

# ADVANCE PLANNING REPORT

**US 441 (STATE ROUTE 71)  
FROM US 411 (STATE ROUTE 35/338)  
TO MACON LANE  
SEVIER COUNTY**

**PREPARED BY THE  
TENNESSEE DEPARTMENT OF TRANSPORTATION  
PLANNING DIVISION**

Approved by: \_\_\_\_\_

Chief Engineer

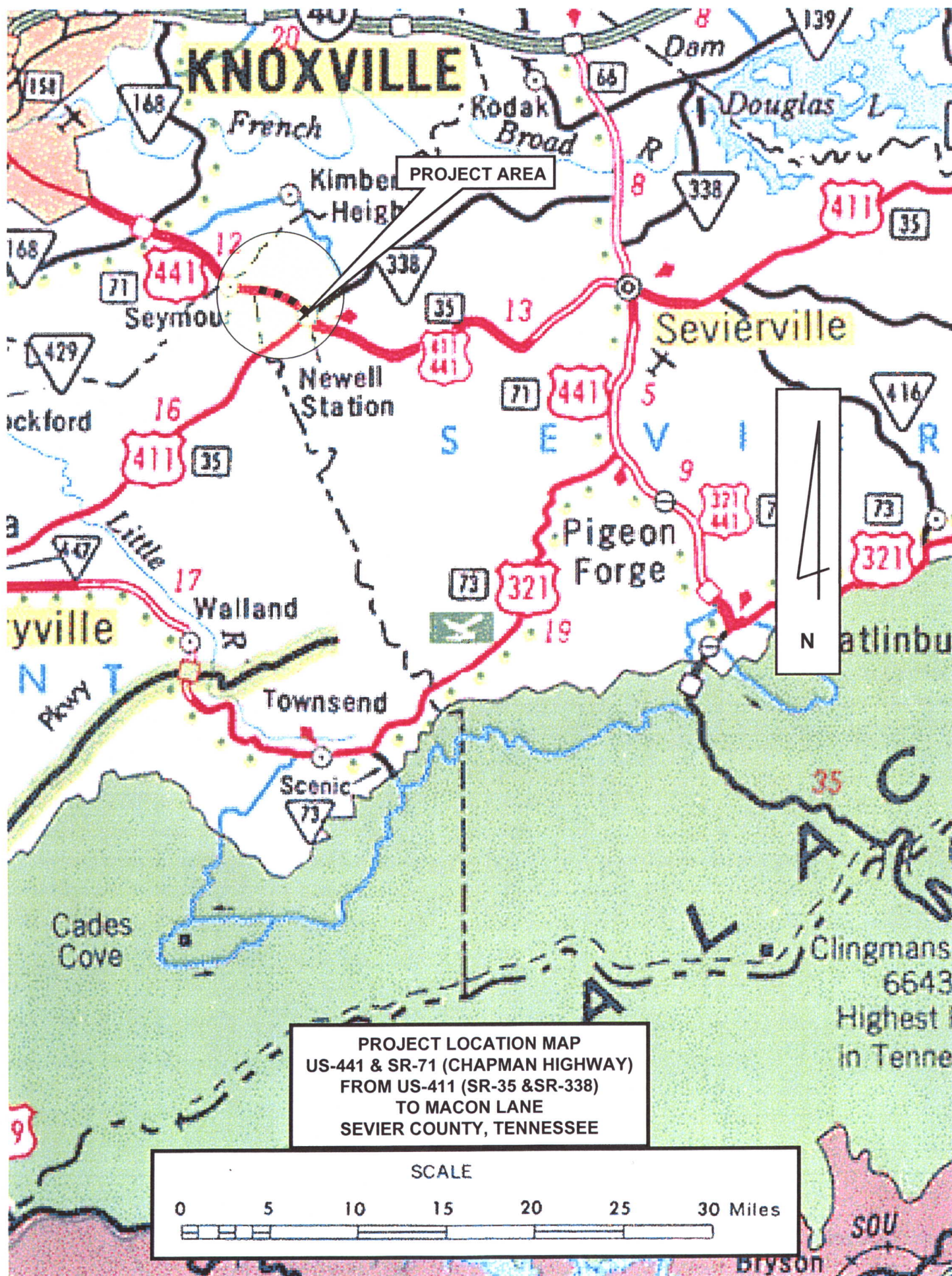
11/18/02

Date

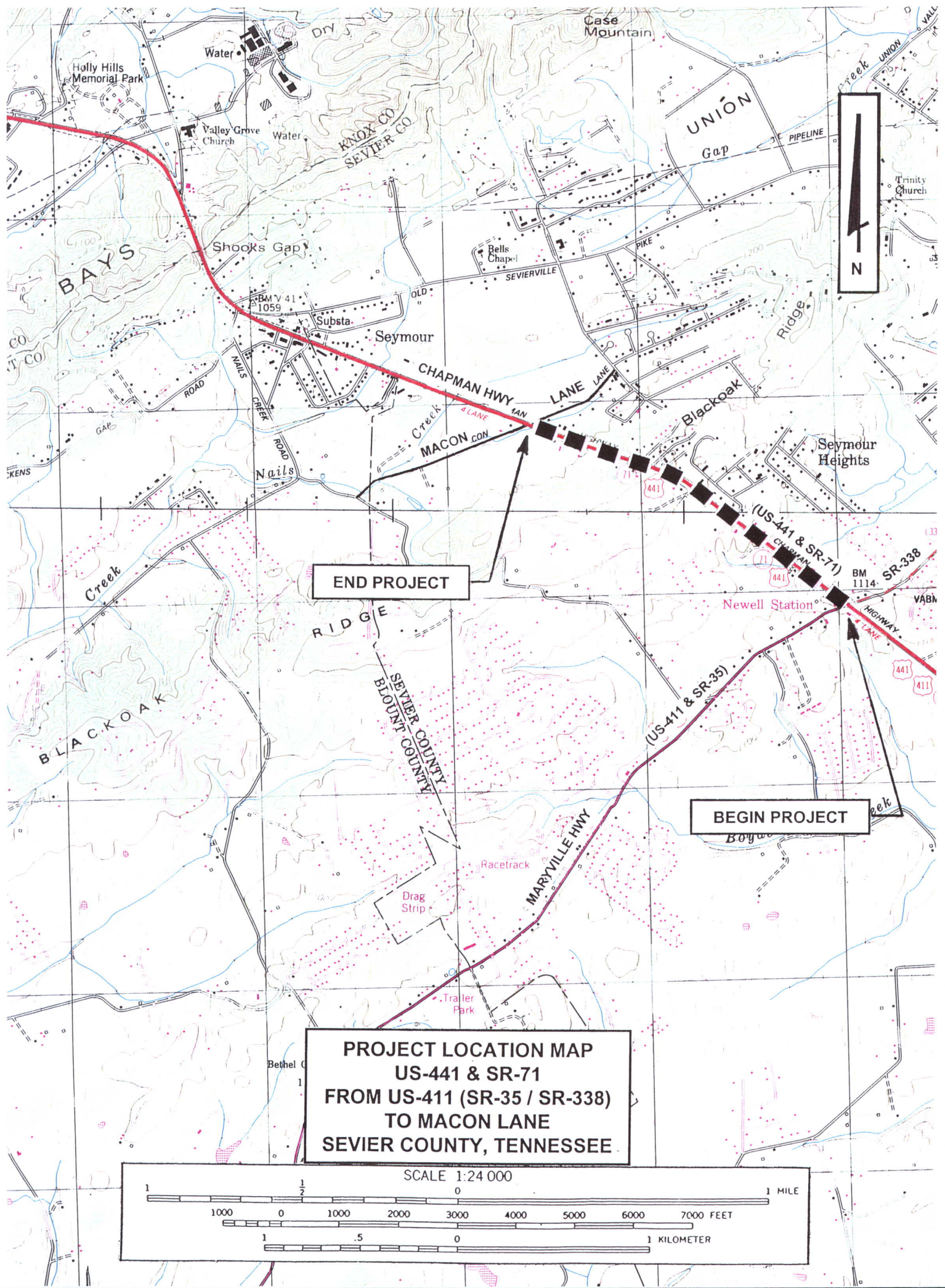
## REVISION

Recommended by:	INITIALS	DATE	Recommended by:	INITIALS	DATE
TRANS. DIRECTOR PLANNING DIVISION	R.E.C.	10/25/02	TRANS. DIRECTOR PLANNING DIVISION		
TRANS. DIRECTOR ENV. PLN. AND PERMITS	JAB	10/28/02	TRANS. DIRECTOR ENV. PLN. AND PERMITS		
ENG. DIRECTOR DESIGN DIVISION	QA	11/6/02	ENG. DIRECTOR DESIGN DIVISION		
ENG. DIRECTOR STRUCTURES DIVISION	EF	11/8/02	ENG. DIRECTOR STRUCTURES DIVISION		
TRANS. DIRECTOR PROG. DEV. DIVISION	JK	11/8/02	TRANS. DIRECTOR PROG. DEV. DIVISION		
ASSISTANT CHIEF ENGINEER	HAZ	11/14/02	ASSISTANT CHIEF ENGINEER		
ASSISTANT CHIEF ENGINEER	SC	11/15/02	ASSISTANT CHIEF ENGINEER		





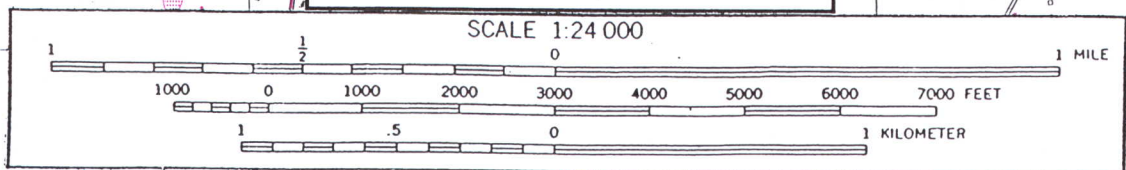




END PROJECT

BEGIN PROJECT

