

STATE OF TENNESSEE DEPARTMENT OF TRANSPORTATION PROJECT PLANNING DIVISION SUITE 1000, JAMES K. POLK BUILDING 505 DEADERICK STREET NASHVILLE, TENNESSEE 37243-0344

Gerald F. Nicely COMMISSIONER Phil Bredesen GOVERNOR

MEMORANDUM

- TO: Don Ellis, Manager 2 Program Development and Scheduling Office
- FROM: Bill Hart, Manager 2 Project Planning Division

DATE: March 6, 2008

SUBJECT: Transportation Planning Report, State Route 268 (Thompson Lane), From State Route 1 (US 41/70S) Northwest Broad Street to State Route 10 (Memorial Boulevard), Murfreesboro, Rutherford County, PIN # 110349.00

I am enclosing a copy of the subject report bearing the signatures of the appropriate Department personnel. In addition, a PDF file of the study will soon be available via PPRM and the Transportal.

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

If you need further information, please contact me.

BH/gw

Enclosure

- Cc/enc: Tommy Bragg (Mayor of Murfreesboro), Roger Haley (City Manager), Dana Richardson (City Traffic Director), Michael Skipper (Nashville Area MPO)
- ECc: Ed Cole, Paul Degges, Doug Delaney, Jim Moore, Winston Gaffron, Jeff Jones, Ed Wasserman, Steve Allen, Jeanne Stevens, Suzanne Herron, Carolyn Stonecipher, Harold Jackson, Charles Bush, Elizabeth Smith, Teresa Estes, Kelly Henshaw, Terry Gladden

TRANSPORTATION PLANNING REPORT

STATE ROUTE 268 - THOMPSON LANE FROM STATE ROUTE 1 (NW BROAD STREET) TO STATE ROUTE 10 (MEMORIAL BLVD). IN MURFREESBORO, RUTHERFORD COUNTY PIN #110349.00



PREPARED BY CLINARD ENGINEERING ASSOCIATES, LLC.

FOR THE TENNESSEE DEPARTMENT OF TRANSPORTATION PROJECT PLANNING DIVISION

Approved by:	Signature	DATE
CHIEF OF ENVIRONMENT AND PLANNING	Edlole	3/3/08
TRANSPORTATION DIRECTOR PROJECT PLANNING DIVISION	Sture Ola	2-28-08
TRANSPORTATION MANAGER 2 PROJECT PLANNING DIVISION	Bill Hart	2/28/08

TABLE OF CONTENTS

1.0	SUBJECT OF STUDY	4
2.0	BACKGROUND	4
3.0	TRANSPORTATION PLANS	6
4.0	PURPOSE AND NEED	9
5.0	CORRIDOR OPTIONS	14
6.0	PRELIMINARY ENVIRONMENTAL INVESTIGATION	17
7.0	PROJECTED COSTS	19
8.0	SEVEN GUIDING PRINCIPLES	22

APPENDICES

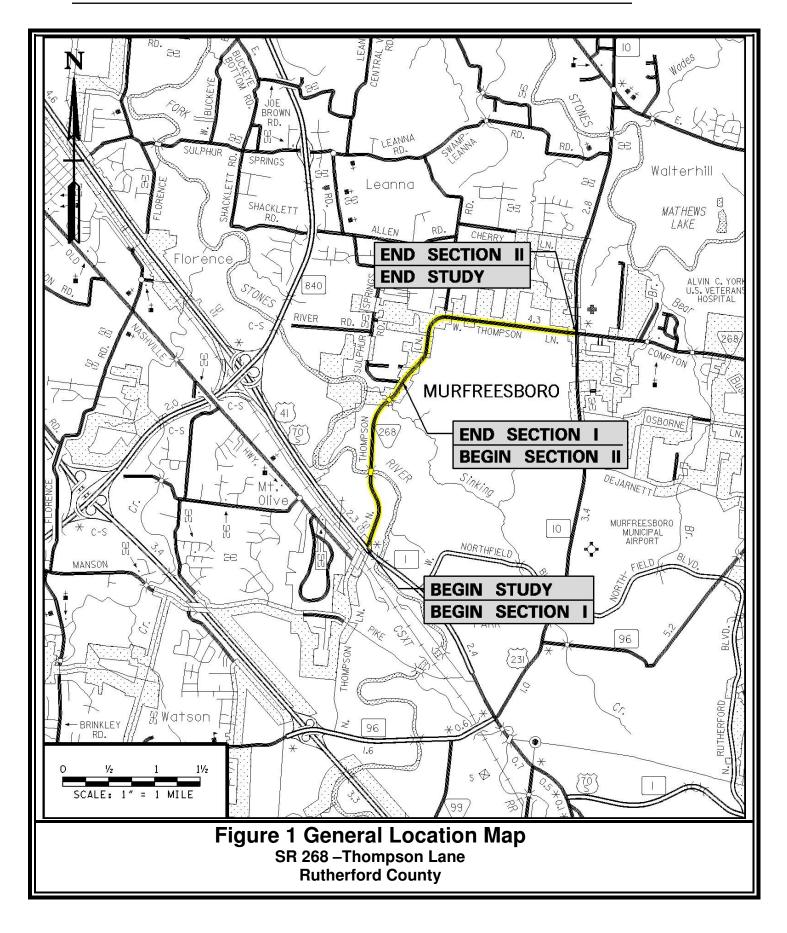
COST DATA SHEETS	
FEMA FLOOD MAP	А
EPA REGULATED FACILITIES MAP	В
WETLANDS MAP	С
HISTORIC PROPERTIES MAP	D
PERCENT MINORITY	Е
CORRIDOR LAYOUT SHEETS	F

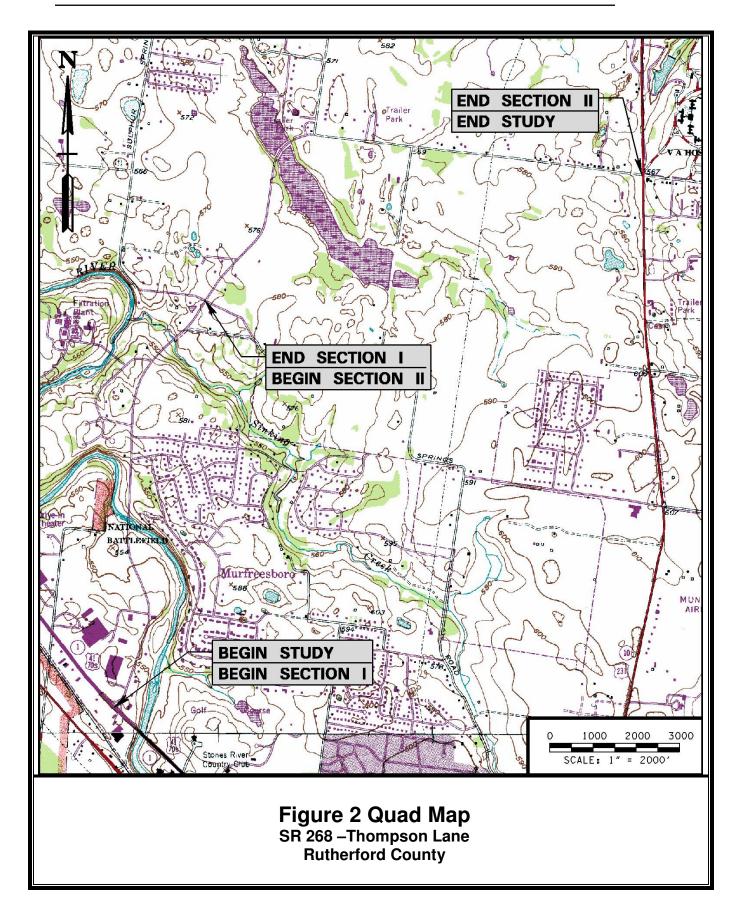
FIGURES

1	General Location Map	1
2	Quad Map	2
3	Traffic Data Schematic	3
4	Zoning Map	5
5	Vicinity Map of Nashville Area Metropolitan Planning Organization Long Range Transportation Plan Project Map	8
6	Map of Stones River Greenway	13
7	Schematics of Options	16

