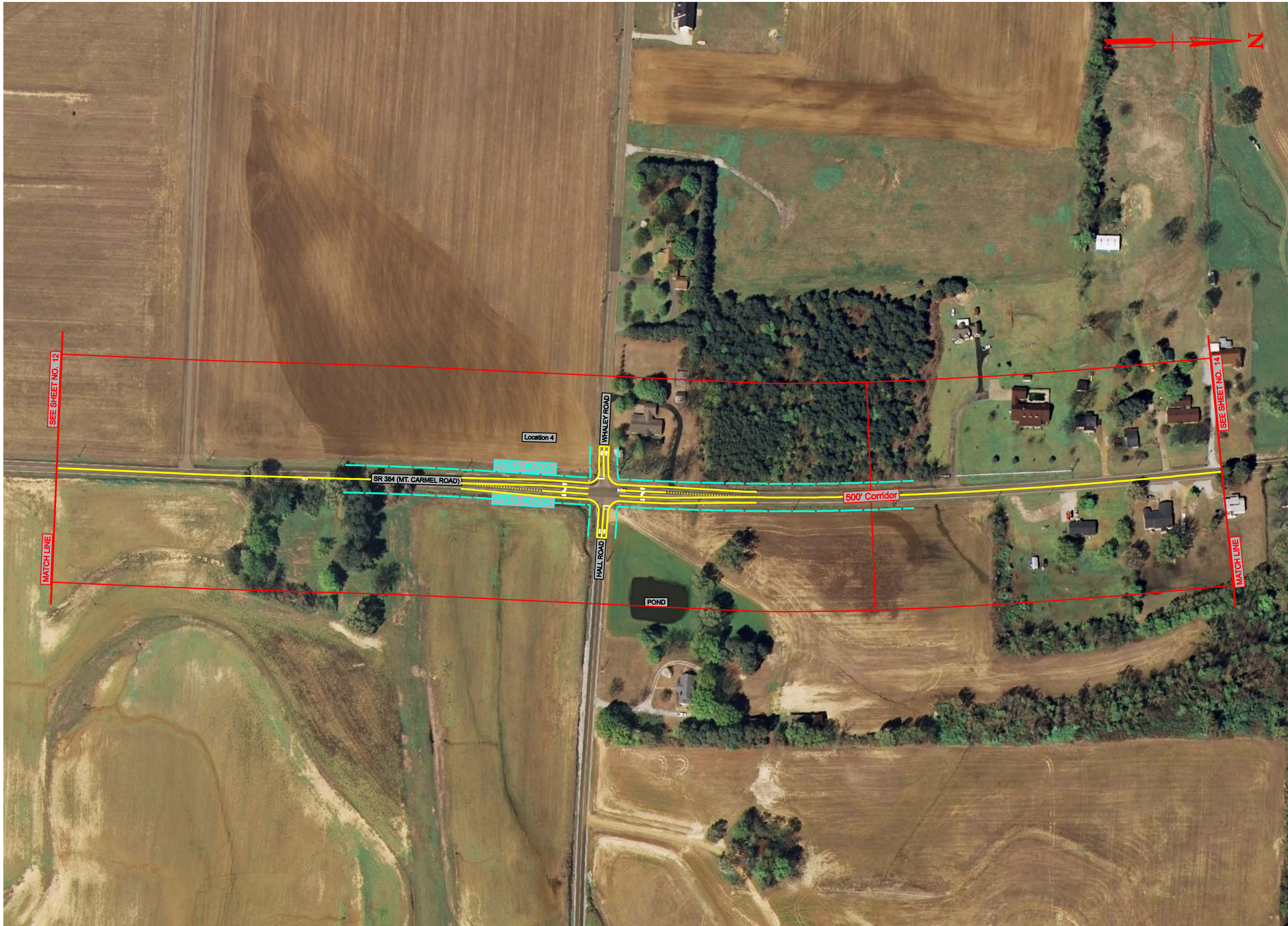
TYPE	YEAR	COUNTY	SHEET NO.
TPR	2009	TIPON	12



STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

TRANSPORTATION
PLANNING
REPORT
STATE ROUTE 384
(MT. CARMEL ROAD)

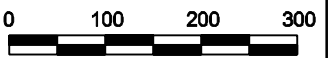
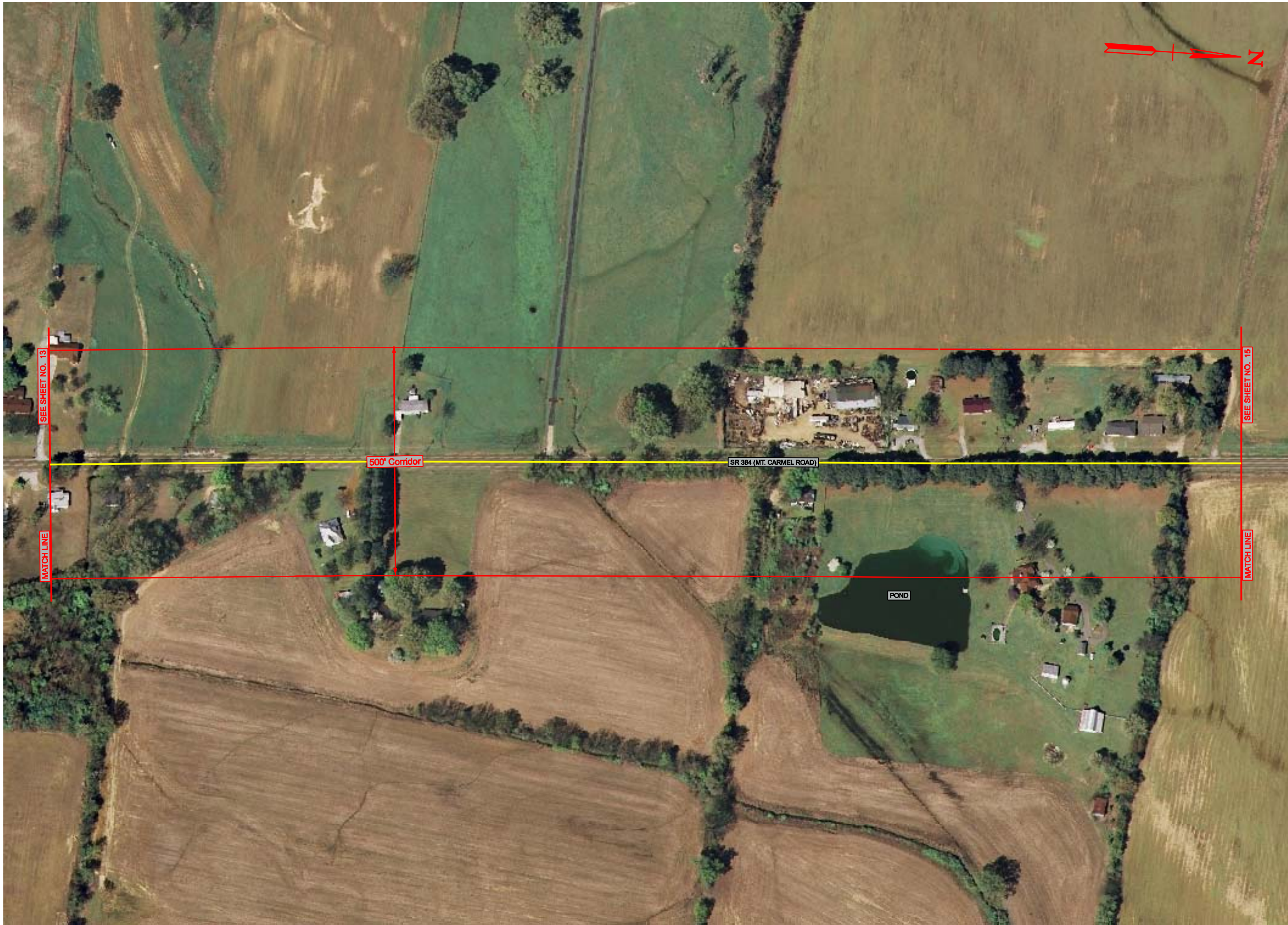
TYPE	YEAR	COUNTY	SHEET NO.
TPR	2009	TIPON	13



STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

TRANSPORTATION
PLANNING
REPORT
STATE ROUTE 384
(MT. CARMEL ROAD)

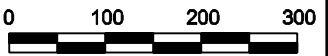
TYPE	YEAR	COUNTY	SHEET NO.
TPR	2009	TIPON	14



STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

TRANSPORTATION
PLANNING
REPORT
STATE ROUTE 384
(MT. CARMEL ROAD)

TYPE	YEAR	COUNTY	SHEET NO.
TPR	2009	TIPON	15



STATE OF TENNESSEE
DEPARTMENT OF TRANSPORTATION

TRANSPORTATION
PLANNING
REPORT
STATE ROUTE 384
(MT. CARMEL ROAD)

APPENDIX

COST DATA

Route:	SR 384
Description:	Option A - No Build Transportation Planning Report
County:	Tipton
Length:	6.25 miles
Date:	2/11/2010