**PROJECT LOCATION MAP**  
**US-441 & SR-71**  
**FROM US-411 (SR-35 / SR-338)**  
**TO MACON LANE**  
**SEVIER COUNTY, TENNESSEE**



DATA TABLE  
US 441 (SR 71)  
Sevier County

From: US 441 (SR 38/338) Existing Conditions  
To: Macon Lane

Item

Functional Class	Urban Principal Arterial
System Class	STP
Length - Miles	1.10 <sub>±</sub>
Cross Section Feet	40'/48'/100'
Present ADT (2006)	27,000
Projected Future ADT (2026)	43,200
Percent Trucks	10%
Estimated Right-of-Way Acquisition (Acres)	
Estimated Right-of-Way Tracts Affected	
Estimated Family Displacements	
Estimated Business Displacements	
Estimated Right-of-Way Cost	
Estimated Utility Cost Reimbursable (State)	
Estimated Utility Cost Non-Reimbursable (Local)	
Estimated Construction Cost	
Estimated Preliminary Engineering Cost	
Total Estimated Section Cost	

DATA TABLE  
US 441 (SR 71)  
Sevier County

From: US 441 (SR 38/338)  
To: Macon Lane

Proposed

Item

Functional Class	Urban Principal Arterial
System Class	STP
Length - Miles	1.10 <sub>±</sub>
Cross Section Feet	72'/92'
Present ADT (2006)	27,000
Projected Future ADT (2026)	43,200
Percent Trucks	10%
Estimated Right-of-Way Acquisition (Acres)	2.3 <sub>±</sub>
Estimated Right-of-Way Tracts Affected	19
Estimated Family Displacements	0
Estimated Business Displacements	2
Estimated Right-of-Way Cost	\$ 1,210,000
Estimated Utility Cost Reimbursable (State)	\$ 145,000
Estimated Utility Cost Non-Reimbursable (Local)	\$ 810,000
Estimated Construction Cost	\$ 3,575,000
Estimated Preliminary Engineering Cost	\$ 325,000
Total Estimated Section Cost	\$ 6,065,000

## PURPOSE OF STUDY

The purpose of this study is to examine existing conditions and determine the need and feasibility of improving US 441 (State Route 71) from the US 441 (State Route 35/State Route 338) intersection to Macon Lane (LM 28.75-29.94) in Sevier County. The objectives of this study are to investigate the need for possible improvements, develop recommendations, estimate the costs of project implementation, prepare functional plans, and to make preliminary identification of environmentally sensitive areas.

The Chief Engineers Office of the Tennessee Department of Transportation initiated this study, which has an overall length of 1.10 miles.