TABLES

1	Relevant Rutherford County Projects listed in the Nashville Area 2030 Long Range Transportation Plan	7
2	Existing Level of Service	10
3	Level of Service Criteria for Intersections	10
4	2005 Intersection Level of Service	10
5	Crashes for the Years 2003 through 2005	11
6	Proposed Level of Service	14
7	Projected Costs	19





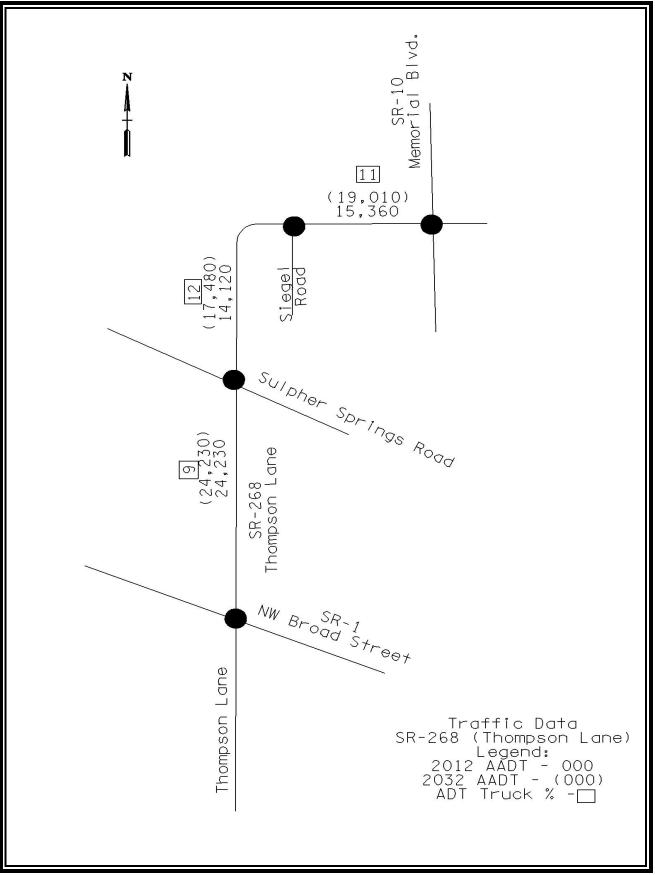


Figure 3 Traffic Data Schematic

1.0 SUBJECT OF STUDY

The subject of this Transportation Planning Report is State Route 268 (Thompson Lane) located in the City of Murfreesboro, Rutherford County. The Tennessee Department of Transportation and the Nashville Area Metropolitan Planning Organization are cooperatively studying the 4.3 mile section of Thompson Lane that extends from North West Broad Street, State Route 1, to Memorial Boulevard, State Route 10, to assess the existing roadway and provide recommendations for any improvements needed to accommodate future traffic anticipated to utilize this section of roadway. The report will look at the current capacity to assess congestion and crash data to ascertain roadway deficiencies. The report will then propose strategies to relieve projected congestion levels, improve travel times, and improve safety. In addition, a preliminary environmental review will be conducted to identify any known hazard or protected resources.

2.0 BACKGROUND

The City of Murfreesboro is located approximately thirty-five miles southeast of Nashville, Tennessee in Rutherford County. Over the last several years, the City has experienced tremendous growth due to its relatively close proximity to Nashville, as well as its own self-sustaining economy. With a large number of residential and commercial developments including office and shopping facilities, the city has grown to a population estimated at over 85,000 based upon the 2005 U.S. Census estimate. As well as being the home of Middle Tennessee State University (MTSU), numerous industrial, commercial and service industries have located within the city and the outlying areas of Murfreesboro.

In the fall of 2005, the City of Murfreesboro requested a Transportation Planning Report for the future widening of State Route 268 (Thompson Lane) from Northwest Broad Street, State Route 1 / US-41 to State Route 10 / US-231 (Memorial Boulevard). The Tennessee Department of Transportation has completed a Tier 2 Analysis to document causes of congestion and indicate possible strategies to improve the conditions along this section of State Route 268 (Thompson Lane).

Construction started on Thompson Lane in the mid to late nineteen sixties and was completed in the early nineteen seventies. At the time the area was mostly rural. The roadway was initially built with two twelve foot paved travel lanes and ten foot stone shoulders. The right-of-way width varied throughout the project to accommodate an area needed to build and maintain fill and ditch slopes. The roadway over its lifespan has been resurfaced and the shoulders have been paved. It now has two twelve foot travel lanes, five foot designated bike lanes and variable shoulders, with additional laneage in the school zones located on the northeastern section of the project as well as at the intersection with Northwest Broad Street. The posted speed is 45MPH along most of the route with 15MPH School Zones on the northeastern section. There are presently three signalized intersections (SR-1, Haynes Drive, and SR-10) along this section of Thompson Lane.

Thompson Lane serves as one of the main commuter routes for those traveling to and from the northern and northwestern portions of Murfreesboro and Rutherford County to Northwest Broad Street and Interstate 24. In many respects, this route is a short cut for motorists attempting to avoid traveling south along Memorial Boulevard then northward along Northwest Broad Street or southwest along State Route 96.

Zoning along Thompson Lane is mostly residential with a mix of industrial and commercial developments near the intersections with Northwest Broad Street and Memorial Boulevard. Three schools (Siegel High, Siegel Middle, and Erma Siegel Elementary) are located along the

northeastern section of the route. The Stones River Greenway is located along the southern portion of Thompson Lane adjacent to Stones River.

Two bridges are located on this section of Thompson Lane. At L.M. 0.83 there is a 6-span 392' bridge crossing the West Fork Stones River. The second bridge is at L.M. 1.70 and crosses Sinking Creek. This bridge has three spans and measures 39' in length. Both are in good condition and have no structural deficiencies.

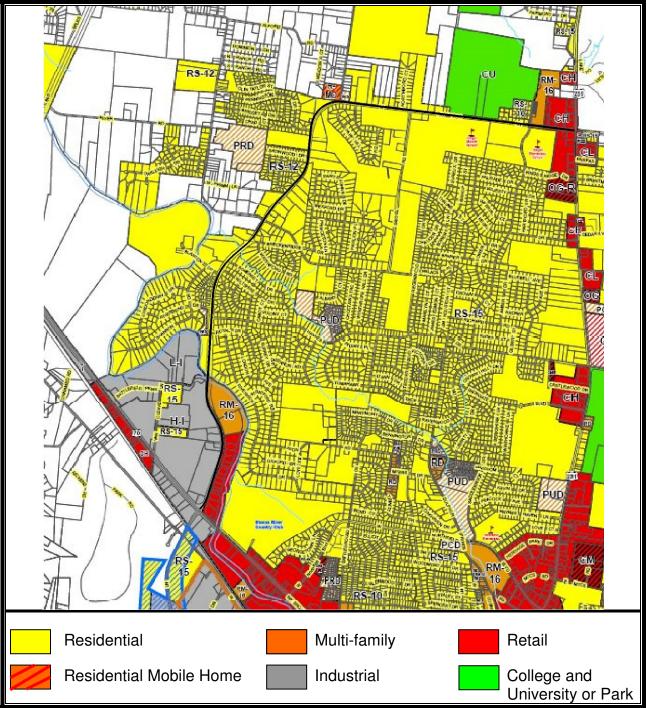


Figure 4 Zoning Map

3.0 TRANSPORTATION PLANS

As the City of Murfreesboro continues to grow, it is important to provide an adequate transportation network for the increase in traffic. The Nashville Area Metropolitan Planning Organization's (MPO) 2030 Long Range Transportation Plan (LRTP) includes widening State Route 268 (Thompson Lane) from Northwest Broad Street to Memorial Boulevard from two lanes to five lanes in the year 2016 (Project #4030).