RIGHT-OF-WAY ACQUISITION	\$	0
UTILITY RELOCATIONS	\$	0
CLEAR AND GRUBBING	\$	0
EARTHWORK	\$	0
PAVEMENT REMOVAL	\$	0
DRAINAGE	\$	0
STRUCTURES	\$	0
RAILROAD CROSSING OR SEPARATION	\$	0
PAVING	\$	0
RETAINING WALLS	\$	0
MAINTENANCE OF TRAFFIC	\$	0
TOPSOIL	\$	0
SEEDING	\$	0
SODDING	\$	0
SIGNING	\$	0
LIGHTING	\$	0
SIGNALIZATION	\$	0
FENCE	\$	0
GUARDRAIL	\$	0
RIP RAP OR SLOPE PROTECTION	\$	0
OTHER CONST. ITEMS (15%)	\$	0
MOBILIZATION	\$	0
CONSTRUCTION COST	\$	0
10% ENG. & CONT.	\$	0
TOTAL CONSTRUCTION COST	\$	0
15% PRELIMINARY ENGINEERING	\$	0
TOTAL COST *	\$	0

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

Route:	SR 384
Description:	Segment of SR 384 - Huffman to School Access Transportation Planning Report
County:	Tipton
Length:	850 feet
Date:	1/11/2010

RIGHT-OF-WAY ACQUISITION	\$	39,000
UTILITY RELOCATIONS	\$	60,000
CLEAR AND GRUBBING	\$	1,000
EARTHWORK	\$	18,000
PAVEMENT REMOVAL	\$	3,000
DRAINAGE	\$	10,000
STRUCTURES	\$	0
RAILROAD CROSSING OR SEPARATION	\$	0
PAVING	\$	77,000
RETAINING WALLS	\$	0
MAINTENANCE OF TRAFFIC	\$	2,000
TOPSOIL	\$	1,000
SEEDING	\$	1,000
SODDING	\$	1,000
SIGNING	\$	4,000
LIGHTING	\$	0
SIGNALIZATION	\$	0
FENCE	\$	0
GUARDRAIL	\$	0
RIP RAP OR SLOPE PROTECTION	\$	2,000
OTHER CONST. ITEMS (15%)	\$	18,000
MOBILIZATION	\$	7,000
CONSTRUCTION COST	\$	145,000
10% ENG. & CONT.	\$	15,000
TOTAL CONSTRUCTION COST	\$	160,000
15% PRELIMINARY ENGINEERING	\$	22,000
TOTAL COST *	\$	281,000

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

Route:	SR 384
Description:	Location 2 - I/S SR 384 and Sunnyside/ Rob. John. Rd. Transportation Planning Report
County:	Tipton
Length:	Intersection
Date:	1/11/2010

RIGHT-OF-WAY ACQUISITION	\$	19,000
UTILITY RELOCATIONS	\$	40,000
CLEAR AND GRUBBING	\$	1,000
EARTHWORK	\$	14,000
PAVEMENT REMOVAL	\$	1,000
DRAINAGE	\$	7,500
STRUCTURES	\$	0
RAILROAD CROSSING OR SEPARATION	\$	0
PAVING	\$	59,000
RETAINING WALLS	\$	0
MAINTENANCE OF TRAFFIC	\$	2,000
TOPSOIL	\$	1,000
SEEDING	\$	1,000
SODDING	\$	1,000
SIGNING	\$	2,000
LIGHTING	\$	0
SIGNALIZATION	\$	0
FENCE	\$	0
GUARDRAIL	\$	0
RIP RAP OR SLOPE PROTECTION	\$	2,000
OTHER CONST. ITEMS (15%)	\$	14,000
MOBILIZATION	\$	5,000
CONSTRUCTION COST	\$	110,500
10% ENG. & CONT.	\$	11,000
TOTAL CONSTRUCTION COST	\$	121,500
15% PRELIMINARY ENGINEERING	\$	17,000
TOTAL COST *	\$	197,500

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

Route:	SR 384
Description:	Location 3 - I/S SR 382 and Morris Road Transportation Planning Report
County:	Tipton
Length:	Intersection
Date:	1/11/2010

RIGHT-OF-WAY ACQUISITION	\$	19,000
UTILITY RELOCATIONS	\$	40,000
CLEAR AND GRUBBING	\$	1,000
EARTHWORK	\$	11,000
PAVEMENT REMOVAL	\$	1,000
DRAINAGE	\$	6,300
STRUCTURES	\$	0
RAILROAD CROSSING OR SEPARATION	\$	0
PAVING	\$	50,000
RETAINING WALLS	\$	0
MAINTENANCE OF TRAFFIC	\$	2,000
TOPSOIL	\$	1,000
SEEDING	\$	1,000
SODDING	\$	1,000
SIGNING	\$	1,000
LIGHTING	\$	0
SIGNALIZATION	\$	0
FENCE	\$	0
GUARDRAIL	\$	0
RIP RAP OR SLOPE PROTECTION	\$	2,000
OTHER CONST. ITEMS (15%)	\$	12,000
MOBILIZATION	\$	4,000
CONSTRUCTION COST	\$	93,300
10% ENG. & CONT.	\$	9,000
TOTAL CONSTRUCTION COST	\$	102,300
15% PRELIMINARY ENGINEERING	\$	14,000
TOTAL COST *	\$	175,300

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

Route:	SR 384
Description:	Location 4 - I/S SR 384 and Whaley/ Hall Road Transportation Planning Report
County:	Tipton
Length:	Intersection
Date:	1/11/2010

RIGHT-OF-WAY ACQUISITION	\$	0
UTILITY RELOCATIONS	\$	40,000
CLEAR AND GRUBBING	\$	1,000
EARTHWORK	\$	14,000
PAVEMENT REMOVAL	\$	2,000
DRAINAGE	\$	7,500
STRUCTURES	\$	0
RAILROAD CROSSING OR SEPARATION	\$	0
PAVING	\$	65,700
RETAINING WALLS	\$	0
MAINTENANCE OF TRAFFIC	\$	1,000
TOPSOIL	\$	1,000
SEEDING	\$	1,000
SODDING	\$	1,000
SIGNING	\$	1,000
LIGHTING	\$	0
SIGNALIZATION	\$	0
FENCE	\$	0
GUARDRAIL	\$	0
RIP RAP OR SLOPE PROTECTION	\$	2,000
OTHER CONST. ITEMS (15%)	\$	15,000
MOBILIZATION	\$	6,000
CONSTRUCTION COST	\$	118,200
10% ENG. & CONT.	\$	12,000
TOTAL CONSTRUCTION COST	\$	130,200
15% PRELIMINARY ENGINEERING	\$	18,000
TOTAL COST *	\$	188,200

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

Route:	SR 384
Description:	Location 5.1 - Intersection of SR 384 and SR 59
	Transportation Planning Report
County:	Tipton
Length:	Intersection
Date:	5/12/2010

RIGHT-OF-WAY ACQUISITION	\$	29,000
UTILITY RELOCATIONS	\$	40,000
CLEAR AND GRUBBING	\$	1,000
EARTHWORK	\$	14,000
PAVEMENT REMOVAL	\$	2,000
DRAINAGE	\$	8,000
STRUCTURES	\$	0
RAILROAD CROSSING OR SEPARATION	\$	0
PAVING	\$	50,000
RETAINING WALLS	\$	0
MAINTENANCE OF TRAFFIC	\$	2,000
TOPSOIL	\$	1,000
SEEDING	\$	1,000
SODDING	\$	1,000
SIGNING	\$	4,000
LIGHTING	\$	0
SIGNALIZATION	\$	112,000
FENCE	\$	0
GUARDRAIL	\$	0
RIP RAP OR SLOPE PROTECTION	\$	2,000
OTHER CONST. ITEMS (15%)	\$	30,000
MOBILIZATION	\$	11,000
CONSTRUCTION COST	\$	239,000
10% ENG. & CONT.	\$	24,000
TOTAL CONSTRUCTION COST	\$	263,000
15% PRELIMINARY ENGINEERING	\$	36,000
TOTAL COST *	\$	368,000

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

Route:	SR 384
Description:	Location 5.2 - Intersection of SR 384 and SR 59
	Transportation Planning Report
County:	Tipton
Length:	Intersection
Date:	5/12/2010

RIGHT-OF-WAY ACQUISITION	\$	36,000
UTILITY RELOCATIONS	\$	40,000
CLEAR AND GRUBBING	\$	1,000
EARTHWORK	\$	14,000
PAVEMENT REMOVAL	\$	8,000
DRAINAGE	\$	7,700
STRUCTURES	\$	0
RAILROAD CROSSING OR SEPARATION	\$	0
PAVING	\$	162,000
RETAINING WALLS	\$	0
MAINTENANCE OF TRAFFIC	\$	6,000
TOPSOIL	\$	1,000
SEEDING	\$	1,000
SODDING	\$	1,000
SIGNING	\$	3,000
LIGHTING	\$	0
SIGNALIZATION	\$	0
FENCE	\$	0
GUARDRAIL	\$	0
RIP RAP OR SLOPE PROTECTION	\$	2,000
OTHER CONST. ITEMS (15%)	\$	31,000
MOBILIZATION	\$	12,000
CONSTRUCTION COST	\$	249,700
10% ENG. & CONT.	\$	25,000
TOTAL CONSTRUCTION COST	\$	274,700
15% PRELIMINARY ENGINEERING	\$	37,000
TOTAL COST *	\$	388,000