## DEFICIENCIES

Geometrics	<u>  X  </u>	Structures	<u>      </u>	Operational	<u>  X  </u>	R/R Crossing	<u>      </u>
Accident Rate	<u>  2.2  </u>	Statewide Average Rate	<u>  5.34  </u>	Critical Rate	<u>  6.37  </u>		
A/C	<u>  0.35  </u>						

## EXISTING CONDITIONS

The existing roadway cross-section varies but mainly consists of 4 @ 10' traffic lanes and 4' paved shoulders inside a 100' of right-of-way (40'/48'/100'). A short segment of US 441 (State Route 71) near the intersection of US 441 (State Route 36/State Route 338) consists of 48' of roadway with 12' shoulders, curbs and gutters. There is also a small section of the existing roadway near Macon Lane that consists of 4 @ 11' lanes and a 11' center turn lane.





**Beginning of project. US 441 (SR 71) at US 441 SR 35/338 intersection looking toward Macon Lane at LM 28.75. (Note the absence of a center turn lane.)**



**US 441 (SR 71) looking toward US 441 (SR 35/338) intersection in the distance. This photo reflects the typical cross-section for the majority of the route.**

The posted speed limit throughout the project limits is 35 mph with rolling terrain. The land use is classified as rural, however, commercial development is being established throughout the project area.

Existing US 441 (State Route 71), within the project limits, is a four-lane Urban Principal Arterial facility on the STP system.

### LEVEL OF SERVICE

This proposed project is to add a center turn lane throughout the project limits. The addition of a center turn lane will not increase the capacity of the existing facility or increase the level-of-service (LOS) for this section, however, it will provide a safer roadway facility, aid with traffic flow and provide route continuity.

The level of service was calculated for the existing facility. A capacity analysis reveals that the overall existing mainline project segment is expected to operate at a level of service (LOS) "D" during the base year 2006 with an estimated Average Daily Traffic (ADT) of 27,000 vehicles and a LOS "F" during the 2026 during the design year with an estimated ADT of 40,320 vehicles.

### PROPOSED IMPROVEMENT

It is proposed to improve the present roadway to a 5-lane facility consisting of 4 @ 12' traffic lanes, a 12' continuous center turn lane, 6' shoulders including curbs and gutters, and 5' sidewalks using a minimum of 92' of right-of-way (72'/92'). This is within the current 100' of right-of-way.

This proposed cross-section 72'/92' will coincide with the adjacent sections of roadway. The section of US 411/US 441 (State Route 35/State Route 71) to the south is scheduled for construction letting in February 2003. The adjacent section of US 441 (State Route 71) to the north of Macon Lane has already been constructed to a 5-lane facility. This project, along with the adjacent projects to the north and south, will provide approximately 3.5 miles of upgraded 5-lane.

The proposed improvement will be shifted to the south or right side of the existing alignment between Chapman View Drive and Simmons Road. The existing vertical sight distance is deficient through this area and the proposed grade will be lowered. This will provide better sight distance for the Seymour Fire Department, who has a station location at Ford Hill Lane. This will also provide better sight distance for the intersections of US 441 (State Route 71) with Ford Hill Lane and Shady Lane.



There is an existing drainage ditch located on the south or right side of the present roadway between Macon Lane and Chapman View Drive. This ditch may need to be relocated in order to maintain drainage. A retaining wall will need to be constructed in front of the Tennessee State Bank in order to mitigate damage to that property. Additional retaining walls may be necessary on other sections of the project in order to minimize property damage.



**View of proposed location of retaining wall at Tennessee State Bank located on the right at LM 29.84.**



**End of project. US 441 (State Route 71) at Macon Lane looking back toward the beginning of project. Note drainage ditch to the right for that may need to be relocated to maintain drainage at LM 29.94.**

A box culvert will be need to be replaced for drainage.

A 45-mph design speed is proposed throughout the project limits.

#### DISPOSITION OF EXISTING ROUTE

All improvements will be constructed along the existing roadway and will remain as part of the STP system.

#### ENVIRONMENTAL CONSIDERATIONS

Detailed environmental studies were not prepared for this study. Preliminary investigations were conducted and no environmentally sensitive areas for historical, archaeological, and ecological considerations were identified. No streams or other documented environmentally sensitive areas are expected to be disturbed by this proposed project.

