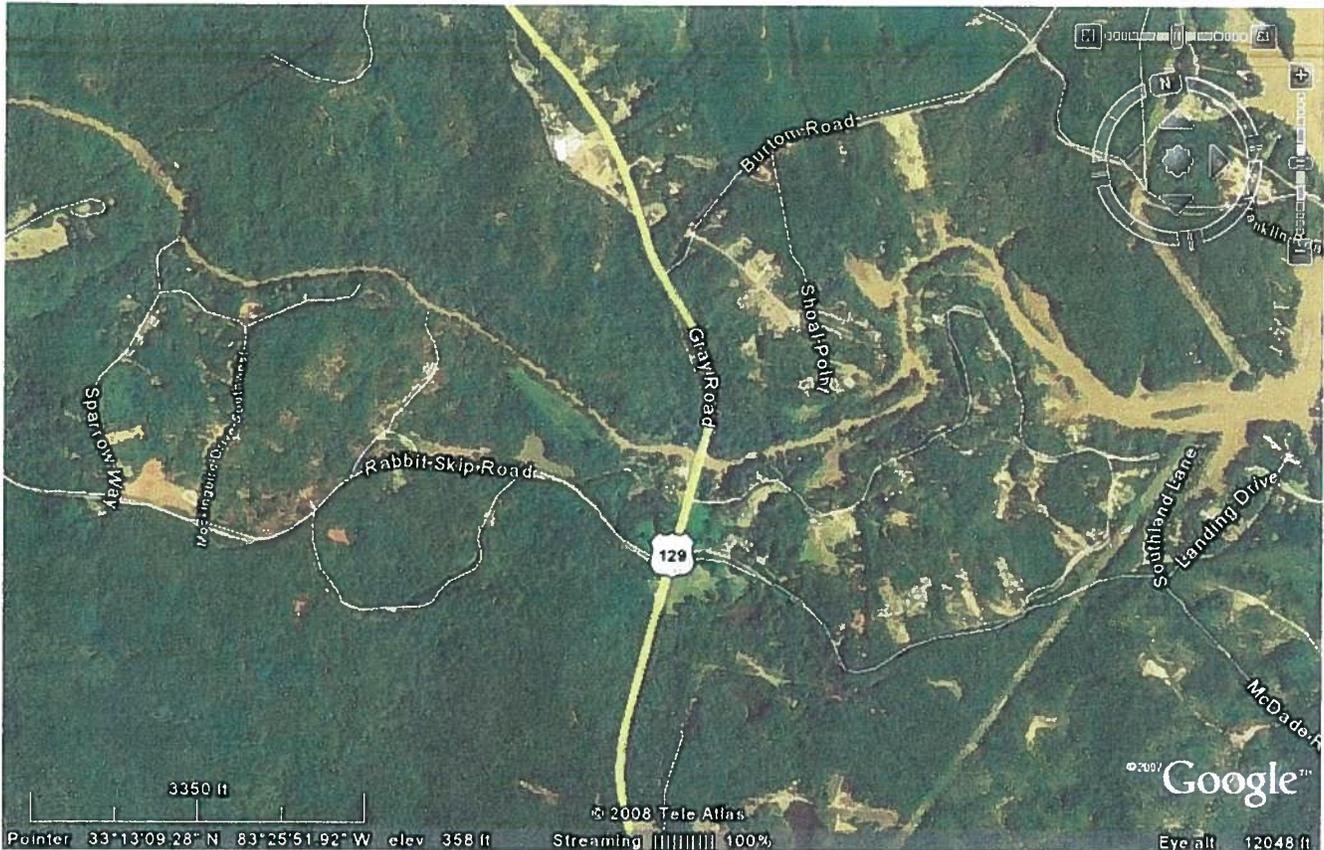


# Value Engineering Study Report

*Project – STP-002-4(26)*

*P.I. No. 231620*

*Widening of SR 44  
Jones/Putnam Counties*



**Value Management Team**



**Design Team**



**W.R. TOOLE ENGINEERS, INC.**

February 2008



February 21, 2008

Ms. Lisa Myers  
Design Review Engineer Manager  
Georgia Department of Transportation  
#2 Capitol Square, Room 266  
Atlanta, GA 30334

RE: Submittal of the final Value Engineering Report  
Projects – STP-002-4(26)  
Jones/Putnam Counties  
P.I. No. 231620  
Widening of SR 44  
PBS&J Project Task Order No. 27

Dear Ms. Myers:

Please find enclosed four (4) hard copies and a CD of our final Value Engineering Report for the Widening of SR 44 as referenced above.

