TRANSPORTATION PLANNING REPORT

STATE ROUTE 10

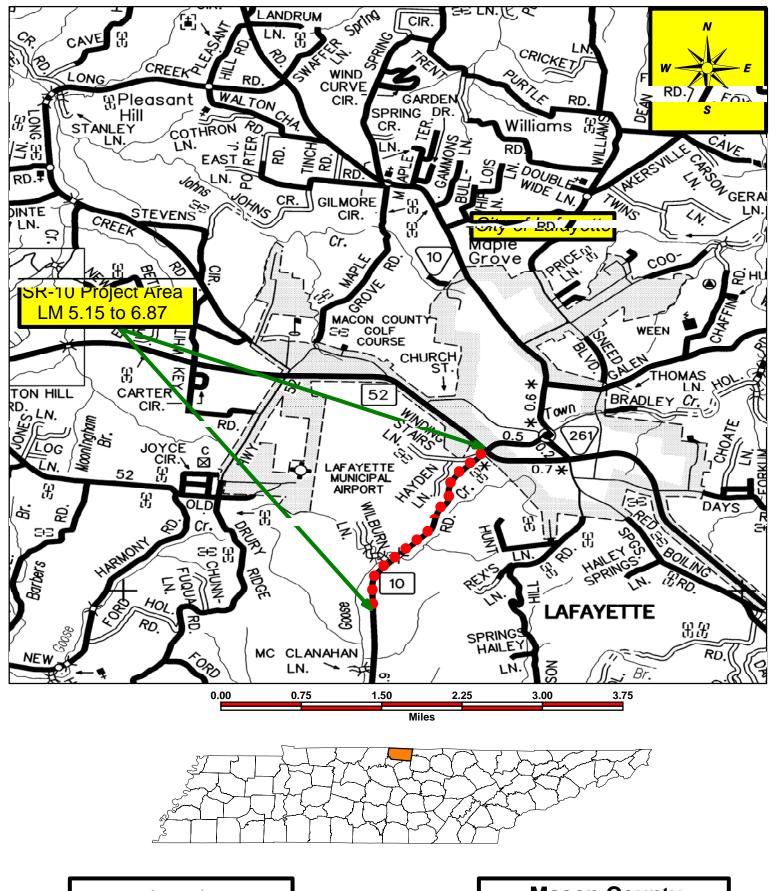
BEGIN: SOUTH OF GOOSE CREEK END: STATE ROUTE 52 MACON COUNTY PIN# 103773.02



PREPARED BY TENNESSEE DEPARTMENT OF TRANSPORTATION PROJECT PLANNING DIVISION

Recommended by:	Signature	DATE
CHIEF OF ENVIRONMENT AND PLANNING	EdCole	6/22/06
TRANSPORTATION DIRECTOR PROJECT PLANNING DIVISION	8t Ol.	622-06
TRANSPORTATION MANAGER 2 PROJECT PLANNING DIVISION	Biel Hart	6/19/06