The LRTP also lists other projects in the Murfreesboro area that could potentially have an impact on the flow of traffic along State Route 268 (Thompson Lane). One of these projects is the Cherry Lane Extension (Project #4035 – 2016 Horizon Year). This project will create a new five lane roadway that extends Cherry Lane from State Route 10 (Memorial Blvd.) to Northwest Broad Street north of State Route 840. North of the Cherry Lane Extension project is the Leanna Swamp Road widening (Project #4036 – 2025 Horizon Year). The LRTP recommends widening the roadway from two to five lanes from Northwest Broad Street to Memorial Boulevard.

Both of the projects listed above will provide alternative routes for those who wish to travel from north of Murfreesboro to Smyrna, LaVergne or Nashville along Northwest Broad Street. The improvements are expected to reduce the projected increase of traffic along State Route 10 / US-231 (Memorial Blvd.) and State Route 1/US-41 (Northwest Broad Street) within the Murfreesboro City limits.

Table 1 and the Vicinity Map of the Nashville Area Metropolitan Planning Organization Long Range Transportation Plan Project Map were taken from and describe the recommended and committed projects in this area through the year 2030.

Table 1 Relevant Rutherford County Projects listed in the Nashville Area 2030 Long Range Transportation Plan

Project #	Project Location	Termini	Length (mi.)	Year	Cost	Improvement	Project Description
55	Siegel Road	Sulphur Springs Rd to SR-266		2006		Widening	
4019	Broad Street (SR- 1/US-70)	Memorial Blvd. (SR-10)	0.00	2016	\$14,000,000	Intersection	Construct new interchange
4025	Broad Street (SR- 1/US-70)	Medical Center Pkwy to NW of SR-840	4.90	2016	\$15,861,250	Widening	Widen from 4 to 7 lanes
4030	Thompson Lane (SR- 268)	Broad Street (SR- 1/US-70) to Memorial Blvd. (SR-10)	3.93	2016	\$12,330,000	Widening	Widen from 2 to 5 lanes
4035	Cherry Lane Extension	Broad Street (SR- 1/US-70) to Memorial Blvd. (SR-10)	4.45	2016	\$11,890,000	New Roadway & Interchange	Construct new 5 lane roadway and new interchange at SR- 840
4036	Leanna Swamp Road	Broad Street (SR- 1/US-70) to Memorial Blvd. (SR-10)	5.78	2025	\$17,762,000	Widening	Widen from 2 to 5 lanes
4037	Memorial Blvd. (SR-10)	Thompson Lane (SR- 268) to Jefferson Pike (SR-266)	2.79	2025	\$8,570,000	Widening	Widen from 2 to 5 lanes

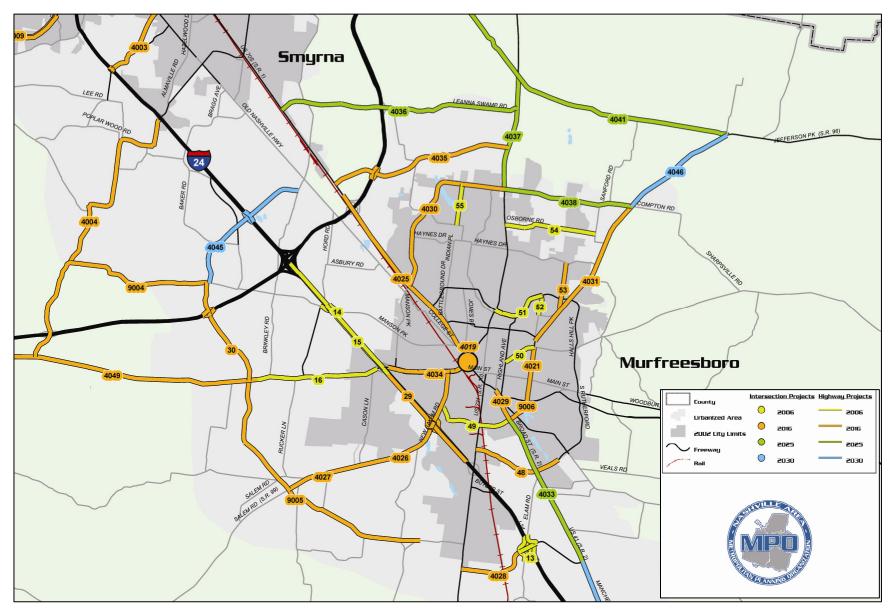


Figure 5 Vicinity Map of Nashville Area Metropolitan Planning Organization Long Range Transportation Plan Project Map

4.0 PURPOSE AND NEED

The purpose of this study is to determine the need and feasibility of improving State Route 268 (Thompson Lane) from State Route 1 (NW Broad Street) to State Route 10 (Memorial Blvd.) in Rutherford County. The objectives of this study are to determine the need for improvement, develop improvement options for the route, calculate estimated costs, and identify locations of environmental concern.

This study was initiated in response to a request by the City of Murfreesboro and the Tennessee Department of Transportation has completed a Tier 2 Analysis, which documents causes of congestion and indicates possible strategies to improve the conditions. The Nashville Area Metropolitan Planning Organization's (MPO) 2030 Long Range Transportation Plan (LRTP) includes widening State Route 268 (Thompson Lane) from Northwest Broad Street to Memorial Boulevard from two lanes to five lanes in the year 2016.

The primary needs along State Route 268 are to increase vehicular capacity and to improve safety. These needs were determined after studying traffic volumes, calculating levels of service, and reviewing available crash data, all of which is detailed in the following pages.

Traffic Volumes

TDOT developed traffic volume data for the project area for the years 2012 and 2032 using traffic counts and growth factors derived from the MPO's Travel Demand Model. These average daily traffic volumes range from 14,120 to 24,230 in 2012 and from 19,010 to 24,230 in 2032.

Level of Service

The base year (2012) and design year (2032) "Level of Service" (LOS) for the study segment was analyzed for this report. The proficiency of roads is described by their LOS which is a measure of the ability of roads to accommodate motor vehicle traffic and the subsequent physical and psychological comfort levels of drivers. The LOS analysis incorporates several factors including traffic volumes, number and width of lanes, terrain, percent no passing zones, directional split, heavy vehicles, and shoulder widths. The LOS is a qualitative measure that describes traffic conditions related to speed and travel time, freedom to maneuver, traffic interruptions, etc. There are six levels ranging from "A" to "F" with "F" being the worst. Each level represents a range of operating conditions. General descriptions of operating conditions for each of the levels of service are as follows:

LOS Traffic Flow Conditions

- A Free flow operations. Vehicles are almost completely unimpeded in their ability to maneuver within the traffic stream. The general level of physical and psychological comfort provided to the driver is high.
- B Reasonably free flow operations. The ability to maneuver within the traffic stream is only slightly restricted and the general level of physical and psychological comfort provided to the driver is still high.
- C Flow with speeds at or near free flow speeds. Freedom to maneuver within the traffic stream is noticeably restricted and lane changes require more vigilance on the part of the driver. The driver notices an increase in tension because of the additional vigilance required for safe operation.