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

Route:	SR 384
Description:	Option C - SR 14 to SR 59 Transportation Planning Report
County:	Tipton
Length:	6.25 miles
Date:	12/30/2009

RIGHT-OF-WAY ACQUISITION	\$	801,000
UTILITY RELOCATIONS	\$	1,980,000
CLEAR AND GRUBBING	\$	60,000
EARTHWORK	\$	714,000
PAVEMENT REMOVAL	\$	10,000
DRAINAGE	\$	861,000
STRUCTURES	\$	0
RAILROAD CROSSING OR SEPARATION	\$	0
PAVING	\$	3,253,000
RETAINING WALLS	\$	0
MAINTENANCE OF TRAFFIC	\$	15,000
TOPSOIL	\$	49,000
SEEDING	\$	42,000
SODDING	\$	30,000
SIGNING	\$	21,000
LIGHTING	\$	0
SIGNALIZATION	\$	112,000
FENCE	\$	0
GUARDRAIL	\$	224,000
RIP RAP OR SLOPE PROTECTION	\$	147,000
OTHER CONST. ITEMS (15%)	\$	831,000
MOBILIZATION	\$	285,000
CONSTRUCTION COST	\$	6,654,000
10% ENG. & CONT.	\$	665,000
TOTAL CONSTRUCTION COST	\$	7,319,000
15% PRELIMINARY ENGINEERING	\$	998,000
TOTAL COST *	\$	11,098,000

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

ENVIRONMENTAL DOCUMENTATION



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

Project Score Factors

	Total Impacts Evaluated	Total Impacts to Evaluate	EES Evaluation
Project Impact Areas:	15	15	Complete
Date of Evaluation:	November 05, 2009		
Evaluation done by:	Chris Armstrong		
	Transportation Planner 4		
County:	Tipton		
Route:	State Route 384		
PIN:	112892.00		
Termini:	From State Route-14 to State Route 59		

Impact Ranking of Features Evaluated: Total by Rank

Features with No Impact	12
Cemetery Sites & Cemetery Properties	
Bat	
Terrestrial Species	
Aquatic Species	
TDEC Conservation Sites & TDEC Scenic Waterways	
Superfund Sites	
Caves	
Pyritic Rock	
Railroads	
Tennessee Natural Areas Program	
Wildlife Management Areas	
TWRA Lakes & Other Public Lands	
Features with Low Impact	0

Features with Moderate Impact **1**

National Register Sites

Features with Substantial Impact **1**

Large Wetland Impacts

Community Impacts Present:

Institutions:

Church

Populations:

No population present

Minority populations 24%

Populations below poverty - State average- 13%

Populations below poverty - State average- 27%

EES Project Impact: **Complete**

Impacts Evaluated Within 1,000 Ft of Study Area

CEMETERY SITES & CEMETERY PROPERTIES

Impact

Project Impact (Environmental, Time, Cost, Design, and Maintenance)	<input checked="" type="checkbox"/> None - No impact on the project as there are no known cemetery sites within or abutting the project study area or corridor. It is anticipated that a 'normal' effort to complete this environmental review as part of NEPA.
--	--

INSTITUTIONS & SENSITIVE COMMUNITY POPULATIONS

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

	Present	Not Present
Institutions:		
Hospital	<input type="checkbox"/>	<input checked="" type="checkbox"/>
School	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Church	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Public Building	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Populations:		
No population present	<input checked="" type="checkbox"/>	<input type="checkbox"/>
65 and older populations	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Disability populations	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Households without a vehicle	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Minority populations 24%	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Linguistically isolated populations	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Populations below poverty - State average - 13%	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Populations below poverty - State average - 27%	<input checked="" type="checkbox"/>	<input type="checkbox"/>

BAT

Impact

Project Impact (Environment, Time, Cost, Design, and Maintenance)	<input checked="" type="checkbox"/> None – No project impact is anticipated. There is no occurrence of Indiana or gray bats within 4 miles of the proposed project study area or corridor.
--	---

RAILROADS

Impact

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

Impacts Evaluated Within 2,000 Ft of Study Area

NATIONAL REGISTER SITES

Impact

Project Impact (Environmental, Time, Cost, Design, and Maintenance)	<input checked="" type="checkbox"/> Moderate – Medium impact on the project is anticipated as there is a National Register historic property within the project study area or corridor. It is possible to avoid a taking of the historic property. There may be visual or audible effects upon the survey site and/or historic property that need to be considered and minimized. An environmental impact may still result and necessitate coordination with State Historic Preservation Office as part of NEPA. With more precise project location and design, direct impacts of the tract can be avoid and not require any taking of the surveyed sites or listed properties. Indirect effects (visual and audible) upon the surveyed sites or listed properties need to be reviewed.
--	--

SUPERFUND SITES

Impact

Project Impact (Environment, Time, Cost, Design, and Maintenance)	<input checked="" type="checkbox"/> None – No project impact is anticipated as there are no known contaminated land tracts abutting or within the project study area or corridor.
--	--

PYRITIC ROCK

Impact

Project Impact (Environment, Time, Cost, Design, and Maintenance)	<input checked="" type="checkbox"/> None – No project impact is anticipated. Pyritic rock is not known to occur in the study area/corridor or project does not involve excavation. Limestone (symbolized as dark green) and dolomite (symbolized as light green) are present.
--	--

Maintenance)

TWRA LAKES & OTHER PUBLIC LANDS

Impact

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

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

Impacts Evaluated Within 4,000 Ft of Study Area

TERRESTRIAL SPECIES

Impact

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

- None** - No impact to the project is anticipated. There is no known occurrence of a rare, state, or federally-protected terrestrial species within the proposed transportation study area or corridor.

TDEC CONSERVATION SITES & TDEC SCENIC WATERWAYS

Impact

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

- None** – No project impact is expected as there are no scenic waterways or TDEC Conservation Sites within project study area or corridor.

LARGE WETLAND IMPACTS

Impact

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

- Substantial** – Region 4: A substantial impact to the project is probable as there is greater than 5 acres of wetlands within the project study area or corridor. Compensatory mitigation will be required. Design effort will be needed to avoid and minimize impacts to wetlands to the maximum extent practicable. If a floodplain is crossed by the project, floodplain culverts may be necessary.

TENNESSEE NATURAL AREAS PROGRAM

Impact

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

None – No impact on the project is anticipated as the project study area or corridor does not include a Natural Area.

WILDLIFE MANAGEMENT AREAS

Impact

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

None – No project impact is anticipated as a WMA does not abut nor is located within the project study area or corridor.

Impacts Evaluated Within 10,000 Ft of Study Area

AQUATIC SPECIES

Impact

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

None - No impact to the project is anticipated. There is no known occurrence of a rare, state, or federally-protected aquatic species within the project study area or corridor.