This Value Engineering Study, which was performed during the period February 4 through February 7, 2008, identified **25 Alternative Ideas**, of which **12 are recommended for implementation**. The VE Team also identified **4 Design Suggestion Ideas** which are recommended for the Engineer to consider in his final design. We believe that the **12 Alternative Ideas** recommended may have a significant positive affect on the project.

We trust that you will find this report to be in proper order. It should be noted that the results of this workshop are volatile in that they can be overcome by the events that accompany the expeditious continuance of the design process. Accordingly, we encourage an equally expeditious implementation meeting to design the disposition of the contents of this report.

On behalf of our VE Team, we thank you very much for this opportunity to work with you and the hard working staff of the Georgia Department of Transportation.

Yours truly,  
**PBS&J**

A handwritten signature in black ink that reads "Les M. Thomas".

**Les M. Thomas, P.E., CVS-Life**  
VE Team Leader

# ***Value Engineering Study Report***

***Project – STP-002-4(26)***

***P.I. No. 231620***

***Widening of SR 44***

***Jones/Putnam Counties***

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### **Executive Summary**

- Introduction
- Project Description
- Value Engineering Process
- The Study Results
- Summary of Alternative and Design Suggestions

### **Study Results**

- Introduction
- Summary of Alternatives & Design Suggestions
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### **Project Description**

- Introduction
- Representative Documents

### **Value Engineering Process**

- Introduction
- Function Analysis and Cost–Worth Worksheets
- Pareto Cost Model and Graph
- Attendance Sheet for Designers and VE Team Presentations
- Creative Idea Listing and Evaluation Worksheet

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## ***EXECUTIVE SUMMARY***

## ***EXECUTIVE SUMMARY***

### **INTRODUCTION**

This report summarizes the analysis and conclusions by the PBS&J Value Engineering workshop team as they performed a VE study during the period of February 4 – February 8, 2008 in Atlanta, at the office of the Georgia Department of Transportation. The subject of the Value Engineering study was Project – STP-002-4(26) Jones/Putnam Counties, P.I. No.231620. The concept designs for the project have been prepared by W.R. Toole Engineering, Inc. At the time of the workshop, the plans had advanced to the concept design level.

### **PROJECT DESCRIPTION**

Project STP-002-4(26) consists of the widening of SR 44 located in Jones/Putnam Counties. This will include widening SR 44 from the existing 2 lanes to a 4-lane facility with a 44' depressed median. The project begins on the southern end of Mathis Road in Jones County. The project extends on the northern end to US 441 just south of Eatonton in Putnam County. The total project length is 10.73 miles. Existing vertical and horizontal alignments will be corrected to meet current GDOT design criteria. Three bridges over Cedar Creek, Murder Creek, and Little River will be replaced.

The purpose of this project is to adequately accommodate future capacity needs on SR 44 in Jones and Putnam Counties. Proposed widening would improve the design and operational mobility at the SR 212/SR 44 intersection. Turn lanes, signals, and other upgrades will be added as appropriate.

For Project STP-002-4(26) the estimated construction cost is \$61,447,394. The preliminary ROW acquisition cost is \$14,741,400.

This project does have some environmental concerns that may affect the widening of SR 44 throughout Jones/Putnam Counties. There are 12 property displacements that have been proposed within the project. In addition, there are cemeteries and proposed historical sites located within the project area. Specific pond, stream and wetland locations will need to be identified and analyzed further to determine future impacts on the project. Additionally, future commercial development and current high volume traffic areas within the project area must be considered when determining cost factors.