- D Speeds decline with increasing traffic. Freedom to maneuver within the traffic stream is more noticeably limited. The driver experiences reduced physical and psychological comfort levels.
- E At lower boundary, the facility is at capacity. Operations are volatile because there are virtually no gaps in the traffic stream. There is little room to maneuver. The driver experiences poor levels of physical and psychological comfort.
- F Breakdowns in traffic flow. The number of vehicles entering the highway section exceeds the capacity or ability of the highway to accommodate that number of vehicles. There is little or no room to maneuver. The driver experiences poor levels of physical and psychological comfort.

Section	Description	2012 AADT	2012 2-Lane LOS	2032 AADT	2032 2-Lane LOS
1	SR-1/US-70 (Broad Street) to Sulphur Springs Road	24,230	E	24,230	E
2	Sulphur Springs Road to SR-10 (Memorial Blvd.)	15,360	D	19,010	E

Table 2 Existing Level of Service

Table 2 shows that the existing two lane arterial is deficient in capacity to carry the traffic at an acceptable level of service.

In addition to a level of service for a roadway segment, the Highway Capacity Manual provides a measure of intersection efficiency based on the average delay of traffic moving through the intersection. Table 3 lists the delays defined for each level of service at an intersection.

Level of Service	Signalized Intersection Expected Delay (seconds/vehicle)	Unsignalized Intersection Expected Delay (seconds/vehicle)
A	<= 10	<= 10
В	>10-20	>10-15
С	>20-35	>15-25
D	>35-55	>25-35
E	>55-80	>35-50
F	>80	>50

Table 3 Level of Service Criteria for Intersections

There are five (5) critical intersections along State Route 268 (Thompson Lane) that were studied. Turning movement data was collected in the fall of 2005 at each of these locations and a level of service was determined. That information is summarized in Table 4.

Intersection Location	Existing Signal	AM LOS	AM Delay (sec/veh)	PM LOS	PM Delay (sec/veh)
Northwest Broad Street	Yes	С	32.5	D	40.3
Haynes Drive	Yes	С	27.4	В	19.5
Sulphur Springs Road	No	D	25.0	D	34.9
Leanna Road	No	E	43.6	E	41.6
Memorial Boulevard	Yes	С	34.6	С	31.0

 Table 4 2005 Intersection Level of Service

Table 4 shows that all 5 intersections presently operate at a LOS of C or worse with the Leanna Road intersection operating at a LOS E. While LOS C and D are acceptable conditions, the expected increase in traffic volumes will likely cause these intersections to operate at an unacceptable level of service in the future.

Crash Rates

In addition to level of service, information from the Department of Safety was obtained to assess crash data. Crash data is used to identify the types of crashes occurring, the location of crashes and identification of factors that might contribute to the frequency of crashes. For comparison purposes, crash data is averaged for similar segments of roadway across the State and are calculated per million vehicle miles.

Segment of Roadway	Length (Miles)	No of Crashes	Crash Rate	Statewide Avg. Crash Rate	Critical Crash Rate	Predominant Types of Crashes
From NW Broad thru 4 lane section	0.24	9	1.690	2.648	4.382	Angle
From 4 lane section to Siegel Road	3.04	156	2.864	2.341	2.832	Rear-end & Angle
From Siegel Road to Memorial Blvd	1.02	34	2.694	2.652	3.759	Rear-end & Angle

The comparison in the above table shows that except for the first segment which has four through lanes, the crash rate exceeds the statewide averages. Since the Statewide Crash Rate is an average of facilities having higher or lower numbers of crashes, the critical crash rate is computed to determine the crash rate above which the actual crash rate would be outside a normal range. The second segment which is the two lane segment exceeds the critical accident rate and therefore is a segment that should be of concern. The LOS previously shown as E for this segment would indicate that congestion is a contributing factor for the high crash rate.

Rear-end crashes occur most frequently when a vehicle slows down to make a turn or stop and the following driver is unable to bring their vehicle to a stop. Angle crashes are commonly caused by a driver trying to merge into or cross a traffic stream. Both of these types of crashes are related to the number and frequency of roadway and driveway intersections along a roadway and gaps in the traffic stream. As traffic volumes increase, congestion will do likewise and it can be expected that the accident rates will increase.

Bicycle and Pedestrian

Bicycle lanes are provided along Thompson Lane by marking part of the shoulder for their use. There were no reported incidents where bicyclist and motorized vehicles collided. However, there are substantial public complaints made to the City officials about motorist passing stopped vehicles on the right encroaching on the bicycle lane and shoulder.

The Stones River Greenway terminates near the Thompson Lane Bridge over the West Fork of the Stones River at the Thompson Lane Trailhead. It parallels West Fork of the Stones River on the east side of Thompson Lane and crosses Northwest Broad Street east of the

intersection of Northwest Broad Street and Thompson Lane. At the trailhead access is also provided under the Thompson Lane Bridge onto the historic McFadden farmstead which boarders Thompson Lane on the west. Transportation improvements to Thompson Lane should include facilities for bicyclist and pedestrians including user friendly accommodations at intersections.

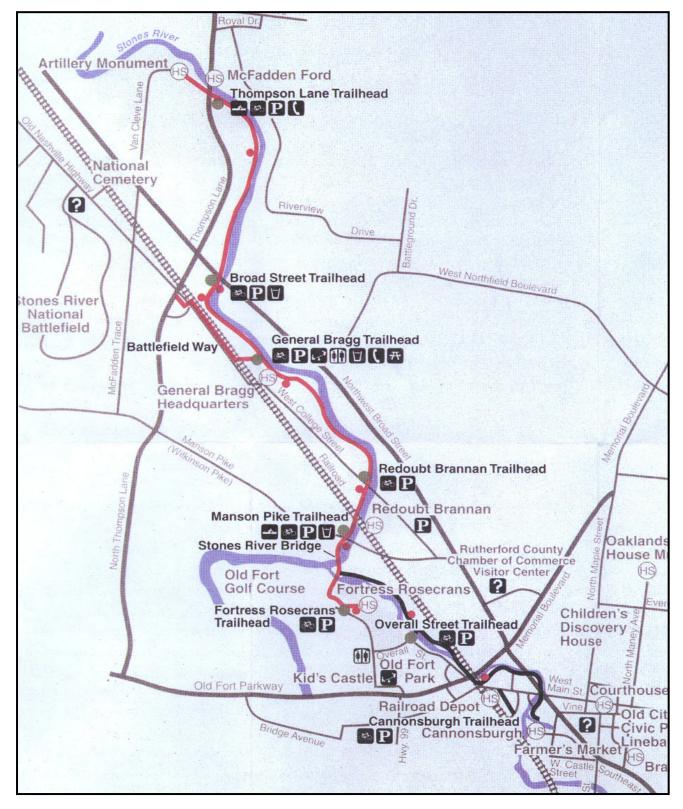


Figure 6 Map of Stones River Greenway

Currently there is no transit service on Thompson Lane. Murfreesboro has recently implemented local bus service that may expand to Thompson Lane in the future and should be a consideration during the design process. Transit service is available at the NW Broad Street intersection for <u>Relax & Ride</u> bus service between Murfreesboro, Smyrna, LaVergne and Nashville.

5.0 CORRIDOR OPTIONS

To bring the level of service to a desirable level, the route was analyzed as a four lane facility. The resultant level of service improved to C. With the addition of either a two-way left turn lane in the center or a raised median, the level of service improves to B. Additionally, either the two-way left turn lane or the raised median should reduce the crash rates particularly the rear-end crashes.