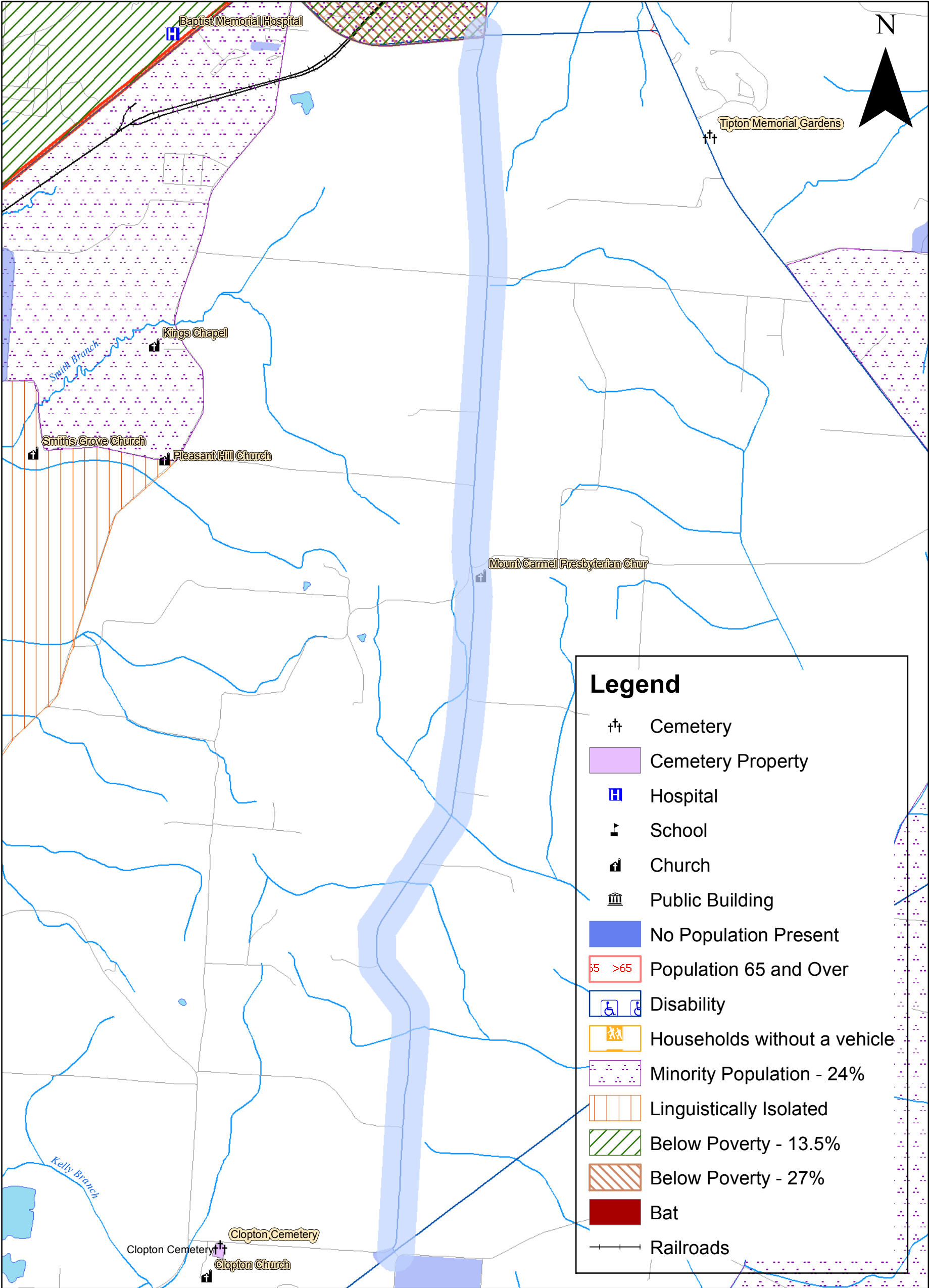
CAVES

Impact

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

None – No project impact is anticipated as there are no caves in the project study area or corridor.

1,000 ft Corridor



Legend

- †† Cemetery
- Cemetery Property
- Hospital
- School
- Church
- Public Building
- No Population Present
- Population 65 and Over
- Disability
- Households without a vehicle
- Minority Population - 24%
- Linguistically Isolated
- Below Poverty - 13.5%
- Below Poverty - 27%
- Bat
- Railroads

0 0.25 0.5 1 Miles

State Route 384 (Mt. Carmel Rd.)
 From SR-14 to SR-59
 LM 0.0 to LM 6.25
 1,000 ft EES Corridor

EES Report

PIN 112892.00

Option: 112892_8401V01

1,000 Foot Corridor

Version Date: June 17, 2009

Created by: J. ROGERS

Cemetery Sites & Cemetery Properties

Cemeteries None were found

Cemetery Property None were found

Institutions & Sensitive Community Populations

Institutions: Total= 1

Church Mount Carmel Presbyterian Chur

Populations:

No population present Present

65 & older populations None were found

Disability populations None were found

Households without a vehicle None were found

Minority populations 24% Present

Linguistically isolated populations None were found

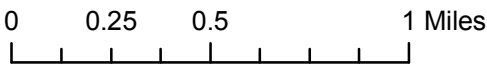
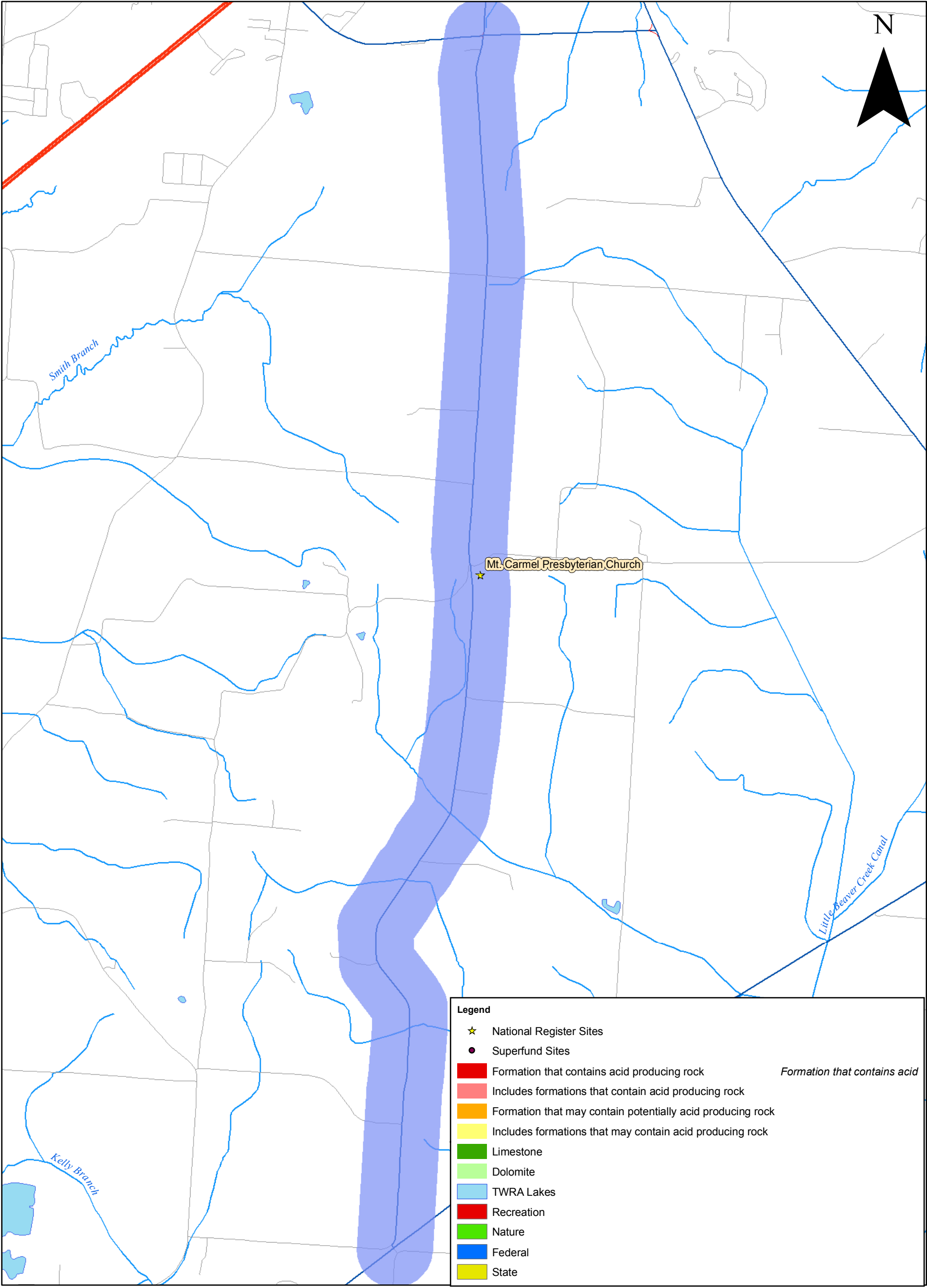
Populations below poverty-State average-13% Present

Populations below poverty-State average-27% Present

Bat None were found

Railroads None were found

2,000 ft Corridor



State Route 384 (Mt. Carmel Rd.)
 From SR-14 to SR-59
 LM 0.0 to LM 6.25
 2,000 ft EES Corridor