#### BICYCLE AND PEDESTRIAN CONSIDERATIONS

This is a non-controlled access facility. It is proposed that all bicycle travel use the 6-foot shoulders, including curbs and gutters, throughout the length of the proposed project. It is proposed that all pedestrian travel use the 5-foot sidewalks provided on each side of the facility.

#### FIELD INVESTIGATIONS

A field review was held for the proposed project on May 30, 2002. The following were in attendance:

Charlie Graves	TDOT Functional Design
Maysoon Haddad	TDOT Design – Region I
Mark Best	TDOT Traffic – Region I
Amanda Snowden	TDOT Traffic – Region I
Jane Craig	TDOT Planning



## CHECK LIST OF DETERMINANTS FOR LOCATION STUDY

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

1. Agricultural land usage..... \_\_\_\_\_
2. Airport (existing or proposed) ..... \_\_\_\_\_
3. Commercial area, shopping center.....   X
4. Floodplains..... \_\_\_\_\_
5. Forested land..... \_\_\_\_\_
6. Historical, archaeological, cultural, or natural landmark  
Or cemeteries..... \_\_\_\_\_
7. Industrial park, factory..... \_\_\_\_\_
8. Institutional usage's
  - a. School or other educational institution..... \_\_\_\_\_
  - b. Church or other religious institution.....   X
  - c. Hospital or other medical facility..... \_\_\_\_\_
  - d. Public building, e.g. fire station.....   X
  - e. Defense installation..... \_\_\_\_\_
9. Recreational usage's
  - a. Park or recreational area, State Natural Area..... \_\_\_\_\_
  - b. Wildlife refuge or wildlife management area..... \_\_\_\_\_
10. Residential establishment.....   X
11. Urban area, town, city, or community.....   X
12. Waterway, lake, pond, river, stream, spring, wetland.....   X    
Permit required: Coast Guard \_\_\_\_\_ Section 404 \_\_\_\_\_  
Section 10 \_\_\_\_\_ TVA Section 26a review \_\_\_\_\_  
NPDES \_\_\_\_\_ Aquatic Resource Alternation Permit   X    
Class V Injection Wells \_\_\_\_\_
13. Location coordinated with local officials..... \_\_\_\_\_
14. Railroad Crossings..... \_\_\_\_\_
15. Hazardous Material Site (U.G.T. – Underground Tanks)..... \_\_\_\_\_
16. Other..... \_\_\_\_\_

TENNESSEE DEPARTMENT OF TRANSPORTATION  
DESIGN CRITERIA FOR LOCATION AND DESIGN PHASE

ROUTE US 441 (SR 71) ALTERNATE N/A SECTION N/A

REGION I COUNTY Sevier County

LOCATION From US 441 (SR 35/338) to Macon Lane

2006 ADT . . . . . 27,000

2026 ADT . . . . . 43,200

PERCENT TRUCKS . . . . . 10%

DHV . . . . . 43,200

FUNCTIONAL CLASSIFICATION . . . . . Arterial

MINIMUM DESIGN SPEED . . . . . 45 mph

ACCESS CONTROL . . . . . N/A

MINIMUM RADIUS/MAXIMUM CURVE . . . . . 8°-00' (S.E. 0.04)

MAXIMUM GRADE . . . . . 6%

MINIMUM STOPPING SIGHT DISTANCE . . . . . 350'-400'

SURFACE WIDTH . . . . . 2 @ 24'

NUMBER OF LANES . . . . . 4

USEABLE SHOULDER WIDTH . . . . . 2 @ 6' (Inc. C & G)

MEDIAN WIDTH . . . . . 12' turn lane

MINIMUM RIGHT-OF-WAY . . . . . \* 92' (100' Existing)

SIGNALIZATION . . . . . \*\*Macon La. & SR 35/338

REMARKS: See attached letter and functional plans for additional information.

\*Easements will be necessary outside of the right-of-way.

\*\*The existing signals will need to be modified.