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

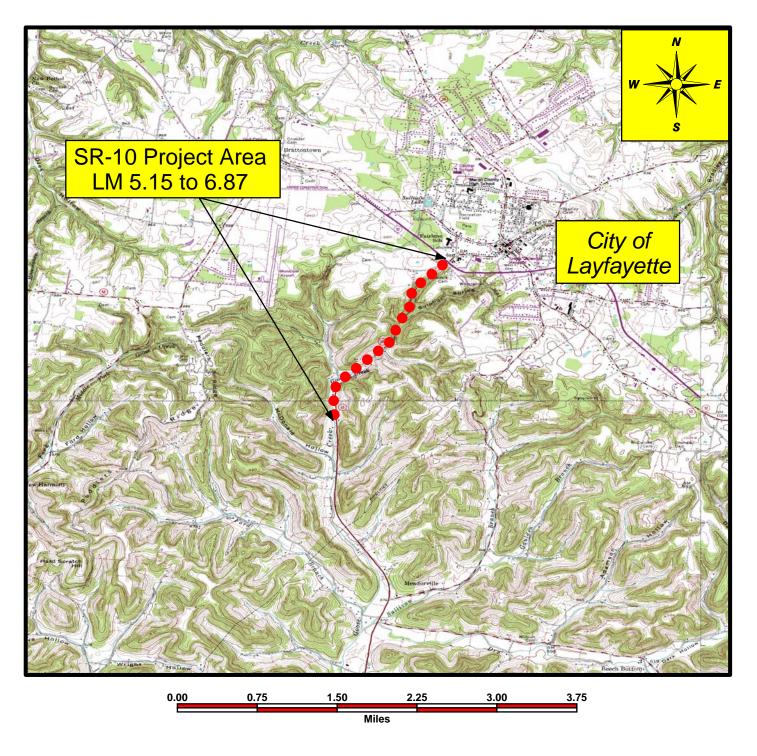


Legend

SR-10 Project Area

City

Macon County
State Route 10
South of Goose Creek
to State Route 52





Legend

SR-10 Project Area
city

Macon County
State Route 10
From South Goose Creek
to State Route 52

DATA TABLE State Route 10 Macon County

EXISTING

From: 0.43 mile south of Goose Creek

To: State Route 52

<u>ltem</u>

Functional Class	Rural Minor Arterial			
System Class	STP			
Length - Miles	1.72			
Cross Section	22 /30/ 100			
Feet	34 /44/ 100			
Present ADT (2011)	4,770			
Projected				
Future ADT (2031)	5,870			
Percent Trucks	6%			
Estimated Right-of-Way				
Acquisition (Acres)				
Estimated				
Right-of-Way Cost				
Estimated Utility Cost				
Reimbursable				
Estimated Utility Cost				
Non-Reimbursable				
Estimated				
Construction Cost				
Estimated Preliminary				
Engineering Cost				
Total Estimated Section Cost				

DATA TABLE State Route 10 Macon County

PROPOSED

OPTION 1

From: 0.43 mile south of Goose Creek

To: Goose Creek

<u>ltem</u>

Functional Class	Rural Minor Arterial
System Class	STP
Longth Miles	1.72
Length - Miles Cross Section	1.72
Feet	36 /52/ Variable
reet	30/32/ Valiable
Present ADT (2011)	4,770
Projected	
Future ADT (2031)	5,870
Percent Trucks	6%
Estimated Right-of-Way	
Acquisition (Acres)	27.9
Estimated	
Right-of-Way Cost	\$ 1,145,000
Estimated Utility Cost	
Reimbursable	N/A
Estimated Utility Cost	
Non-Reimbursable	\$ 682,000
Estimated	
Construction Cost	\$ 10,709,000
Estimated Preliminary	
Engineering Cost	\$ 800,000
Total Estimated Section Cost	\$ 13,336,000

DATA TABLE State Route 10 Macon County

PROPOSED

OPTION 2

From: 0.43 mile south of Goose Creek

To: Goose Creek

<u>ltem</u>

Functional Class	Rural Minor Arterial
System Class	STP
Length - Miles	1.72
Cross Section	
Feet	36 / 60 / Variable
Present ADT (2011)	4,770
Projected	
Future ADT (2031)	5,870
Percent Trucks	6%
Estimated Right-of-Way	
Acquisition (Acres)	62.2
Estimated	
Right-of-Way Cost	\$ 1,837,000
Estimated Utility Cost	
Reimbursable	N/A
Estimated Utility Cost	
Non-Reimbursable	\$ 608,000
Estimated	
Construction Cost	\$ 23,319,000
Estimated Preliminary	
Engineering Cost	\$ 1,740,000
Total Estimated Section Cost	\$ 27,504,000

PURPOSE OF STUDY

The purpose of this study is to examine the existing conditions and determine the feasibility of improving State Route 10 in Macon County from south of Goose Creek to State Route 52 in Lafayette. The objectives of this study are to examine the existing route, develop recommendations for improvement, estimate the cost of project implementation, and identify the preliminary environmental concerns. This study was initiated at the request of the TDOT Project Management Office and will supersede the Advance Planning Report distributed on August 13, 2004. The proposed project is a part of the Upper Cumberland Development Route.