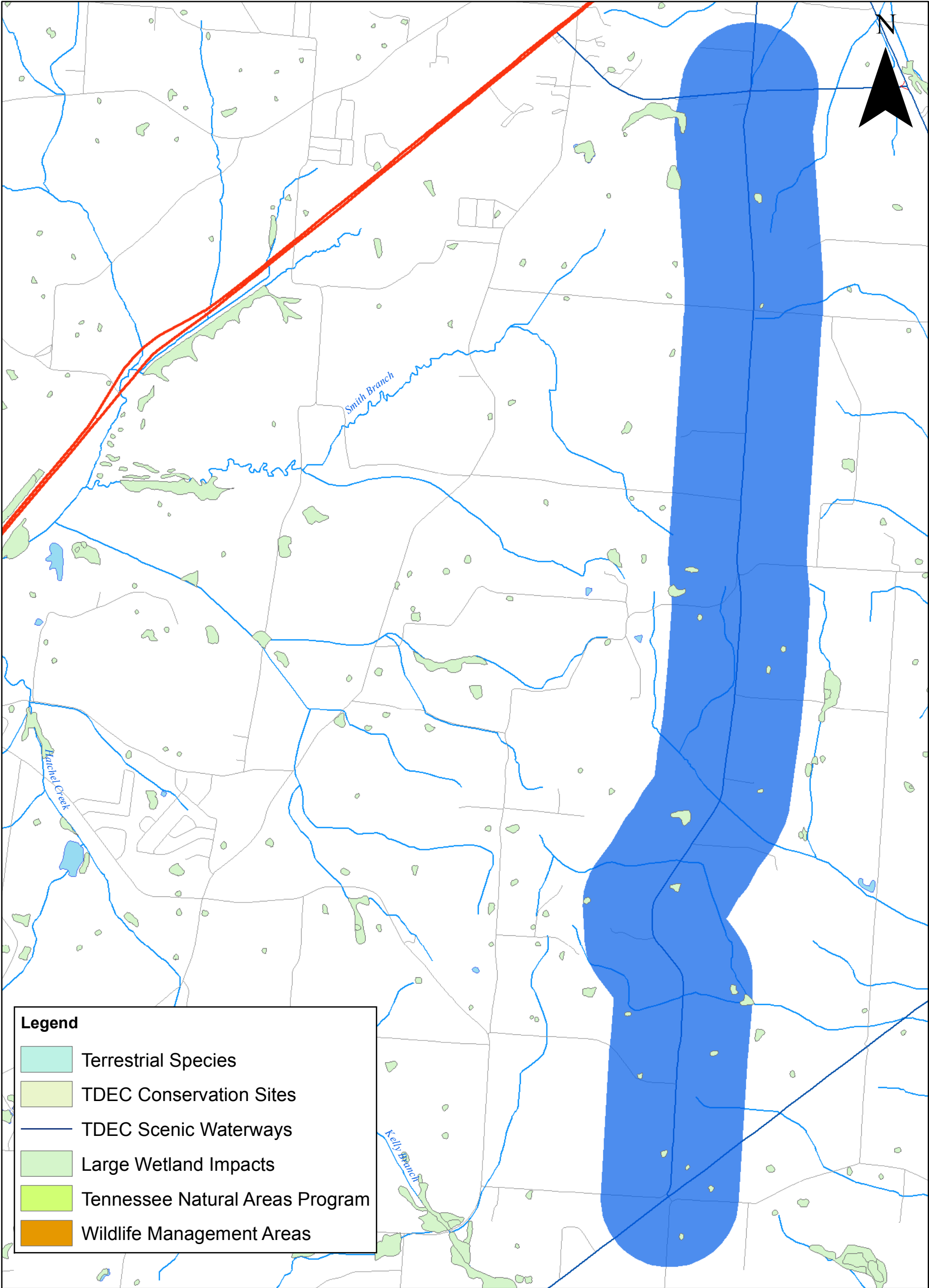
EES Report

PIN 112892.00
2,000 Foot Corridor

Option: 112892_8401V01
Version Date: June 17, 2009
Created by: J. ROGERS

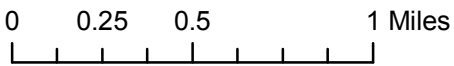
National Register Sites	<u>Total=</u> 1
Mt. Carmel Presbyterian Church	
Superfund Sites	None were found
Pyritic Rock	None were found
TWRA Lakes & Other Public Lands	
TWRA Lakes	None were found
Other Public Lands	None were found

4,000 ft Corridor



Legend

- Terrestrial Species
- TDEC Conservation Sites
- TDEC Scenic Waterways
- Large Wetland Impacts
- Tennessee Natural Areas Program
- Wildlife Management Areas



State Route 384 (Mt. Carmel Rd.)
From SR-14 to SR-59
LM 0.0 to LM 6.25
4,000 ft EES Corridor

EES Report

PIN 112892.00
4,000 Foot Corridor

Option: 112892_8401V01
Version Date: June 17, 2009
Created by: J. ROGERS

Terrestrial Species None were found

TDEC Conservation Sites & TDEC Scenic Waterways

TDEC Conservation Sites None were found

TDEC Scenic Waterways None were found

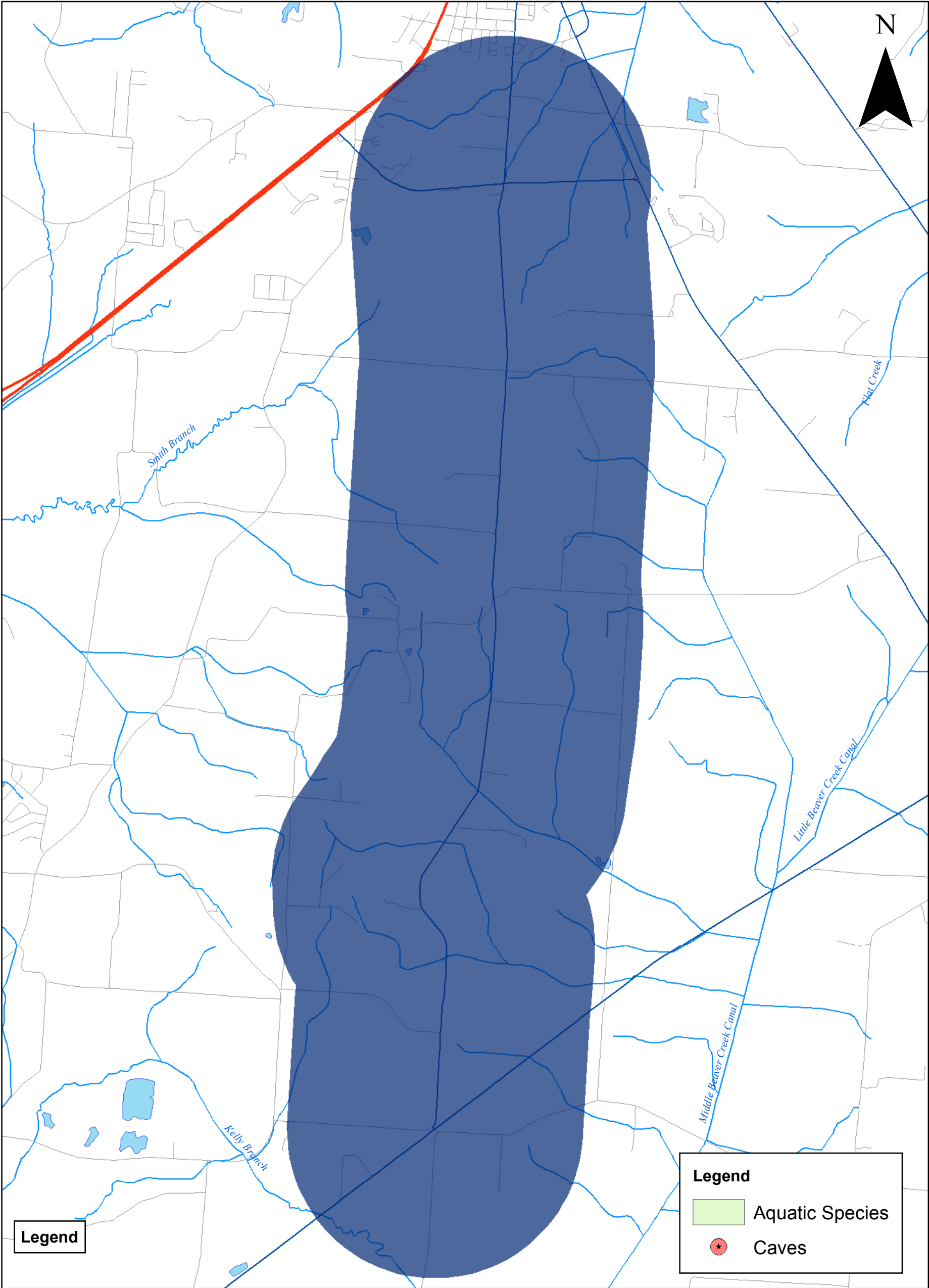
Large Wetland Impacts Total Acreage= 36.26

PFO1A	0.40	acres
PFO1A	4.77	acres
PFO1A	13.40	acres
POWHh	0.47	acres
POWHh	1.75	acres
POWHh	1.09	acres
POWHh	1.15	acres
POWHh	0.64	acres
POWHh	0.66	acres
POWHh	3.41	acres
POWHh	0.52	acres
POWHh	0.40	acres
POWHh	0.46	acres
POWHh	0.44	acres
POWHh	1.17	acres
POWHh	0.47	acres
POWHh	1.04	acres
POWHh	2.45	acres
POWHh	0.65	acres
POWHh	0.37	acres
POWHh	0.32	acres
POWHx	0.22	acres

Tennessee Natural Areas Program None were found

Wildlife Management Areas None were found

10,000 ft Corridor



0 0.25 0.5 1 Miles

State Route 384 (Mt. Carmel Rd.)
From SR-14 to SR-59
LM 0.0 to LM 6.25
10,000 ft EES Corridor

EES Report

PIN 112892.00

Option: 112892_8401V01

10,000 Foot Corridor

Version Date: June 17, 2009

Created by: J. ROGERS

Aquatic Species

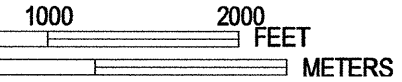
None were found

Caves

None were found



MAP SCALE 1" = 1000'