**COST DATA SHEET**  
**US 441 (State Route 71)**

PROJECT: From US 411 (SR 35/338) to Macon Lane

LENGTH: 1.10± miles      CROSS-SECTION: 72'/92'

Right-of Way

Land, Improvements and Damages (2.3± Acres)	\$ 1,095,000
Incidentals (19 Tracts)	\$ 55,000
Relocation Payments: (0 Residences)	\$ 60,000
(2 Business)	

**TOTAL RIGHT-OF-WAY COST** \$ 1,210,000

Utility Relocation

Reimbursable (State)	\$ 145,000
Non-Reimbursable (Local)	\$ 810,000

**TOTAL ADJUSTMENT COST** \$ 955,000

Construction

Clearing and Grubbing	\$ 15,000
Earthwork	\$ 400,000
Pavement Removal	\$ 30,000
Drainage	\$ 345,000
Structures	\$ N/A
Railroad Crossing or Separation	\$ N/A
Paving	\$ 1,540,000
Retaining Walls	\$ 240,000
Maintenance of Traffic	\$ 150,000
Topsoil	\$ 10,000
Seeding	\$ 5,000
Sodding	\$ 40,000
Signing	\$ 10,000
Lighting	\$ N/A
Signalization	\$ 50,000
Fence	\$ N/A
Guardrail	\$ N/A
Rip Rap or Slope Protection	\$ 25,000
Other Construction items (8.5%)	\$ 255,000
Mobilization	\$ 135,000
10% Engineering and Contingencies	\$ 325,000
<b>TOTAL CONSTRUCTION COST</b>	<u>\$ 3,575,000</u>

Preliminary Engineering (10%) \$ 325,000

**TOTAL COST** \$ 6,065,000

**TENNESSEE DEPARTMENT OF TRANSPORTATION  
MAPPING AND STATISTICS OFFICE  
TRAFFIC AND SAFETY PLANNING SECTION**

(REV. 2/7/02)

PROJECT NO.: \_\_\_\_\_ ROUTE: S.R. 71 (U.S. 441)  
COUNTY: SEVIER CITY: SEYMOUR  
PROJECT DESCRIPTION: FROM S.R. 35 - S.R. 338 TO MACON LANE  
FROM (LM 28.75) TO (LM 29.94)

**DIVISION REQUESTING:**

MAINTENANCE	<input type="checkbox"/>	SPECIAL DESIGN	<input type="checkbox"/>
PLANNING	<input checked="" type="checkbox"/>	STRUCTURES	<input type="checkbox"/>
PROG. DEVELOPMENT & ADM.	<input type="checkbox"/>	SURVEY & DESIGN	<input type="checkbox"/>
PUBLIC TRANS. & AERO.	<input type="checkbox"/>	OTHER _____	<input type="checkbox"/>

YEAR PROJECT PROGRAMMED FOR CONSTRUCTION: \_\_\_\_\_  
PROJECTED LETTING DATE: \_\_\_\_\_

**TRAFFIC ASSIGNMENT:**

BASE YEAR		DESIGN YEAR					DESIGN ROADWAY % TRUCKS		DESIGN AVERAGE DAILY LOADS	
ADT	YEAR	ADT	DHV	%	YEAR	DIR.DIST.	DHV	ADT	FLEX	RIGID
27,000	2006	43,200	4,320	10	2026	60-40	3	4		

REQUESTED BY: NAME JANE CRAIG DATE 4/9/02  
DIVISION PLANNING  
ADDRESS 900 J. K. POLK BLDG.

REVIEWED BY: TONY ARMSTRONG *Tony Armstrong* DATE 4-18-02  
TRANSPORTATION MANAGER 1  
SUITE 1000, JAMES K. POLK BUILDING

APPROVED BY: STEVE ALLEN *Steve Allen* DATE 4-18-02  
TRANSPORTATION MANAGER 2  
SUITE 1000, JAMES K. POLK BUILDING

**COMMENTS:**

THIS TRAFFIC BASED ON 12 - HOUR [JUNE 1999] TURNING MOVEMENT COUNT, A  
2001 CYCLE COUNT AND CYCLE COUNT GROWTH TRENDS.

**DHV'S ARE NOT REQUIRED FOR SIDE ROADS LESS THAN 1000 ADT.**

**NOTE:** FOR BRIDGE REPLACEMENT PROJECTS, ADTs ARE NOT REQUIRED FOR ADTs OF  
1000 OR LESS AND PERCENTAGE OF TRUCKS OF 7% OR LESS.  
SEE ATTACHMENTS FOR TURNING MOVEMENTS AND/OR OTHER DETAILS.