DEFICIENCIES

Geometrics <u> x Structures </u>	OperationalR/R Crossing
Crash Rate <u>2.11</u> State	wide Average Crash Rate1.70
Other <u>Maximum grade 6.7%</u>	
Competrical barizantal and vartical	alignment

Geometrics: horizontal and vertical alignment.

EXISTING CONDITIONS

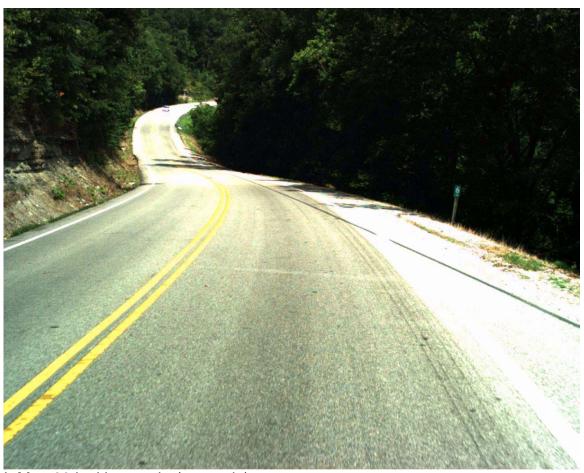
Existing State Route 10 is classified as a rural minor arterial facility from south of Goose Creek to State Route 52 in the city of Lafayette.



Looking north at beginning of proposed project at L.M. 5.09.



Looking south at beginning of proposed project at L.M. 5.09.



L.M. 5.98 looking north. (up grade)



L.M. 5.98 looking south. (down grade)



L.M. 6.56 looking north. (up grade)



Looking north at L.M. 6.87 at intersection of SR 10 and SR 52.

State Route 10 from 0.43 miles south of Goose Creek to State Route 52 carries 4,770 vehicles per day in the base year (2011) with traffic projected to increase to 5,870 vehicles per day in the design year (2031). The roadway is classified as a rural minor arterial, consisting of two eleven foot travel lanes with four feet shoulders. The roadway widens to accommodate a north bound truck climbing lane approximately one half mile prior to the State Route 52 intersection. The southern approach to the four way stop intersection at State Route 52 has a single left turn lane, a single through lane and a channelized right turn lane.

PROPOSED IMPROVEMENT

<u>OPTION 1:</u> (LM 5.15 to $6.87 = 1.72 \pm \text{miles}$) From approximately 0.43 mile south of Goose Creek to State Route 52. The project was designed to minimize the impact to property owners and to minimize the transition from the existing roadway to the proposed improvements. The start of the project area was the logical termini because it meets current design standards for the starting point on a hill for a truck climbing lane.

It is proposed to widen the existing roadway to the west (cut side) and maintain the existing slopes to the east (fill side) while holding the existing ROW on the right. Two feet (2') of the existing shoulder (fill side) will be utilized for the placement of guardrail. The proposed typical section will consist of three (3) @ twelve foot (12') traffic lanes, eight foot (8') shoulders and twelve foot (12') ditches and 1.5:1 cut slopes with variable right-of-way determined by slopes.



Example of route with similar design of proposed route.

The existing design speed will be maintained on the proposed improvement. The existing structures will be widened or replaced as determined by TDOT Structures Division.

Option 2: (LM 5.15 to 6.87= 1.72±) From approximately .43 mile south of Goose Creek to State Route 52. It is proposed to construct the proposed roadway on a new alignment to the west of State Route 10.

The proposed typical section will consist of three (3) @ twelve foot (12') traffic lanes, twelve foot (12') shoulders and eighteen foot (18') ditches (see Standard Drawing RD01 – TS -- 3), with variable right-of-way determined by slopes. It is proposed to realign Winding Stairs Lane to intersect with State Route 10 approximately 300' south of the existing location.

A fifty five (55) MPH design speed is proposed throughout the improvement. The existing structures will be widened or replaced as determined by TDOT Structures Division.



Example of route with similar design of proposed route.