### **REPRESENTATIVE DOCUMENTS**

- Project Concept Report
- Construction Cost Estimates
- Right of Way Cost Estimates
- Typical Sections
- Construction Drawings
- Traffic Analysis

These projects are rather fully described in the documentation that is located in Tab 4 of this report, entitled *Project Description*.

## VALUE ENGINEERING PROCESS

The Value Engineering team followed the seven step Value Engineering job plan as promulgated by the Georgia Department of Transportation. This seven step job plan includes the following:

- Investigative
- Analysis
- Speculation
- Evaluation
- Development
- Recommendation
- Presentation

This report is a component of the Presentation Phase. As part of the VE workshop in Atlanta, the team made an informal presentation of their results on the last morning of the workshop. This report is intended to formalize the workshop results and set the stage for a formal implementation meeting in which alternatives and design suggestions will typically be accepted, accepted with modifications, or rejected for cause. The worksheet that follows, along with the formally developed alternatives and design suggestions can be used as a “score sheet” for the implementation meeting. It is also included in this report to identify, on a summary basis, the results of the workshop. The reader is encouraged to visit the third tabbed section of this report entitled *Study Results* for a review of the details of the developed alternatives. The tabbed section *Project Description* includes information about the project itself and the tabbed section *Value Engineering Process* presents the detail process of the Value Engineering Study.

## CONCLUSIONS AND RECOMMENDATIONS

During the speculation phase the VE Team identified *25 Alternative Ideas* that appeared to hold potential for reducing the construction cost, improving the end product and/or reducing the difficulty and time of project construction.

After the evaluation phase was completed, *12 Alternative Ideas* and *4 Design Suggestions* remained for further consideration. These Alternative Ideas and Design Suggestions may be found, in their documented form, in the section of this report entitled *Study Results*. The following *Summary of Alternatives and Design Suggestions* coupled with the documentation of the developed alternatives should provide the reader with the information required to fully evaluate the merits of each of the alternatives.

These and the other alternatives and design suggestions may be reviewed more thoroughly where they are documented in the third tab of this report entitled *Study Results*.

# SUMMARY OF ALTERNATIVES & DESIGN SUGGESTIONS



Georgia Department of Transportation		
Widening of SR 44 - STP-002-4(26) - P.I. No. 231620		
Alternative Number	Description of Alternative	Initial Cost Savings
	<b>ROADWAY (RD)</b>	
RD - 1	Use type "A" in-lieu of type "B"	\$1,221,327
RD - 2	Reduce "Storage" of type "B"	\$737,007
RD - 3	From Sta. 118+00 to 150+00 utilize existing R/W	\$298,337
RD - 5	Widen existing roadway on oneside to eliminate R/W taking on both sides (Sta. 45+00 to 115+00 and Sta. 155+00 to 210+00)	\$1,200,107
RD - 7	Use 60 mph vs 55 mph	DS
RD - 8	Use existing R/W Sta. 210+00 to Sta. 245+00	\$307,435
RD - 10	Use existing R/W Sta. 285+00 to Sta. 385+00	\$236,896
RD - 11	Intersect Joe Wooten Road and CR 61 and CR 59 at Sta. 350+00	\$145,168
RD - 13	Use existing R/W Sta. 405+00 to Sta. 580+00; use existing bridge	\$2,309,027
RD - 14	Connect existing SR 44 to new alignment at Sta. 418+00 and at Sta. 472+00; delete tie at Sta. 449+20	DS
RD - 16	Provide tie at Sta. 565+00/delete cul-de-sac	DS
RD - 17	Provide tie in at Sta. 444+00/delete cul-de-sac	DS
RD - 18	32' depressed median in-lieu of 44'	\$1,234,645
RD - 20	Shift alignment easterly from Sta. 240+00 to Sta. 265+00; reduce R/W impacts	\$1,677,000
RD - 21	Bifurcate the roadway in selected areas	\$512,692
RD - 22	Increase use existing R/W (overall project and RD-3, and includes RD-3, RD-8, RD-10 and RD-20)	\$2,519,668

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## ***Study Results***

# *Study Results*

## **Introduction**

This section includes the study results presented in the form of fully developed Value Engineering alternatives that include descriptions of the original design, description of the alternative design configurations, comments on the technical justifications, opportunities and risks associated with the alternatives, sketches, calculations and technical justification for these alternatives. For the most part, these fully developed alternatives represent an array of choices that clearly could have an impact on the eventual cost and performance of the finished project.