Section	Description	2012 4-Lane	2032 4-Lane	2012 4-Lane with Median/TWLTL	2032 4-Lane with Median/TWLTL
1	SR-1/US-70 (Broad Street) to Sulphur Springs Road	С	С	В	В
2	Sulphur Springs Road to SR-10 (Memorial Blvd.)	В	В	В	В

Table 6 Proposed Level of Service

Both the two-way left-turn lane and a raised median have positive and negative aspects. A raised median has a slightly better safety record but restricts property access. A two-way left-turn lane provides better access to abutting properties but closely spaced offset intersections and driveways create conflicts for the same space.

It is recommended that the following options be considered during the NEPA phase as a starting point for considering the needed improvements in this corridor:

- A A four lane facility with a two-way left-turn lane,
- B A four lane facility with a variable width raised median, and
- C A no-build option.

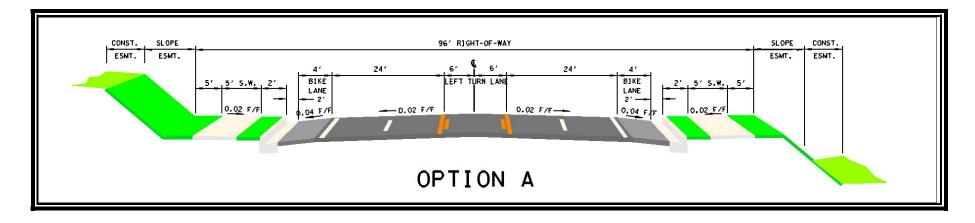
Consideration may be given to blend the two build options, as the type of access needed by retail establishments is different from that needed through residential areas. For instance, a raised median may be necessary in certain locations to provide a refuge area for pedestrians where a pedestrian signal is not warranted. The resultant option would have impacts that will be considered within the scope of consideration for the two build options.

The width of the raised median is shown as variable. The width should be considered during the NEPA process as further details and analysis is available to better identify constraints and impacts.

The two existing bridges located at L.M. 0.84 (West Fork Stones River) and L.M. 1.70 (Sinking Creek) will be rehabilitated and widened (per TDOT Structures) to meet the new build options.

Either of the build options must provide for bicyclist and pedestrians. Special care should be used in planning intersections to be able to avoid conflicting actions among drivers, bicyclists and pedestrians.

Sketches of the typical sections for the build options are shown on the following page as Option A and B.



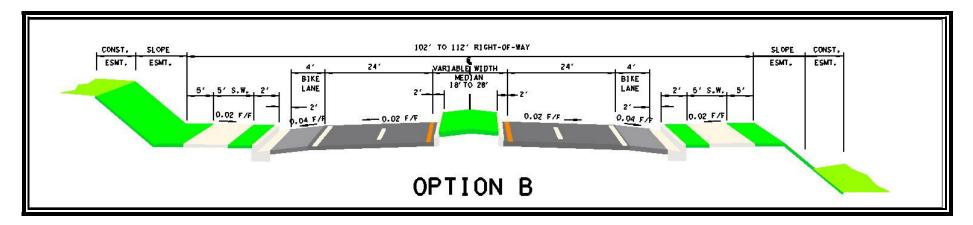


Figure 7 Schematics of Options

6.0 PRELIMINARY ENVIRONMENTAL INVESTIGATION

A preliminary investigation into this project's possible environment impacts within the "Area of Potential Effects" (APE) is reflected on the attached "Preliminary Environmental Evaluation" checklist. The APE is the geographic area in which an undertaking may directly or indirectly impact the environment. A more comprehensive analysis of the impacts will be completed at a later date to comply with the National Environmental Policy Act (NEPA).

TDOT historians have thus far consulted resources to research records maintained by the National Register of Historic Places. These sources indicate there are two National Register listed or eligible historic resources within the project study area. The two places include the Stones River National Battlefield and the Veterans Administration Alvin C. York Medical Center. However, the field survey may identify heretofore unrecorded or undocumented resources.

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

EnviroMapper is a Web-based interactive mapping tool for viewing and querying environmental information. EnviroMapper generates maps of your geographic area that contain environmental information stored in EPA's Envirofacts Warehouse. The type of environmental information includes: Superfund sites, drinking water, toxic and air releases, hazardous waste, and water discharge permits. EnvironMapper revealed four sites within the study area that have or are using hazardous materials for industrial, commercial or medical uses. It should be assumed that transportation of these materials may involve the facility. The location and users are shown in the appendices as Item B. There was one additional site listed as a BP station but the address didn't correspond to the location where it was plotted on the map.

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

All wetland impacts require confirmation by, and coordination with, permitting agencies. All require either general or individual Aguatic Resource Alteration Permits (ARAP) from the State of Tennessee. Almost all require either nationwide or individual permits from the U.S. Army Corps of Engineers pursuant to Section 404 of the Clean water Act. Other agencies such as the U.S. Fish and Wildlife Service and the Environmental Protection Agency (EPA) may be involved in the permitting process. Wetland impacts which are subject to either State or Federal jurisdiction, and which do not meet criteria for either general or nationwide permits require individual permits; these typically require compensatory mitigation for impacts. In general, isolated wetlands with less than 0.25 acre impacts may come under the guidelines of a general permit issued by the State of Tennessee; no mitigation is required. This permit cannot be used, however, for a cumulative series of small impacts. Some wetland impacts of less than 0.5 acres gualify for Corps of Engineers nationwide permits. TDOT should carry out further coordination with the regulatory agencies before preparing mitigation plans and submitting permit applications. Permit requirements and mitigation plans will be based on these discussions. A search of the US Fish and Wildlife website revealed the presence of several wetlands. All are shown in the appendices as Item C and probably will not be impacted by either of the two build options.

A search of the Federal Emergency Management Agency's website for flood insurance maps revealed that the maps had recently been updated in January of 2007 and expanded the reach of probable flood stages. The maps indicate that both build alternatives will encroach into the floodway and flood plain for the West Fork of the Stones River and Sinking Creek. TDOT will need to design structures that will minimize the impacts to the flood plains and mitigate any encroachments into the 100 year floodways if a build option is selected. An overlay of the FEMA Flood Insurance Map is in the appendices as Item A.

An archeological review was not conducted for inclusion of this document. It is evident from the historical nature of the area that artifacts most probably will be encountered during construction of the build alternatives. A thorough investigation during the NEPA process will be conducted to identify sites that need evaluation.

Rutherford County is in the Nashville Region of the EPA's non-attainment area for the 8-hour ozone standard and 1-hour ozone maintenance standard. As such it will be necessary to conduct an air quality analysis. Reducing the congestion within the corridor should offer some improvement in the area of the project.

A noise analysis will be required to ascertain the noise levels along the route. Since the build options are anticipated to be within the existing Thompson Lane corridor, it is expected that the noise levels will be comparable to the no-build option with the exception that the additional lanes will be moved closer to some residences.

A research of literature revealed that there are five species listed on the Federal Endangered Species list within the USGS 8-Digit Hydrologic Unit Code (HUC) 5130203 (Stones River Watershed).

- Pyne's Ground-plum (Astragalus bibullatus) and Tennessee Coneflower (Echinacea tennesseensis) occur in cedar glades. The areas along the existing corridor have been disturbed and are unlikely to support either. However, both species have been transplanted in the Stone's River National Battlefield where they are protected.
- Braun's Rockcress (Arabis perstellata) is known to exist in only one location within the watershed and the location is remote from the project.
- Leafy Prairie-clover (Dalea foliosa) is known to exist in only one location in Rutherford County and the location is remote from the project.

• The Littlewing Pearlymussel (Pegias fibula) has been recorded in the West Fork of the Stones River. It is presently thought to have succumbed due to environmental factors.