LEVEL OF SERVICE:

Roadway level of service (LOS) is a ranking of travelers' perceptions of the quality of service provided by a facility. LOS is represented by the letters "A" through "F", with "A" generally representing the most favorable driving conditions and "F" representing the least favorable.

The proposed route capacity analysis shows a level of service (LOS) "D" during the base year 2011 and a LOS "D" during the design year 2031. The definition of LOS "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.

<u>DISPOSITION OF EXISTING ROUTE</u>

Any portion of existing State Route 10 not utilized from approximately 0.43 miles south of Goose Creek to State Route 52 will be removed from state highway system and turned over to local government for maintenance. Any section of roadway not necessary for local access will be scarified and removed.

BICYCLE AND PEDESTRIAN CONSIDERATIONS

<u>OPTION 1</u>: has proposed 8' paved shoulders to allow bicycle and pedestrian travel.

<u>OPTION 2</u>: has proposed 12' paved shoulders to allow bicycle and pedestrian travel.

ENVIRONMENTAL CONSIDERATIONS

Detailed environmental technical studies were not prepared for this project; however, preliminary investigations were conducted to identify environmentally sensitive areas for historic, archaeological, and ecological considerations.

Goose Creek and several tributaries will be crossed by this proposed project. Construction undertaken in this area will require appropriate permitting and special consideration to mitigate any adverse impacts.

FIELD INVESTIGATION

A field review was held for the proposed project on November 10, 2004. The following were in attendance:

Bob Allen, Environmental Ralph Barnes, Project Management Bryan Basher, FHWA Charles Graves, Functional Design C.L. Tilley, Functional Design

Also, at this meeting Environmental Justice issues were mentioned. Lori Kirby conducted a preliminary review of the project regarding Environmental Justice issues on November 22, 2004 and nothing was identified.

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	<u>X</u>
2.	Airport existing or proposed)	
3.	Commercial area, shopping center	
4.	Floodplains	
5.	Forested land	<u>x</u>
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. c. Hospital or other medical facility. d. Public building, e.g. fire station. 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	<u>X</u>
11. 12.	Urban area, town, city, or community(LaFayette pop. 3,885) Waterway, lake, pond, river, stream, spring, wetland	
	Permit required: Coast Guard Section 404 <u>x</u> Section 10 TVA Section 26a review NPDES <u>x</u> _ Aquatic Resource Alteration Permit <u>x</u> Class V Injection Wells	
13. 14.	Location coordinated with local officials	
15.	Hazardous Material Site (U.G.T. – Underground Tanks)	
16.	Other	

TENNESSEE DEPARTMENT OF TRANSPORTATION PROJECT PLANNING DIVISION

PROJECT	NO.:					ROUTE:	S.R. 10			
COUNTY:	M	IACON				CITY:	LAFAY	ETTE		
PROJECT	PIN NUM	IBER: 103	773.01							
PROJECT 1	DESCRIP	TION: FF	ROM SOUT	TH OF	GOOSE	CREEK TO S	.R 52.			
DIVISION REQUESTING: PAVEMENT DESIGN										
MAINTE	NANCE			1		STRUCTURES				H .
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							DES			SIGN
		1					ROAD	0.00		RAGE
BASE Y		4.50			EAR	DID DIG	% TRU			LOADS
ADT	YEAR	ADT	DHV	%	YEAR	DIR.DIST.	DHV	ADT	FLEX	RIGID
4770	2011	5,870	646	11	2031	65-35	4	6		
REQUEST	ED BY:	NAME	TERRY					DA	ΓE <u>4/25/06</u>	<u> </u>
		DIVISION				DIVISION		_		
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TRANSPORTATION MANAGER 2				7						
		SUITE 900,	JAMES K.	POL	K BUILD	ING				
COMME	NTC.									
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THIS TRAFFIC BASED ON 2005 CYCLE COUNTS AND PROJECTED BY THE ADAM COMPUTER PROGRAM.