Index Of Sheets

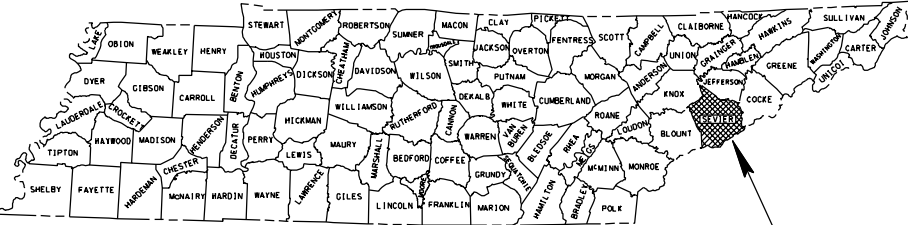
SHEET NO.	DESCRIPTION
1	TITLE SHEET
2	PROPOSED TYPICAL SECTION
3-5	PRESENT & PROPOSED LAYOUT

STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF PLANNING AND DEVELOPMENT

SEVIER COUNTY  
STATE ROUTE 71 (U.S. 441)  
FROM: MACON LANE  
TO: STATE ROUTE 35/338

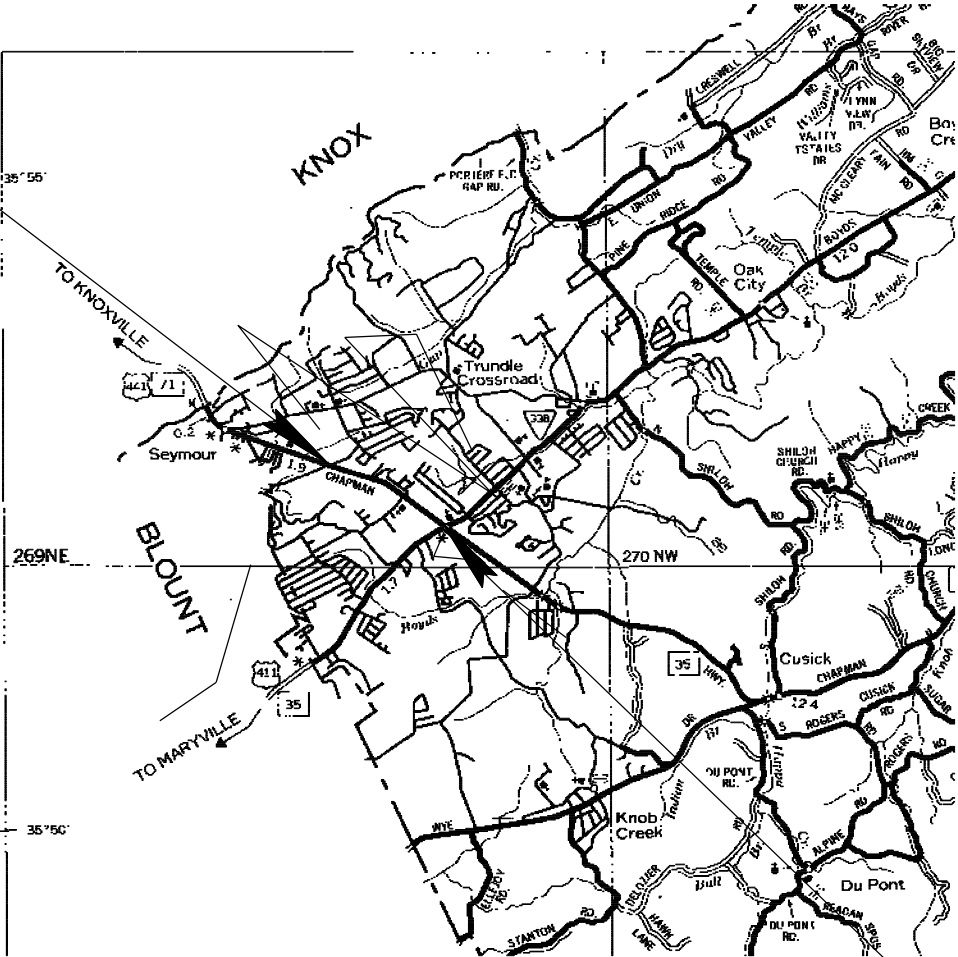
STATE HIGHWAY NO. 71 F.A.H.S. NO. 441

TENN.	YEAR	SHEET NO.
	2002	1
FED. AID PROJ. NO.		
STATE PROJ. NO.		