County
ed Areas
10

Unnamed Tributary To
Middle Beaver Creek

HANKS
ROAD

TRAILER
DRIVE

MT.
CARMEL
ROAD

LEGEND

SPECIAL FLOOD HAZARD AREA: INUNDATION BY THE 1% ANNUAL

The 1% annual chance flood (100-year flood), also known that has a 1% chance of being equaled or exceeded in Flood Hazard Area is the area subject to flooding by the of Special Flood Hazard include Zones A, AE, AH, AO, Flood Elevation is the water-surface elevation of the 1% annua

- ZONE A** No Base Flood Elevations determined,
- ZONE AE** Base Flood Elevations determined,
- ZONE AH** Flood depths of 1 to 3 feet (usually an Elevations determined,
- ZONE AO** Flood depths of 1 to 3 feet (usually s average depths determined. For areas of also determined,
- ZONE AR** Special Flood Hazard Area formerly pro chance flood by a flood control : decertified, Zone AR indicates that the fi being restored to provide protection from greater flood,
- ZONE A99** Area to be protected from 1% annual flood protection system under construction determined,
- ZONE V** Coastal flood zone with velocity hazard Elevations determined,
- ZONE VE** Coastal flood zone with velocity hazar Elevations determined,

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacer kept free of encroachment so that the 1% annual chance substantial increases in flood heights,

OTHER FLOOD AREAS

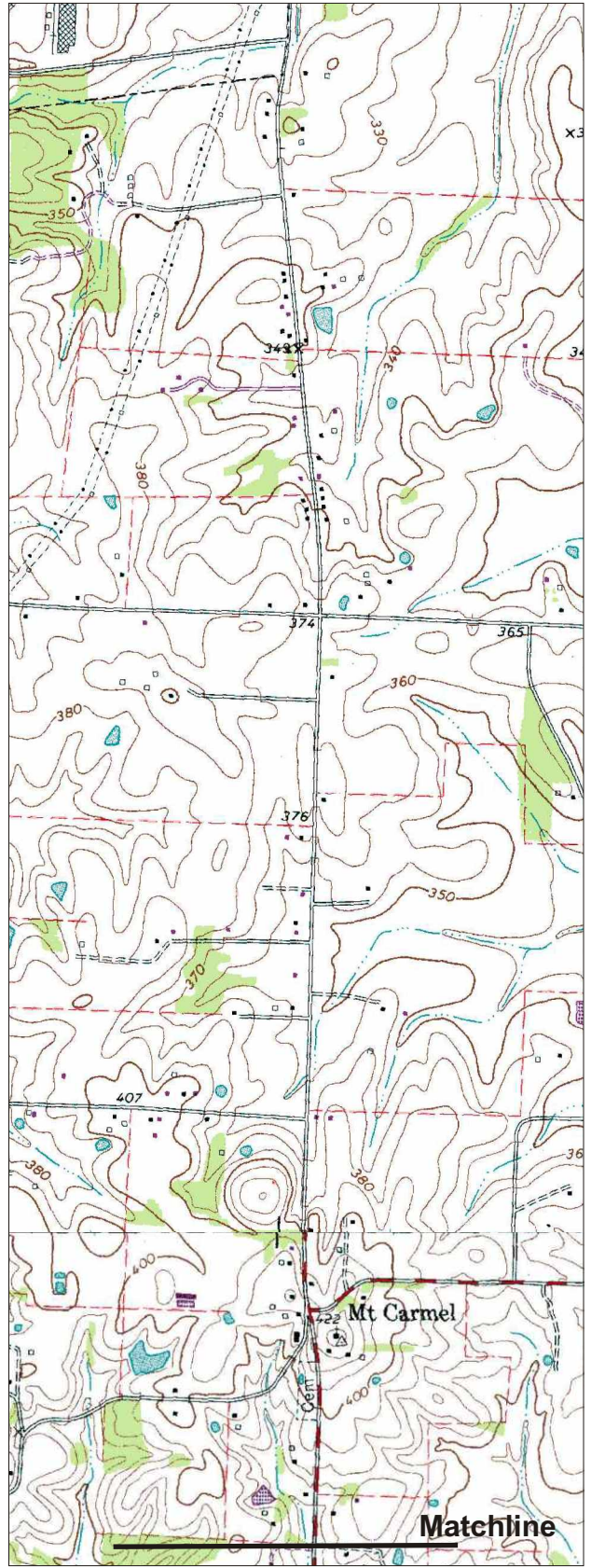
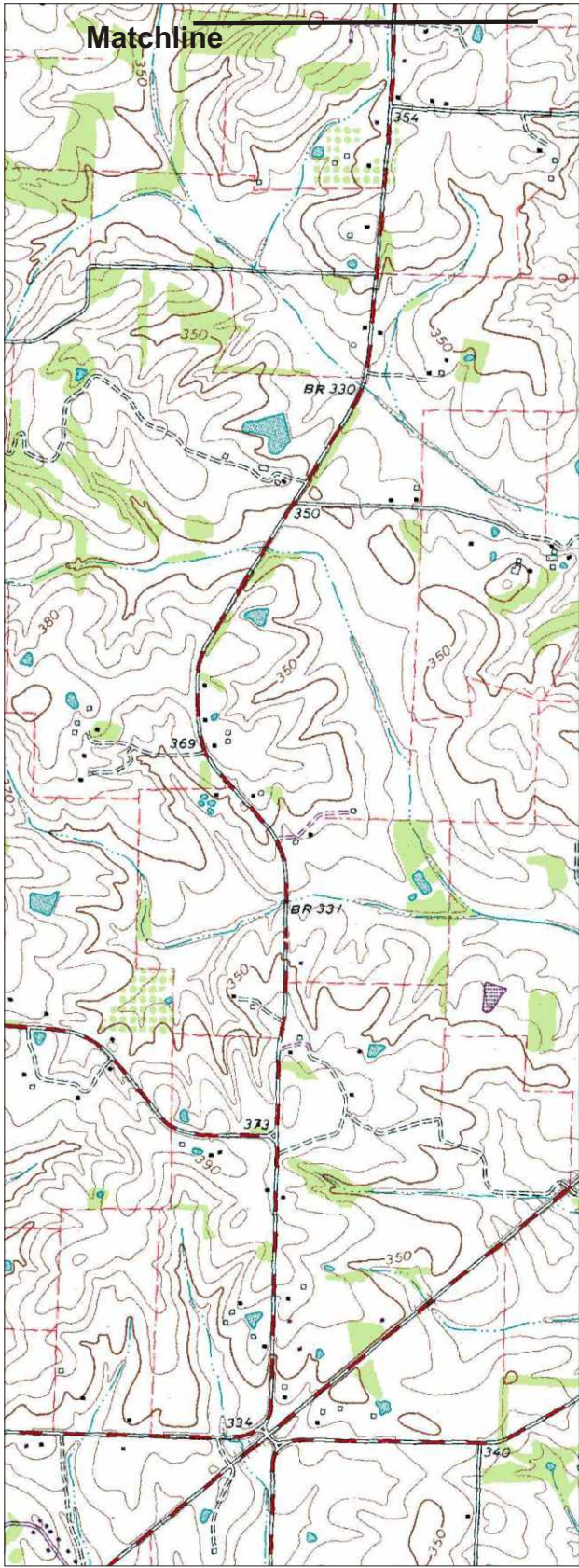
- ZONE X** Areas of 0.2% annual chance flood; are with average depths of less than 1 foot or 1 square mile; and areas protected by flood,

OTHER AREAS

- ZONE X** Areas determined to be outside the 0.2% :
- ZONE D** Areas in which flood hazards are undetermi

COASTAL BARRIER RESOURCES SY:

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov



USGS Area Map

DATA COLLECTION

TENNESSEE DEPT. OF TRANSPORTATION, PLANNING DIVISION
State Route 384 Transportation Planning Report
Stakeholder Field Review
Meeting Notes

October 1, 2009
10:00 AM – 12:00 PM

Meeting Purpose:

Discuss an overview of the process, study limits and purpose of the Transportation Planning Report. Present data and information on existing conditions within the study area. Gather information and opinions from the stakeholders in order to assist in the development of the Transportation Planning Report.

Meeting Location:

Tipton County Justice Center, Covington, TN

Attendees:

See attached sign in sheet

Meeting Summary:

In general, materials presented and discussed included an overview of the Transportation Planning Report process, scope, and work progress to date. Further discussions involved perceived safety problems, previous requests for study, and the impact of other transportation projects.