The State maintains a list of rare and endangered species. Known occurrences of species on the list near the project and their State status include:

- Finescale Darter (Etheostoma microlepidum) Deemed in need of management.
- Bedrock Shiner (Notropis rupestris) Deemed in need of management.
- Slenderhead Darter (Percina phoxocephala) Deemed in need of management.
- Limestone Blue Star (Amsonia tabernaemontana var. gattingeri) Special concern.
- Tennessee Milk-vetch (Astragalus tennesseensis) Special concern.
- Evolvulus (Evolvulus nuttallianus) Special concern.
- Glade-cress (Leavenworthia exigua var. exigua) Special concern.
- Limestone Fame-flower (Talinum calcaricum) Special concern.

The NEPA process requires that a more in depth field study be conducted and should be conducted early in the process.

2000 Census data was checked for environmental justice concerns. The categories checked were Percent Minority; Percent below Poverty; and Percent Speaking English Less that Well. The Percent Minority revealed several blocks along the route where the percentages ranged from 11% to 25%. Due to the amount of building occurring along the corridor and the time that has elapsed the numbers may no longer represent the actual percentages but are shown on Appendix E as a starting point for consideration. Percent below Poverty along the corridor was in the range of 0 to 10% which was the lowest category. Percent Speaking English Less than Well along the corridor was in the range of 0 to 1% which was the lowest category.

7.0 PROJECTED COSTS

	Option A		Option B		
14	Section 1	Section 2	Section 1	Section 2	
Item	From NW Broad to Sulphur Springs Road	From Sulphur Springs Road to Memorial Blvd.	From NW Broad to Sulphur Springs Road	From Sulphur Springs Road to Memorial Blvd.	
Construction	\$14,117,000	\$9,219,000	\$16,026,000	\$9,597,000	
Preliminary Engineering	\$1,412,000	\$922,000	\$1,603,000	\$960,000	
Right-of-Way	\$2,508,000	\$3,134,000	\$3,135,000	\$4,012,000	
Utility Adjustment	\$2,802,000	\$3,174,000	\$2,802,000	\$3,175,000	
Total Segment Costs	\$20,839,000	\$16,449,000	\$23,566,000	\$17,743,000	
Section Length	1.9 Miles	2.4 Miles	1.9 Miles	2.4 Miles	
Cost per Mile	\$10,967,895	\$6,853,750	\$12,403,158	\$7,392,917	
Total Option Costs	\$37,22	28,000	\$41,309,000		

The projected costs for the options are listed below.

The construction costs contained within this document are based on current prices and predicated on a new roadway from beginning to end. There are presently a number of segments along the route where widening has occurred that may or may not be sufficient for the projected traffic demand. The benefit of salvaging these sections was excluded from the estimates due to the unpredictability of these sections being adequate for future traffic conditions. If during the design phase the sections are determined to be adequate and can be incorporated into the pavement structure, there could be a 10-15% savings in the construction cost totals.

The right-of-way costs for the approximately 145 tracts were estimated based on expected slope modifications on properties and working room for the contractor. Some properties at intersections were expected to be significantly affected since they will be impacted on two sides. The possible use of small decorative walls in excavated areas might be considered to reduce the slope encroachment onto properties and thereby producing savings.

Field Review

A meeting and field review of the site was made by the following individuals on October 16, 2007.

Mayor Tommy Bragg Mr. Roger G. Haley Mr. Rob Lyons Dana Richardson Matt Meservy Steve Hylton Gary Webber Tom Clinard David Davis Charlie Graves Gary Fottrell Samir Hindreh Darrell Grey Iraj Z Eghbali Jim Ladieu City of Murfreesboro Murfreesboro City Manager Murfreesboro Asst. City Manager Murfreesboro Traffic Director Nashville Area Metropolitan Planning Organization TDOT Conceptual Planning TDOT Short Range Planning Clinard Engineering Associates Clinard Engineering Associates Clinard Engineering Associates FHWA TDOT Region 3 Design Office TDOT Region 3 Design Office

Preliminary Environmental Evaluation

If preliminary field reviews indicate the presence of any of the following facilities and/or Economic, Social, and Environmental categories (ESE), place an "X" in the blank opposite the item. Where more than one option is to be considered, place its 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	_A,B,C_
2.)	Floodplains	_A,B,C_
3.)	Historical, archaeological, cultural or natural landmarks, or cemeteries	_A,B,C_
4.)	Airport	
5.)	Residential establishment	_A,B,C _
6.)	Urban area, city, town, or community (Murfreesboro)	_A,B,C _
7.)	Commercial area, shopping center	_A,B,C _
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	<u>A,B,C</u> <u>A,B,C</u> <u>A,B,C</u> <u>A,B,C</u>
9.)	Agricultural land usage	_A,B,C_
10.)	Forested land	_A,B,C _
11.)	Industrial park, factory	_A,B,C _
12.)	Recreational usages: a. Park or recreational area, State Natural Area b. Wildlife refuge or wildlife management area	_A,B,C
13.)	Waterway: a. Lake b. Pond c. River d. Stream e. Spring	_A,B,C _A,B,C _A,B,C
14.)	Railroad Crossings	
15.)	Project coordinated with MPO/RPO and/or local officials	_A,B,C
16.)	Other	

8.0 SEVEN GUIDING PRINCIPLES

The Tennessee Department of Transportation has adopted seven guiding principles against which all transportation projects are to be evaluated. These guiding principles address concerns for system management, mobility, economic growth, safety, community, environmental stewardship, and fiscal responsibility. These guiding principles are discussed in regard to both of the proposed build options.

Guiding Principle 1: Preserve and Manage the Existing Transportation System

All build options will increase the number of lanes, relieve congestion, enhance the safety characteristics of the route, and conform to the Murfreesboro's Long Range Transportation Plan. The route provides a connection between State Route 10 and State Route 1 and allows traffic on the north side of the city and county to reach State Route 840 and Interstate 24 without having to travel through the congested areas downtown. It also provides a connector to the shopping areas along State Route 96 and between Interstate 24 and Northwest Broad Street. The number and type of vehicles should not be significantly affected by constructing either build option. The same should be true for the no-build option until congestion reaches a point where delays are no longer tolerable to drivers and they look for other routes cutting through neighborhoods where facilities weren't designed for the type and volume of traffic. By adopting either of the build options, the existing right-of-way will be used, reducing the amount of additional land that would be taken if a different corridor is selected.

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

The U.S. Census Bureau estimated that the population in Murfreesboro between the year 2000 and 2011 would increase from 69,000 to 94,000 which amounts to a growth rate of approximately 36%. The growth rate for the same years for Rutherford County is approximately 41% with an anticipated total of 257,000 people. Of the population who work outside the county, 75% work in Davidson County. This puts a heavy strain on the transportation infrastructure connecting the two counties. The two primary routes for travel are State Route 1 and Interstate 24. Thompson Lane provides easy access to these two facilities for people living in the northern and northeast parts of the county. The no-build option would not address the impact of the additional population growth or the safety of the roadway users.

Three schools are present along the northern most section of the roadway. The increase in population will be reflected in the number of new trips generated by travel to and from the schools. Schedules for trips to and from schools overlap with the schedules of commuters who are often hindered and delayed due to school zone speed limits.

Guiding Principle 3: Support the State's Economy

The population of the City of Murfreesboro and Rutherford County are two of the fastest growing in the nation. Supplying materials, goods and services to support the population growth results in an increase in tax revenue, jobs, and wages. The unemployment rate in Rutherford County was 3.3 percent compared to 4.0 percent for the state as a whole in August 2007. The low unemployment rate and expected large increase in population implies that the need for upgrading transportation facilities will increase at faster rate than other parts of the state. Without adequate transportation facilities economic expansion and job creation may be hindered and jobs lost to other locales.