The documented alternatives also include Design Suggestions (DS). As their name implies, these are short write-ups making note of VE perspectives on technical issues and sharing some thoughts for consideration as the design moves forward.

This introductory sheet is followed by a *Summary of Alternatives & Design Suggestions* table. It should be noted that the alternatives that are included, which have cost estimates attached are not necessarily representative of the final cost outcome for each alternative. Some of these alternatives have components that are mutually exclusive so they may not be added together.

The users of this report are asked to consider these alternatives and design suggestions as a smorgasbord of choices for selection and use as the project moves forward. The following *Summary of Alternatives & Design Suggestions* may also be used as a “score sheet” within the bounds of an implementation meeting.

## **Cost Calculations**

The cost calculations are intended only as a guide to the approximate results that might be expected from implementation of the alternatives. They should be helpful in making clear choices as to the pursuit of individual alternatives.

A composite mark-up of 10% for the construction cost comparisons was derived from the cost estimate for the project. This estimate can be found in the section of this report entitled *Project Description*.

# SUMMARY OF ALTERNATIVES & DESIGN SUGGESTIONS



Georgia Department of Transportation		
Widening of SR 44 - STP-002-4(26) - P.I. No. 231620		
Alternative Number	Description of Alternative	Initial Cost Savings
	<b>ROADWAY (RD)</b>	
RD - 1	Use type "A" in-lieu of type "B"	\$1,221,327
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RD - 21	Bifurcate the roadway in selected areas	\$512,692
RD - 22	Increase use existing R/W (overall project and RD-3, and includes RD-3, RD-8, RD-10 and RD-20)	\$2,519,668

# Value Analysis Design Alternative



PROJECT:	<b>Georgia Department of Transportation STP-002-4 (26) – P.I. No. 231620 Widening of SR 44 – Jones/Putnam Counties</b>	ALTERNATIVE NO.:	<b>RD-1</b>
DESCRIPTION:	<b>USE TYPE 'A' IN LIEU OF TYPE 'B'</b>	SHEET NO.:	1 of 4

**Original Design:**

The original design used Type B median crossovers on SR 44.

**Alternative:**

The alternative is to use Type A median crossovers on SR 44.

**Opportunities:**

- Reduce construction costs
- Better accommodate truck U-turns

**Risks:**

- Reduce sight distance for vehicles turning left from SR 44

**Technical Discussion:**

The GDOT Standards stated that Type B median crossovers are the preferred type of median crossover, but Type A median crossovers can be used in low volume situations. Based on the Traffic Study, the southern half of SR 44 south of Burtom Road would carry relatively low volumes up to the design year of 2032. This section of SR 44 would operate at LOS C or D even with a 2-lane roadway in 2032.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 1,221,327	\$	\$ 1,221,327
ALTERNATIVE	\$ 0	\$	\$ 0
SAVINGS	\$ 1,221,327	\$	\$ 1,221,327

# Illustrations



PROJECT: **Georgia Department of Transportation  
STP-002-4 (26) - P.I. No. 231620  
Widening of SR 44 - Jones/Putnam Counties**

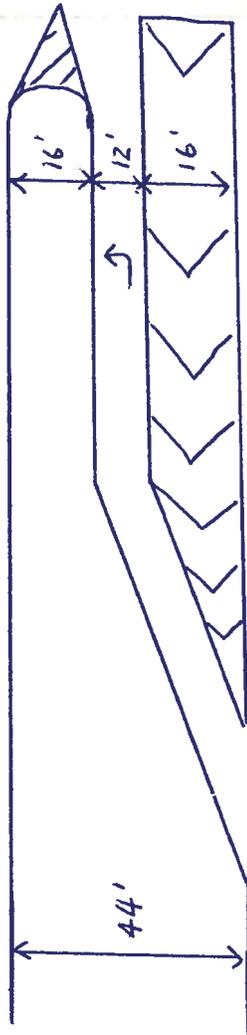
ALTERNATIVE NO.:

**RD-1**

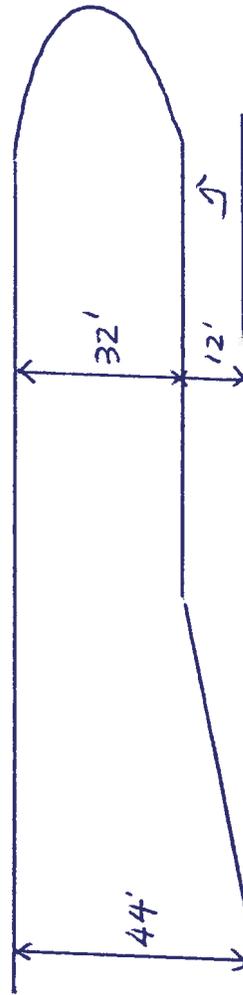
DESCRIPTION: **USE TYPE "A" IN LIEU OF TYPE "B"**

SHEET NO.:

**2 of 4**



*Original Design*



*VE Alternative*

# CALCULATION



PROJECT:	<b>Georgia Department of Transportation</b> <b>STP-002-4 (26) – P.I. No. 231620</b> <b>Widening of SR 44 – Jones/Putnam Counties</b>	ALTERNATIVE NO.:
		<b>RD-1</b>
DESCRIPTION:	<b>USE TYPE "A" IN LIEU OF TYPE "B"</b>	SHEET NO.: 3 of 4

There are 22 type B's

Each:

Channel Island	Length (Ft)	Width (Ft)	SY	Length (Ft)	W	SY		
Original	750	16	1,333	240	8	213	=	1,547
Alternative	0	0	0	0	0	0		

**Original Design**

ITEM	Area (sf)		Depth (ft)		Volume (cf)	weight (lbs)/cf		weight	
6" GAB	1,547	X	1	=	1,547	X	135	=	104 tons
ITEM	Area (sy)		weight (lbs)/sy		Tons				
12.5 mm SP	1,547	X	165	=	128				
19.0 mm SP	1,547	X	220	=	170				
25.0 mm SP	1,547	X	440	=	340				

**Alternative Design**

ITEM	Area (sf)		Depth (ft)		Volume (cf)	weight (lbs)/cf		weight	
6" GAB	0	X	1	=	0	X	135	=	0 tons
ITEM	Area (sy)		weight (lbs)/sy		Tons				
12.5 mm SP	0	X	165	=	0				
19.0 mm SP	0	X	220	=	0				
25.0 mm SP	0	X	440	=	0				



# Value Analysis Design Alternative



PROJECT: **Georgia Department of Transportation**  
**STP-002-4 (26) - P.I. No. 231620**  
**Widening of SR 44 - Jones/Putnam Counties**

ALTERNATIVE NO.:  
**RD-2**

DESCRIPTION: **REDUCE "STORAGE" OF TYPE "B"**

SHEET NO.: 1 of 4

## Original Design:

The original design used Type B median crossovers. Although the actual length of the full width left turn lane varies slightly from location to location, the typical length is approximately 750-ft.

## Alternative:

The alternative is to reduce the full width left turn lane to a length of 450-ft, based on the minimum deceleration distance requirement specified in the GDOT Design Standards and the minimum storage length requirement specified in the Traffic Study.

## Opportunities:

- Reduce construction costs

## Risks:

- May be short of storage length during the time periods when actual traffic volumes exceed the design volumes

## Technical Discussion:

The GDOT Design Standards require a minimum deceleration distance of 300-ft for a 44-ft wide median with a Type B median crossover. The Design Standards also require a 50-ft length at the beginning of the left turn lane for end treatments. The Traffic Study stated that the minimum full width storage length for all left turn lanes on SR 44 is 100-ft. The total of these three dimensions is 450-ft.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 1,842,519	\$	\$ 1,842,519
ALTERNATIVE	\$ 1,105,511	\$	\$ 1,105,511
SAVINGS	\$ 737,007	\$	\$ 737,007