PROJECT LOCATION

BEGIN PROJECT



SCALE: 1"= 1 MILE

END PROJECT

SPECIAL NOTES

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

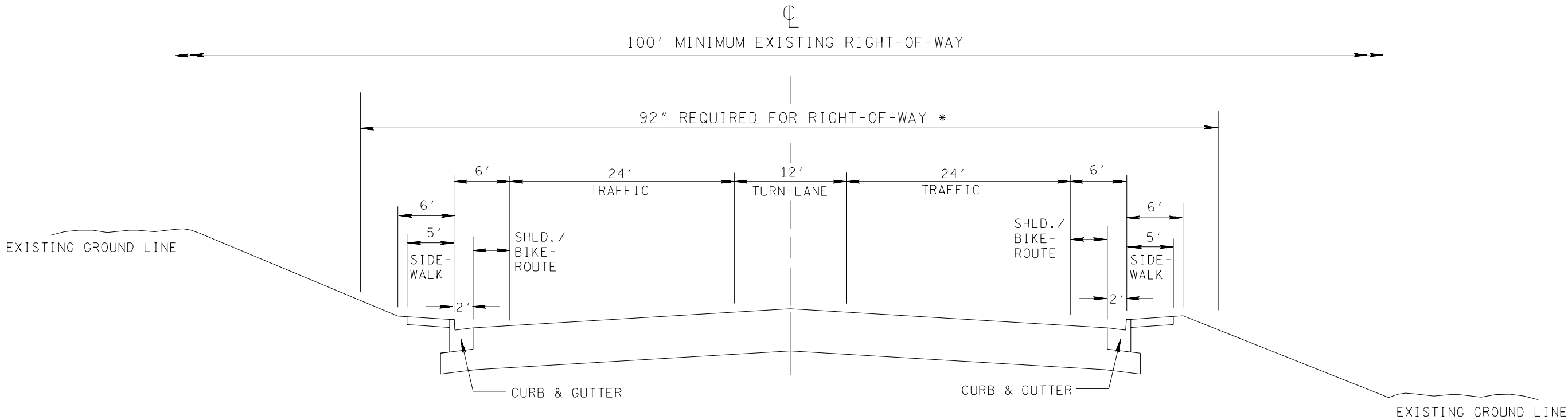
THIS PROJECT TO BE CONSTRUCTED UNDER THE STANDARD SPECIFICATIONS OF THE TENNESSEE DEPARTMENT OF TRANSPORTATION DATED MARCH 1, 1995 AND ADDITIONAL SPECIFICATIONS AND SPECIAL PROVISIONS CONTAINED IN THE PLANS AND IN THE PROPOSAL CONTRACT

TDOT ROAD SP. SV. 2 C.L.TILLEY  
DRAFTER CHARLES GILLIHAN DRAFTER ANNE KADERABEK

APPROVED: \_\_\_\_\_  
DIRECTOR, DESIGN DIVISION  
DATE: \_\_\_\_\_  
APPROVED: \_\_\_\_\_  
COMMISSIONER

U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION  
APPROVED: \_\_\_\_\_  
DIVISION ADMINISTRATOR DATE





PROPOSED TYPICAL SECTION

STATE ROUTE 71 (US-441)

\* SOME RIGHT-OF-WAY WILL BE REQUIRED

FROM STATE ROUTE 35/338 TO MACON LANE

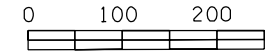
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TYPE	YEAR	PROJECT NO.	SHEET NO.
			3



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STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF PLANNING & DEVELOPMENT

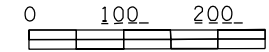
SEVIER COUNTY  
STATE ROUTE 71  
(U.S. 441)



TYPE	YEAR	PROJECT NO.	SHEET NO.
			4



\* STUDY TO BE DONE  
IN THE DESIGN PHASE.  
RETAINING WALL  
COMPARED TO  
PROPERTY ACQUISITION.



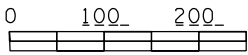
STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF PLANNING & DEVELOPMENT

SEVIER COUNTY  
STATE ROUTE 71  
(U.S. 441)





TYPE	YEAR	PROJECT NO.	SHEET NO.
			5



STATE OF TENNESSEE  
DEPARTMENT OF TRANSPORTATION  
BUREAU OF PLANNING & DEVELOPMENT

SEVIER COUNTY  
STATE ROUTE 71  
(U.S. 441)