Guiding Principle 4: Maximize Safety and Security

During the three year period from 2003 through 2005, 199 crashes were reported. As discussed earlier, the most frequent type was rear-end crashes which are indicative of the lack of protected storage space for vehicles slowing or stopping to complete turning movements. The second most frequent type was angle crashes which are indicative of vehicles trying to

enter a traffic stream. As traffic volumes increase, gaps available for additional vehicles reduce in size and number resulting in drivers misjudging the time and space available to enter the traffic stream. By adding additional lanes to spread out the traffic stream and providing storage areas for turning vehicles, the anticipated crash rates should decrease considerably. With the no-build option, it can be expected that the number of crashes will increase as volumes increase. In addition to an expected lower crash rate with the implementation of one of the build options, an improved roadway should facilitate quicker and safer travel for emergency vehicles, both fire and ambulance.

Guiding Principle 5: Build Partnerships for Livable Communities

During the preparation of this report, a meeting was conducted with the Mayor of Murfreesboro as well as other city officials, TDOT and MPO staff. The purpose was to provide an opportunity to discuss the preliminary analysis of this report and to ascertain whether there were any unknown issues that needed to be considered and that the recommended options were in accordance with the expectations of the City and MPO. Other options and corridors may arise or be suggested as the project progresses and will be considered by TDOT. The public involvement process will continue after the planning document is completed. Public hearings will be scheduled during the National Environmental Policy Act (NEPA) process and during the design phase of the project. Every effort will be made to mitigate any negative impacts to the local citizenry during in the implementation of any build option. An improved transportation corridor that benefits the community with as few disruptions as possible is essential in providing for future planned growth of the region.

Guiding Principle 6: Promote Stewardship of the Environment

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

Guiding Principle 7: Promote Financial Responsibility

Cost estimates based on various roadway typical sections were calculated for this report. The cost estimates, as depicted in this report, are offered for comparison purposes and will fluctuate with inflation and any unexpected conditions. It is the Department's goal to follow a comprehensive transportation planning process, promote coordination among public and private operators of transportation systems, and support efforts to provide stable funding for the public component of the transportation system. This entails exercising financial responsibility in the development and implementation of roadway projects and minimizing costs to taxpayers.

Appendices

PROJECT:	State Route 268 (Thompson Lan Option A Section 1	
LOCATION:	Murfreesboro, Tenessee	
LENGTH:	2.0 +/- Miles	
CROSS-SECTION:		

Land, Improvements & Damages		\$ 1,907,000	
Incidentals	(# Tracts 66)	\$ 601,000	
Relocation Payments Total Right-Of-Way	(# 0)	\$ 0	\$2,508,000
	00515		\$2,508,000
UTILITY RELOCATION			
Reimbursable		\$ 2,802,000	
Non-reimbursable		\$ 0	
Total Utility Adjustn	nent Costs		\$2,802,000
CONSTRUCTION			
Clearing and Grubbing		\$ 37,000	
Earthwork		\$ 840,000	
Pavement Removal/Median E	Barrier	\$ 53,000	
Drainage		\$ 1,033,000	
Structures		\$ 1,964,000	
Railroad Crossing or Separat	ion	\$ N/A	
Paving		\$ 3,847,000	
Retaining Walls		\$ 1,840,000	
Maintenance of Traffic		\$ 150,000	
Topsoil		\$ 20,000	
Seeding		\$ 10,000	
Sodding		\$ 57,000	
Signing		\$ 15,000	
Lighting		\$ N/A	
Signalization (2)		\$ 200,000	
Fence		\$ N/A	
Guardrail		\$ 102,000	
Riprap or Slope Protection		\$ 80,000	
Erosion Control (5%)		\$ 512,000	
Other Const. Items (15%)		\$ 1,614,000	
Mobilization		\$ 460,000	
10% Engineering	and Continguencies	\$ 1,283,000	
Total Construction	n Costs		\$14,117,000
Preliminary Engin	eering (10%)	\$ 1,412,000	
Total Estimated Costs			\$20,839,000

PROJECT:	State Route 268 (Thompson Lane)
	Option A Section 2
LOCATION:	Murfreesboro, Tenessee
LENGTH:	2.3 +/- Miles
CROSS-SECTION:	

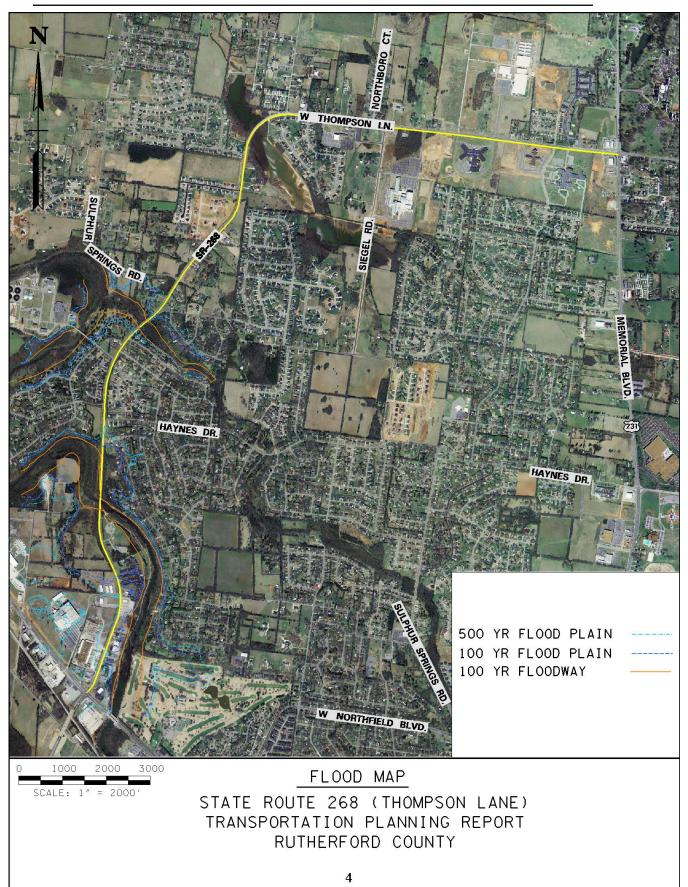
\$ 2.342.000	
\$ 0	
	\$3,134,000
\$ 3,174,000	
\$ 0	
	\$3,174,000
\$ 42,000	
\$ 905,000	
\$ 60,000	
\$ 760,000	
\$ N/A	
\$ N/A	
\$ 4,556,000	
\$ N/A	
\$ 125,000	
\$ 20,000	
\$ 10,000	
\$ 67,000	
\$ 15,000	
\$ N/A	
\$ 100,000	
\$ N/A	
\$ N/A	
\$ 15,000	
\$ 334,000	
\$ 1,052,000	
\$ 320,000	
\$ 838,000	
	9,219,000
\$ 922,000	
	16,449,000
\$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$ \$	\$ 792,000