The following are key discussion/comment items from the meeting:

- I-69 is an influential project within the area. A conceptual route from the I-69 interchange at SR 59 around the southwest side of Covington to SR 59 (Mueller Brass Rd) has been discussed. This would provide a more direct link for traffic from SR 384 to I-69.
- Safety concerns exist at the intersection of SR 384 and Sunnyside Rd/Robert Johnson Rd. The problem here is sight distance from the minor street approaches due to a crest vertical curve. Study for this location has been requested to TDOT Region 4.
- Other primary safety area is intersection at new school. Flashing beacon and additional left turn lane storage (for busses) were mentioned as desirable.
- Unspecified safety issues have to do with limited travel lane width (10'), lack of shoulders, and horizontal and vertical curvature.
- Near-misses and unreported crashes are not accounted for in the existing crash data.
- Route improvements should accommodate bike and pedestrian facilities. It was stated that a bike route exists on SR 14.
- The current speed limit of 55 mph is deemed appropriate.

Following the meeting, several attendees drove the study segment to note current deficiencies.

TENNESSEE DEPT. OF TRANSPORTATION, PLANNING DIVISION
State Route 384 Transportation Planning Report
Stakeholder Field Review

Tipton County Justice Center
 1801 South College St., Covington, TN

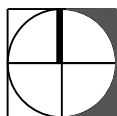
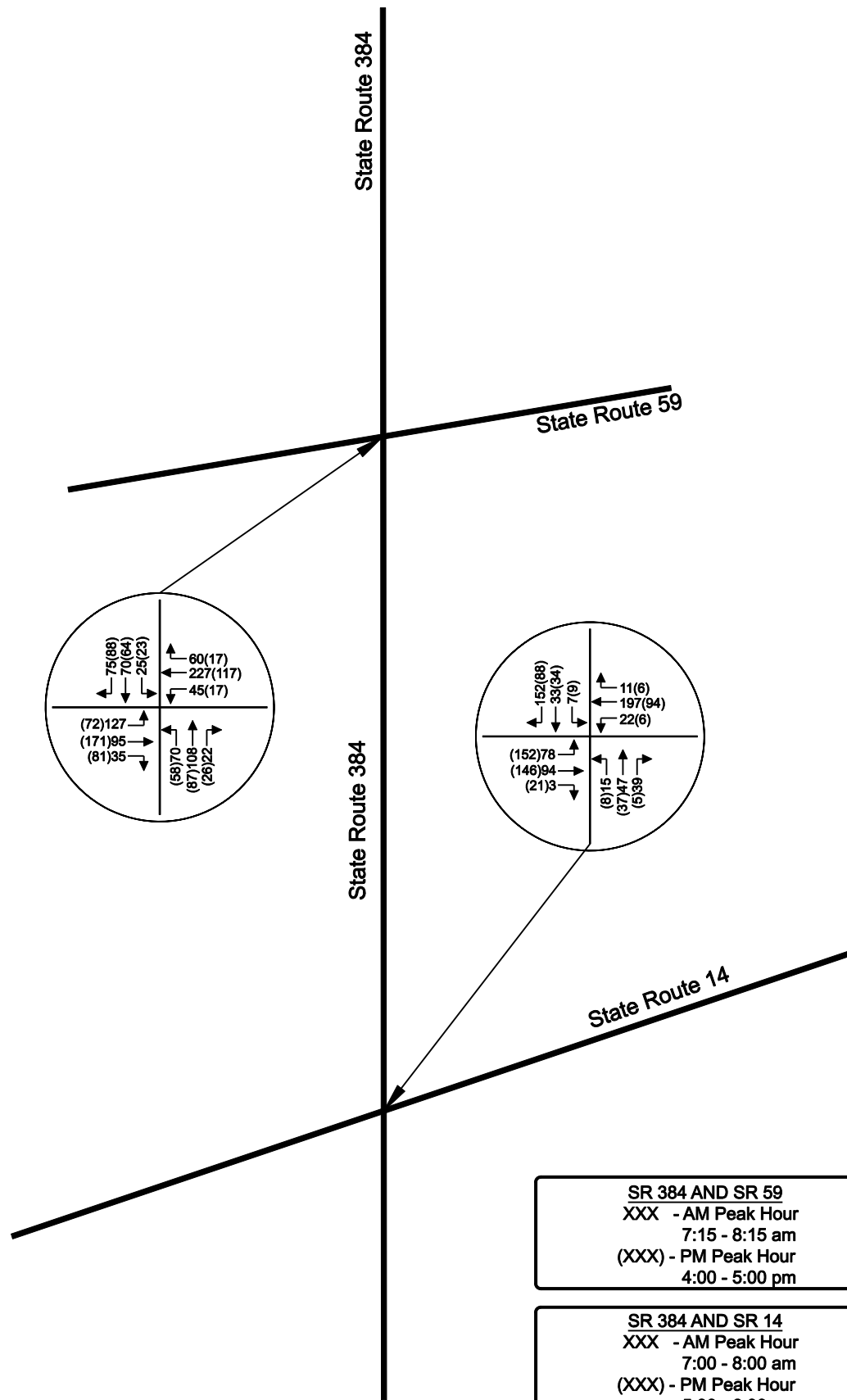
October 1, 2009
 10:00 AM

Sign In Sheet

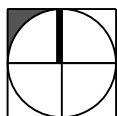
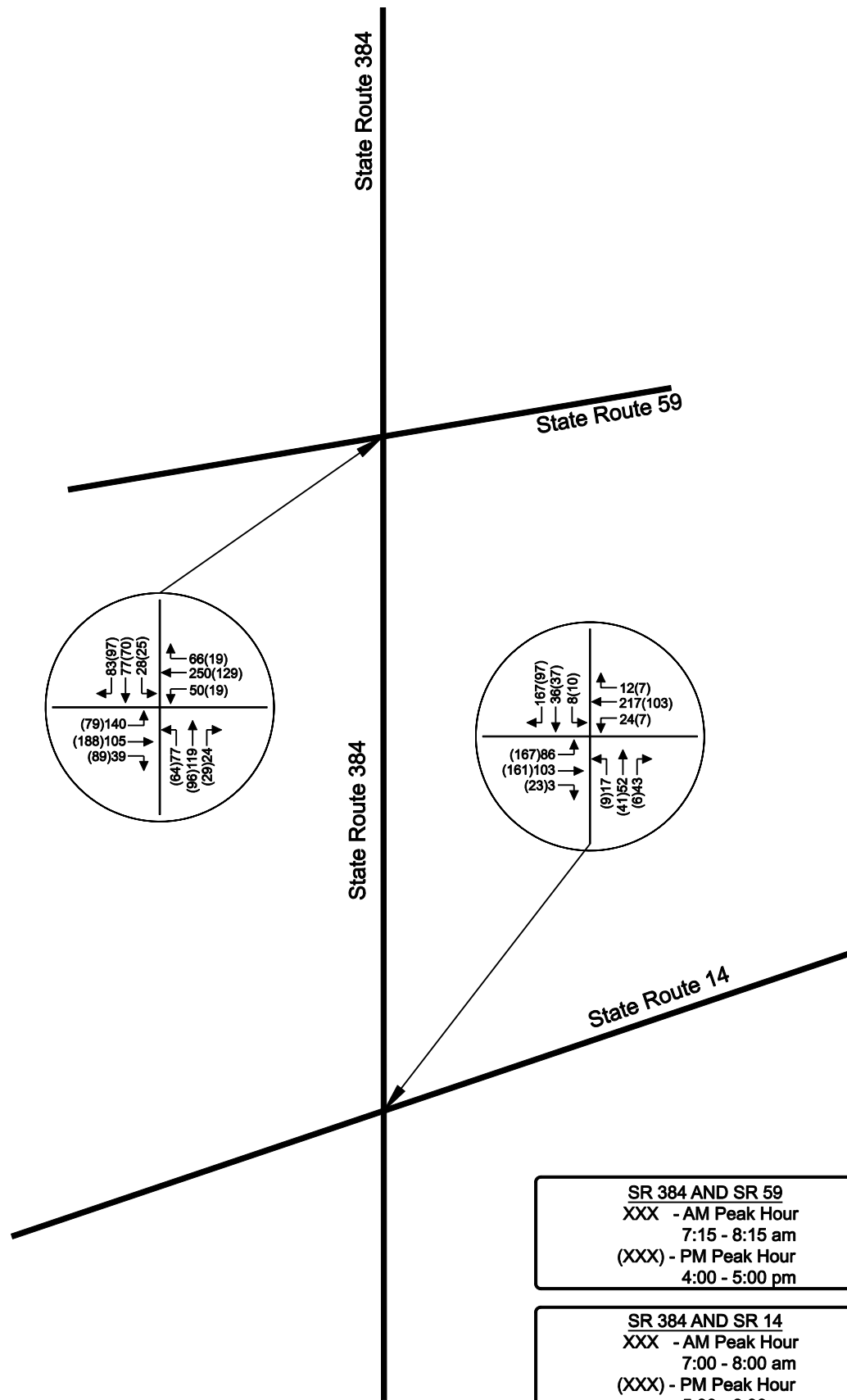
Please Sign In:

<u>Name</u>	<u>Organization</u>	<u>E-Mail</u>
Tyler King	TDOT - Planning	Tyler.King@tn.gov
Chris Armstrong	TDOT- Planning	christopher.armstrong@tn.gov
Joe Matlock	TDOT - Environmental	joe.matlock@tn.gov
DAN FRAZIER	MA-RPO	Dan.Frazier@shelbycountytn.gov
William Veasey	Planning Dept - Tipton Co.	tcplanning@bellsouth.net
Shannon Reed	Tipton Co. Public Worker	Shannon@tcpw.net
Robert M. Simpson	Covington Public Works	rsimpson@covingtontn.com
David W. Gordon	City of Covington	dggordon@covingtontn.com
Jason Daniel Moody	TDOT Region 4 ^{traffic}	jason.d.moody@tn.gov
Terrance Hill	UT/TDOT LR planning	terrance.hill@tn.gov
Jeff Hammond	RPA Transportation	jeff.hammond@rpatraffic.net
Teresa Neal	RPA	teresa.neal@rpatraffic.net

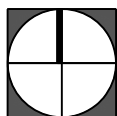
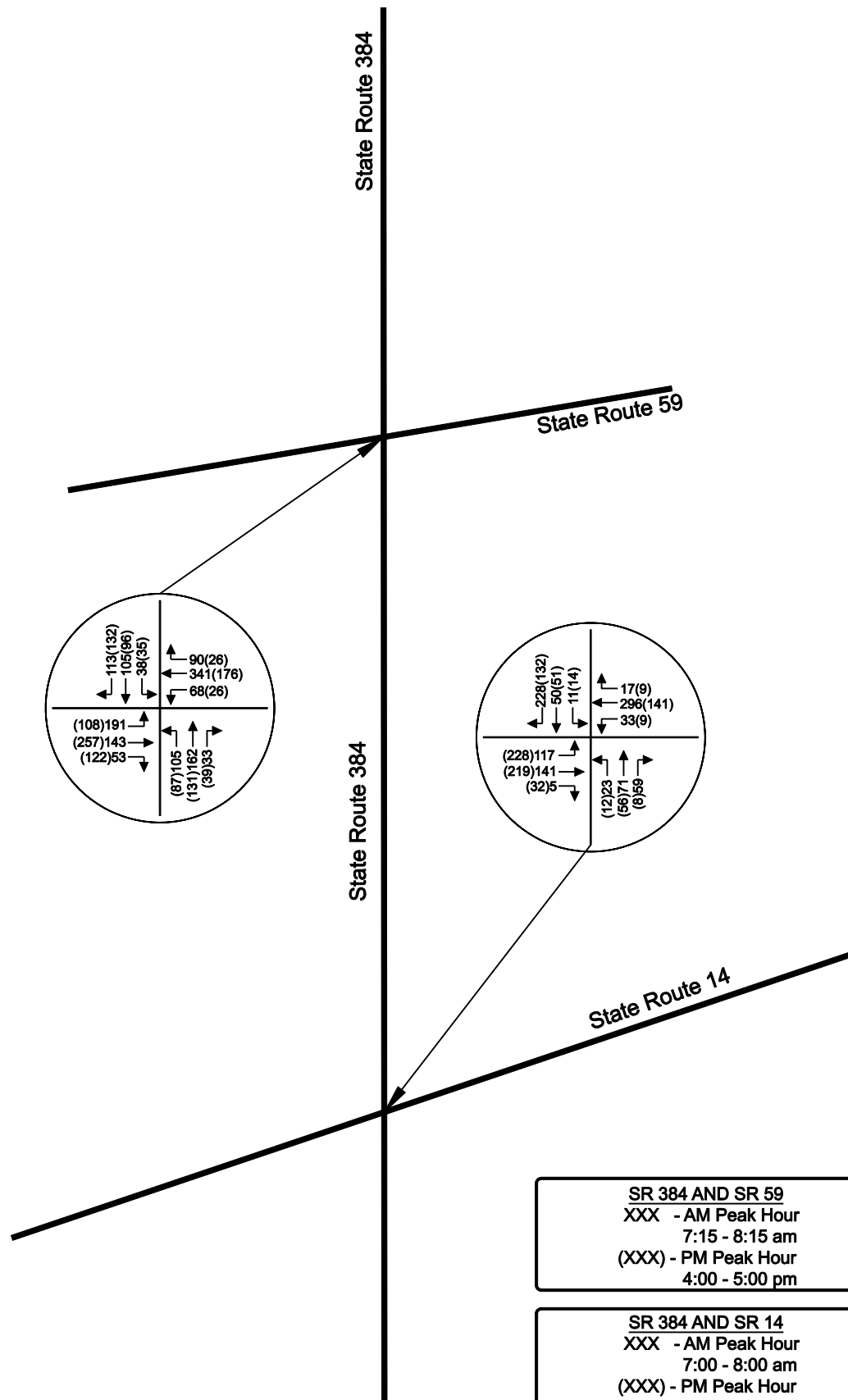
TRAFFIC PROJECTIONS



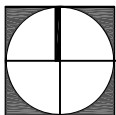
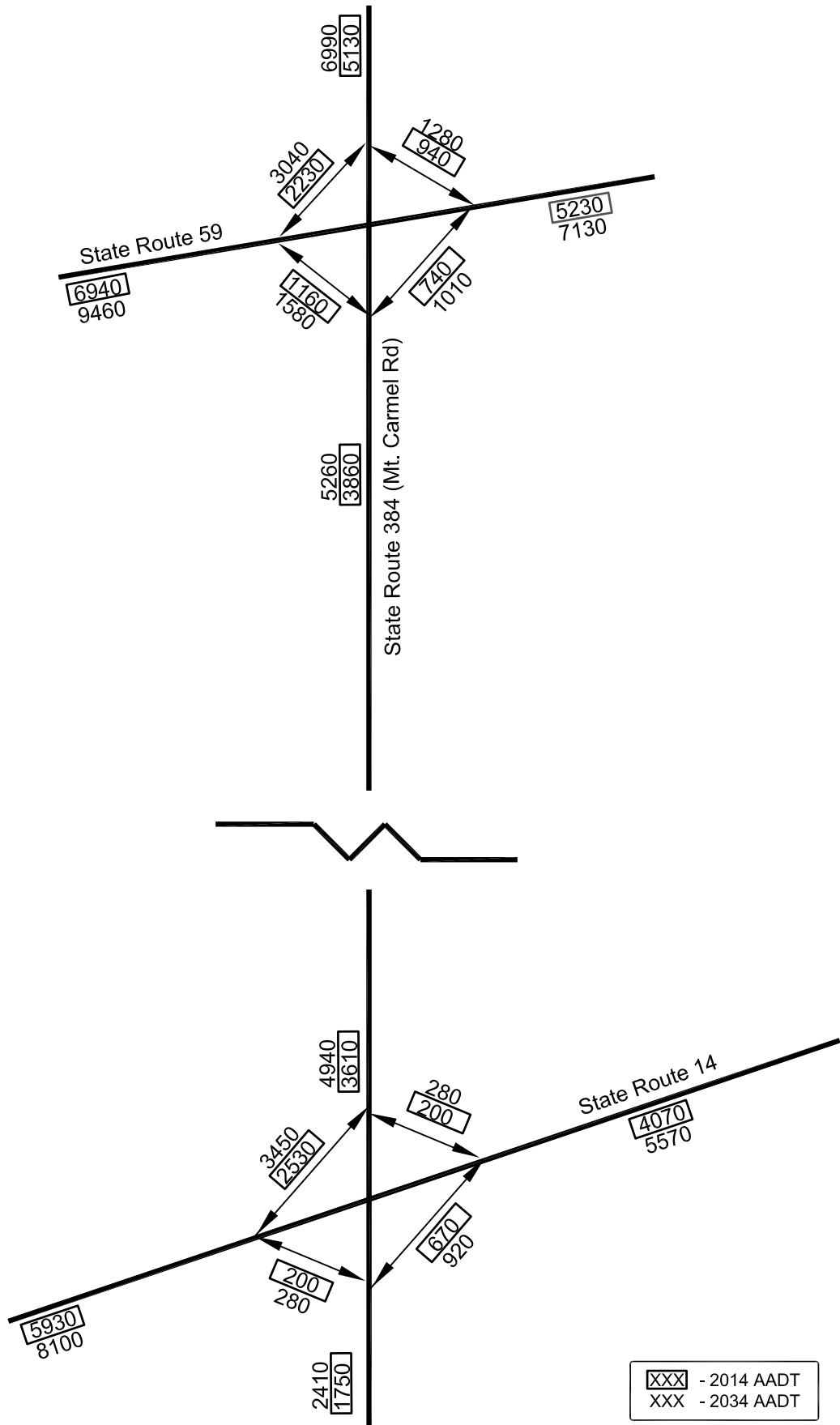
**Existing Hourly Traffic Volumes
(Not to Scale)**



**2014 Hourly Traffic Volumes
(Not to Scale)**



**2034 Hourly Traffic Volumes
(Not to Scale)**



Annual Average Daily Traffic
(Not to Scale)