TENNESSEE DEPARTMENT OF TRANSPORTATION DESIGN CRITERIA FOR LOCATION AND DESIGN PHASE

ROUTE <u>SR-10</u> OPTION <u>1</u>	SECTION
REGION 3_ CITY	COUNTY Macon
LOCATION _From 0.43 mile south of Goose	e Creek to State Route 52
ADT (2011)	4,770
ADT (2031)	<u>5,870</u>
PERCENT TRUCKS	<u>6%</u>
DHV (2031)	<u>646</u>
FUNCTIONAL CLASSIFICATION	Minor Arterial
MINIMUM DESIGN SPEED	Existing
ACCESS CONTROL	Non
MINIMUM RADIUS/MAXIMUM CURVE	Existing
MAXIMUM GRADE	Existing
MINIMUM STOPPING SIGHT DISTANCE	Existing
SURFACE WIDTH	<u>* 3 @ 12'</u>
NUMBER OF LANES	*3
USEABLE SHOULDER WIDTH	**8'
MEDIAN WIDTH	N/A
MINIMUM RIGHT-OF-WAY	*** Varies
SIGNALIZATION	<u>N/A</u>
REMARKS: *Includes 1 @ 12' truck climb	

TENNESSEE DEPARTMENT OF TRANSPORTATION DESIGN CRITERIA FOR LOCATION AND DESIGN PHASE

ROUTE <u>SR-10</u> OPTION <u>2</u>	SECTION
REGION 3_ CITY	COUNTY <u>MACON</u>
LOCATION From 0.43 miles south of Goose	e Creek to State Route 52
ADT (2011)	4,700
ADT (2031)	<u>5,870</u>
PERCENT TRUCKS	<u>6%</u>
DHV (2031)	646
FUNCTIONAL CLASSIFICATION	Minor Arterial
MAXIMUM DESIGN SPEED	<u>55 MPH</u>
ACCESS CONTROL	<u>Non</u>
MINIMUM RADIUS/MAXIMUM CURVE	6° 00' (S.E. 0.08)
MAXIMUM GRADE	<u>6%</u>
MINIMUM STOPPING SIGHT DISTANCE	495'
SURFACE WIDTH	<u>*3 @ 12'</u>
NUMBER OF LANES	<u>*3</u>
USEABLE SHOULDER WIDTH	12'
MEDIAN WIDTH	N/A
MINIMUM RIGHT-OF-WAY	**Varies_
SIGNALIZATION	<u>N/A</u>
REMARKS: _* Includes 1 @ 12' truck climb determined by slopes.	lane. ***Right-of-way to be

EST. COST DATA SHEET		Option 1
		Option 1
SR-10 in Macon County		Total Occid
		Total Cost
PROJECT: 0.43 mile south of Goose Creek to SR-52		
LENGTH: 1.72 CROSS SECTION: 36 /52/ Varies		
Right-of-Way		
EST. RIGHT-OF-WAY COST		
	\$1,145,000	
Utility Relocation		
Reimbursable		
Non-Reimbursable	\$682,000	
EST. ADJUSTMENT COST		
	\$682,000	
Construction	, , ,	
Clearing and Grubbing	\$75,000	
Earthwork	\$5,005,000	
Pavement Removal	\$25,000	
Drainage	\$555,000	
Structures	\$60,000	
Railroad Crossing or Separation	ъ60,000 n/a	
· · · · · · · · · · · · · · · · · · ·		
Paving	\$1,030,000	
Retaining Walls	n/a	
Maintenance of Traffic	\$90,000	
Topsoil	\$25,000	
Seeding	\$20,000	
Sodding	\$7,000	
Signing	\$7,000	
Lighting	n/a	
Signalization	n/a	
Fence	n/a	
Guardrail	\$80,000	
Rip Rap or Slop Protection	\$60,000	
Other Construction Items (8.5%)	\$600,000	
Mobilization	\$350,000	
10% Engineering and Contingencies	\$800,000	
Preliminary Engineering (10%)	\$800,000	
4% X 5 years = 20%	\$1,920,000	
	ψ.,c=0,000	
EST. CONSTRUCTION COST	\$11,509,000	1
2011 00110111011 0001	ψ.1,000,000	
EST. SECTION COST		
	\$13,336,000	
	ψ13,330,000	
		l