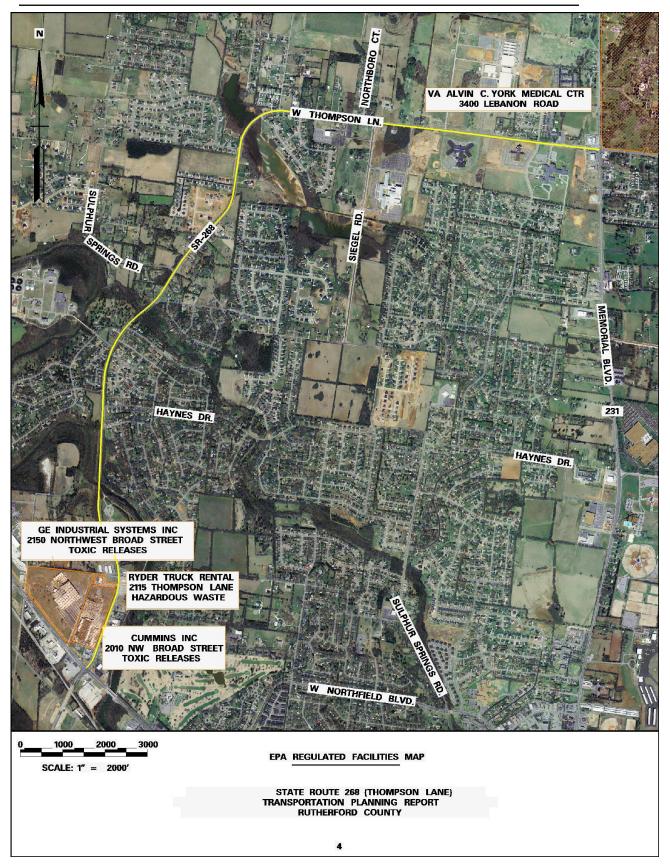
PROJECT:	State Route 268 (Thompson Lane)	
	Option B Section 1	
LOCATION:	Murfreesboro, Tenessee	
LENGTH:	2.0 +/- Miles	
CROSS-SECTION:		

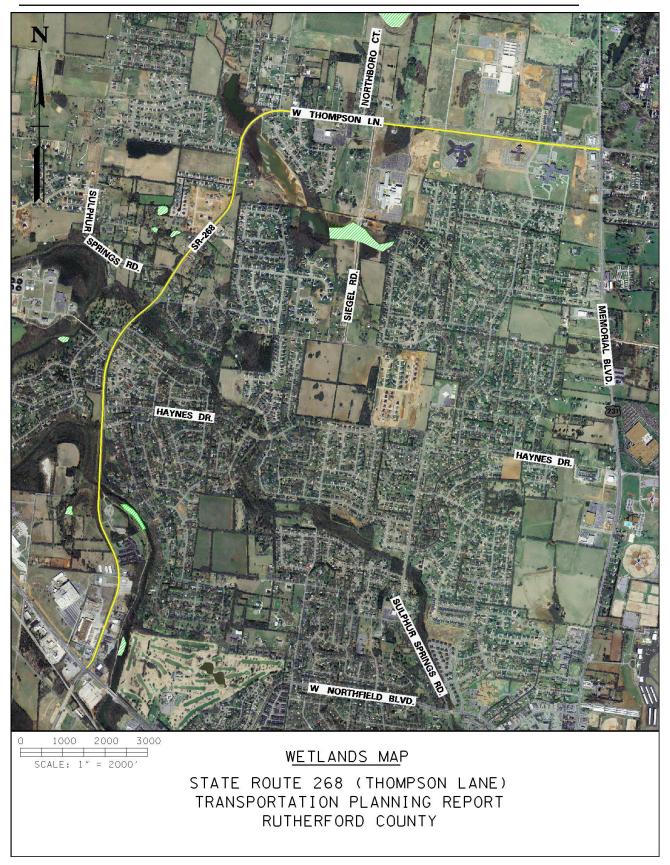
		Φ	0 504 000	
Land, Improvements & Dam		\$	2,534,000	
Incidentals	(# Tracts 66)	\$	601,000	
Relocation Payments	(#0)	\$	0	\$0.405.000
Total Right-Of-V	vay Costs			\$3,135,000
UTILITY RELOCATION				
Reimbursable		\$	2,802,000	
Non-reimbursable		\$	0	
Total Utility Adj	ustment Costs			\$2,802,000
CONSTRUCTION				
Clearing and Grubbing		\$	47,000	
Earthwork		\$	978,000	
Pavement Removal/Media	an Barrier	\$	53,000	
Drainage		\$	1,084,000	
Structures		\$	2599000	
Railroad Crossing or Sepa	aration	\$	N/A	
Paving		\$	3,872,000	
Retaining Walls		\$	2300000	
Maintenance of Traffic		\$	150,000	
Topsoil		\$	20,000	
Seeding		\$	10,000	
Sodding		\$	113,000	
Signing		\$	15,000	
Lighting		\$	N/A	
Signalization (2)		\$	200,000	
Fence		\$	N/A	
Guardrail		\$	100000	
Riprap or Slope Protection	า	\$	102,000	
Erosion Control (5%)		\$	582,000	
Other Const. Items (15%)		\$	1,834,000	
Mobilization		\$	510,000	
10% Engineeri	ng and Continguencies	\$	1,457,000	
Total Construc	<u> </u>			16,026,000
	ngineering (10%)	\$	1,603,000	<i>, ,</i>
Total Estimated Costs				23,566,000

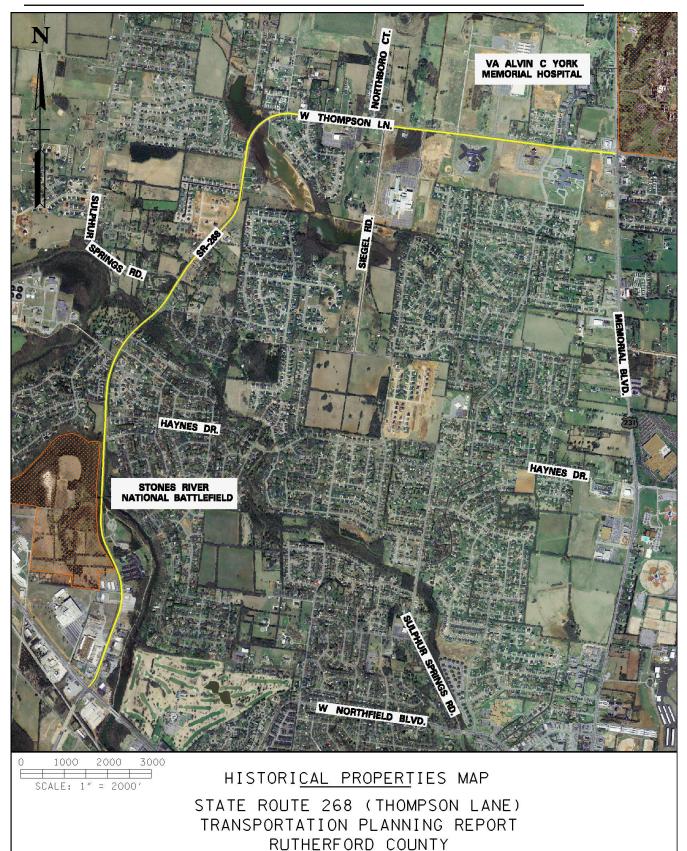
PROJECT:	State Route 268 (Thompson Lane)
	Option B Section 2
LOCATION:	Murfreesboro, Tenessee
LENGTH:	2.3 +/- Miles
CROSS-SECTION:	

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Ψ	0	\$4,012,000
		<i><i><i></i></i></i>
\$	0	\$0.474.000
		\$3,174,000
\$	54,000	
\$	1,038,000	
\$	60,000	
\$	799,000	
\$	N/A	
\$	N/A	
\$	4,581,000	
\$	N/A	
\$	125,000	
\$	20,000	
\$	10,000	
\$	134,000	
\$	15,000	
\$	N/A	
\$	100,000	
\$	N/A	
\$	N/A	
\$	15,000	
\$	348,000	
\$	1,095,000	
\$	330,000	
\$	873,000	
		9,597,000
\$	960,000	
		17,743,000
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