EST. COST DATA SHEET		Option 2
SR-10 in Macon County		Option 2
		Total Cost
		. 5 (4)
PROJECT: 0.43 mile south of Goose Creek to SR-52		
LENGTH: 1.72 CROSS SECTION: 36 / 60 / Varies		
ELNOTTI: 1:72 CICOSO SECTION: 307 007 Valles		
Right-of-Way		
EST. RIGHT-OF-WAY COST		
E31. NIGHT-01-WAT 6031		
Here B. L. et	\$1,837,000	
Utility Relocation		
Reimbursable		
Non-Reimbursable	\$608,000	
EST. ADJUSTMENT COST		
	\$608,000	
<u>Construction</u>		
Clearing and Grubbing	\$75,000	
Earthwork	\$12,605,000	
Pavement Removal	\$25,000	
Drainage	\$700,000	
Structures	\$80,000	
Railroad Crossing or Separation	n/a	
Paving	\$1,630,000	
Retaining Walls	n/a	
Maintenance of Traffic	\$90,000	
Topsoil	\$25,000	
Seeding	\$20,000	
Sodding	\$7,000	
Signing	\$7,000	
Lighting	n/a	
Signalization	n/a	
Fence	n/a	
Guardrail	\$80,000	
Rip Rap or Slop Protection	\$60,000	
Other Construction Items (8.5%)	\$1,310,000	
Mobilization	\$690,000	
10% Engineering and Contingencies	\$1,740,000	
Preliminary Engineering (10%)	\$1,740,000	
4% X 5 years = 20%	\$4,175,000	
,	+ , -,	
EST. CONSTRUCTION COST	\$25,059,000	
	ψ=0,000,000	
EST. SECTION COST		
23.1.323.1311.3001	\$27,504,000	
	Ψ21,304,000	
		

Index Of Sheets

SHEET NO. DESCRIPTION 1 TITLE SHEET
2 - 2A TYPICAL SECTION
3 - 7 LAYOUT - OPTION 1
8 - 12 LAYOUT - OPTION 2
13 LOCATION MAP

STATE OF TENNESSEE DEPARTMENT OF TRANSPORTATION BUREAU OF ENGINEERING

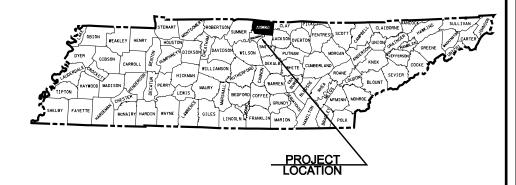
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TENN.	2006	1	
FED. AID PROJ. NO.			
STATE PROJ. NO.			

MACON COUNTY

STATE ROUTE 10

FROM: SOUTH OF GOOSE CREEK TO: STATE ROUTE 52 IN LAFAYETTE

STATE HIGHWAY NO. 10 F.A.H.S. NO.





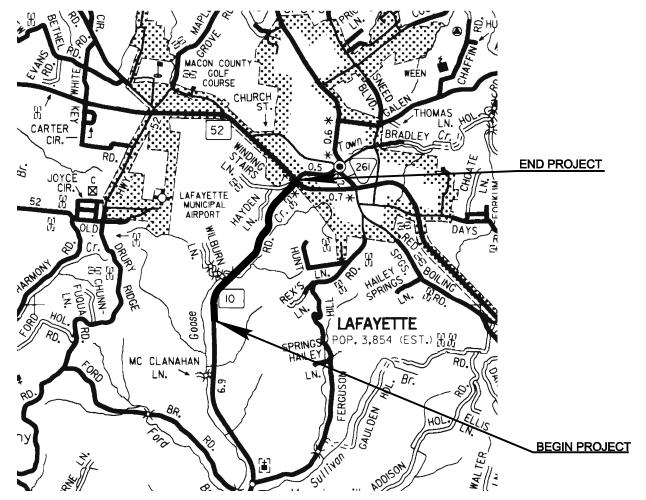


SPECIAL NOTES

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

DESIGNER STEVE HYLTON CHECKED BY FRANK FULGHAM, KEN HERRELL



SCALE: 1"= 1/2 MI.±

APPROVED: CHIEF ENGINEER

DATE:

APPROVED: COMMISSIONER

U.S. DEPARTMENT OF TRANSPORTATION

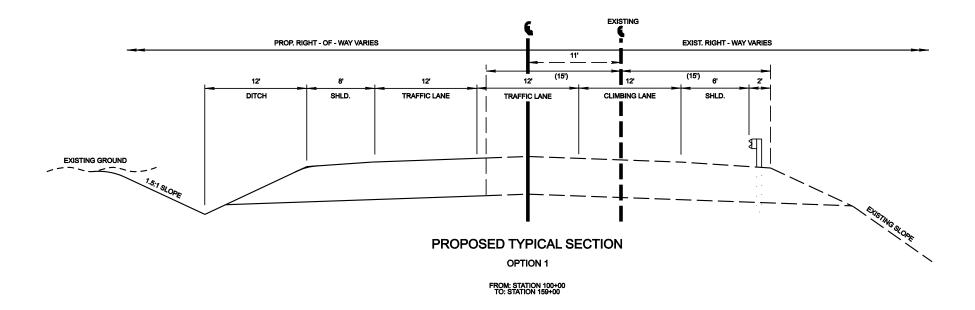
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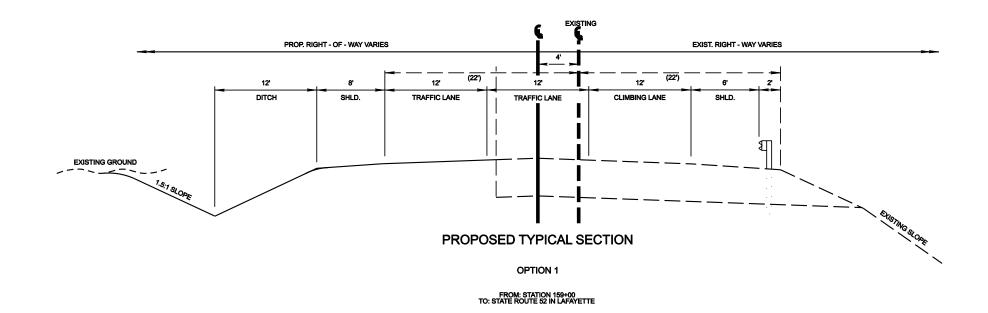
APPROVED:

DIVISION ADMINISTRATOR

ON NIG

TYPE YEAR PROJECT NO. SHEET NO. 2006 2





STATE OF TENNESSEE DEPARTMENT OF TRANSPORTATION

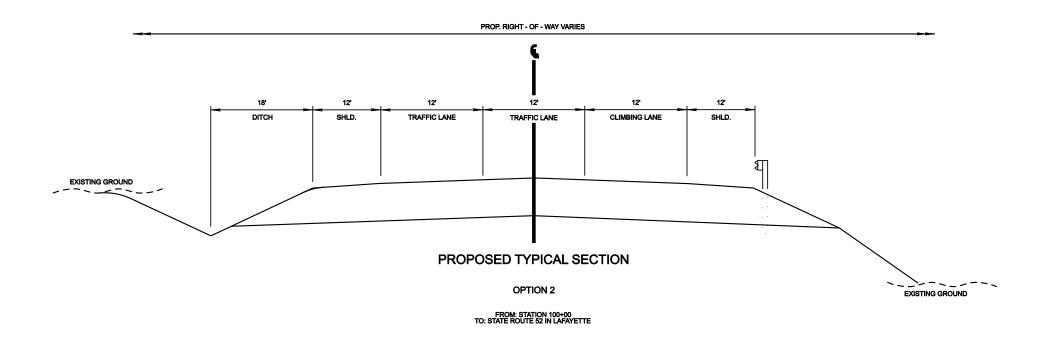
> MACON COUNTY

STATE ROUTE 10

NOT TO SCALE

JECT PLANNING DIVISI

TYPE	YEAR	PROJECT NO.	SHEET NO.
	2006		2A



STATE OF TENNESSEE DEPARTMENT OF TRANSPORTATION

> MACON COUNTY

STATE ROUTE 10

NOT TO SCALE