# Illustrations



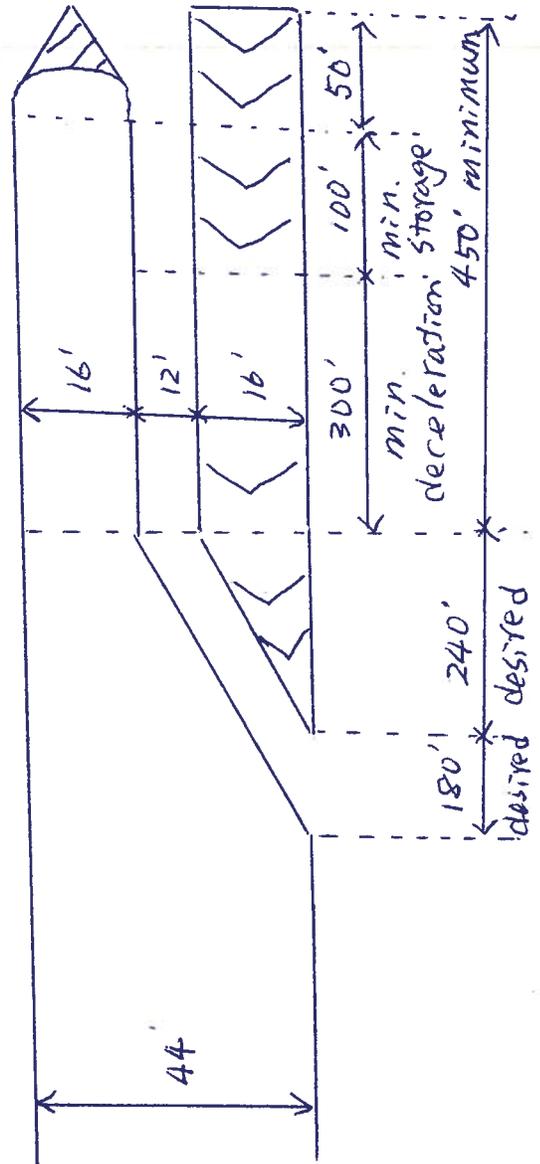
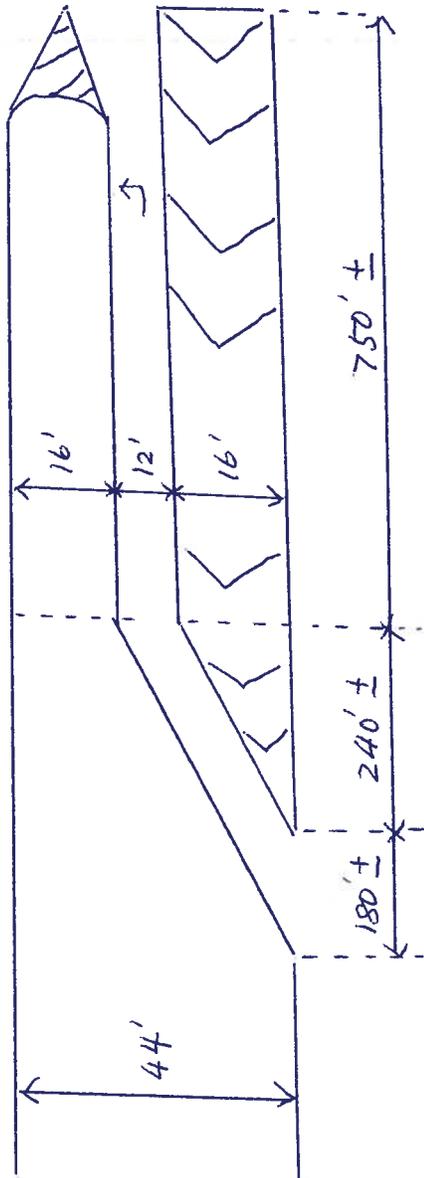
PROJECT: **Georgia Department of Transportation  
STP-002-4 (26) - P.I. No. 231620  
Widening of SR 44 - Jones/Putnam Counties**

ALTERNATIVE NO.:

**RD-2**

DESCRIPTION: **REDUCE "STORAGE" OF TYPE "B"**

SHEET NO.: **2 of 4**



# CALCULATION



**PROJECT:** Georgia Department of Transportation  
**STP-002-4 (26) – P.I. No. 231620**  
**Widening of SR 44 – Jones/Putnam Counties**

**ALTERNATIVE NO.:**

**RD-2**

**DESCRIPTION:** REDUCE "STORAGE" OF TYPE "B"

**SHEET NO.:** 3 of 4

There are 22 type B's

Each:

Channel Island	Length (Ft)	Width (Ft)	SY
Original	750	28	2,333
Alternative	450	28	1,400

**Original Design**

ITEM	Area (sf)	Depth (ft)	Volume (cf)	weight (lbs)/cf	weight
6" GAB	2,333	1	2,333	135	158 tons
ITEM	Area (sy)	weight (lbs)/sy	Tons		
12.5 mm SP	2,333	165	193		
19.0 mm SP	2,333	220	257		
25.0 mm SP	2,333	440	513		

**Alternative Design**

ITEM	Area (sf)	Depth (ft)	Volume (cf)	weight (lbs)/cf	weight
6" GAB	1,400	1	1,400	135	95 tons
ITEM	Area (sy)	weight (lbs)/sy	Tons		
12.5 mm SP	1,400	165	116		
19.0 mm SP	1,400	220	154		
25.0 mm SP	1,400	440	308		



## COST WORKSHEET

PROJECT:	Georgia Department of Transportation STP-002-4 (26) - P.I. No. 231620 Widening of SR 44 - Jones/Putnam	ALTERNATIVE NO.:	<b>RD-2</b>
DESCRIPTION:	<b>REDUCE STORAGE OF TYPE B</b>	SHEET NO.:	4 of 4

CONSTRUCTION ITEM		ORIGINAL ESTIMATE			PROPOSED ESTIMATE		
ITEM	UNITS	NO. OF UNITS*	COST/ UNIT	TOTAL	NO. OF UNITS	COST/ UNIT	TOTAL
GAB	TN	158	\$ 24.80	\$ 3,906	95	\$ 24.80	\$ 2,344
12.5 mm SUPERPAVE	TN	193	\$ 83.28	\$ 16,031	116	\$ 83.28	\$ 9,619
19.0 mm SUPERPAVE	TN	257	\$ 74.96	\$ 19,240	154	\$ 74.96	\$ 11,544
25.0 mm SUPERPAVE	TN	513	\$ 72.00	\$ 36,960	308	\$ 72.00	\$ 22,176
Sub-total				\$ 76,137			\$ 45,682
Sub-total for 22 type B				\$ 1,675,017			\$ 1,005,010
<b>Sub-total</b>				<b>\$ 1,675,017</b>			<b>\$ 1,005,010</b>
<b>Mark-up at 10.00%</b>				<b>\$ 167,502</b>			<b>\$ 100,501</b>
<b>TOTAL</b>				<b>\$ 1,842,519</b>			<b>\$ 1,105,511</b>

Estimated Savings: \$737,007

# Value Analysis Design Alternative



PROJECT:	<b>Georgia Department of Transportation STP-002-4 (26) – P.I. No. 231620 Widening of SR 44 – Jones/Putnam Counties</b>	ALTERNATIVE NO.:	<b>RD-3</b>
DESCRIPTION:	<b>FROM STATION 118+00 TO STATION 150+00 UTILIZE EXISTING R.O.W.</b>	SHEET NO.:	1 of 4

**Original Design:**

The Original Design proposes constructing a 4-lane roadway on new location.

**Alternative:**

The Alternative Design proposes constructing 4 new lanes but adjacent to the existing roadway in order to utilize more of the existing right of way.

**Opportunities:**

- Reduce right of way cost

**Risks:**

- Moderate to minimal design effort

**Technical Discussion:**

The designer stated that the Original Design was put on new location primarily to avoid impacting a parallel stream and to correct the vertical geometry. It appears that the new roadway can be constructed immediately adjacent to the old roadway utilizing the majority of the existing right of way with the new side ditch and back slope or the fore slope obliterating the old roadway.

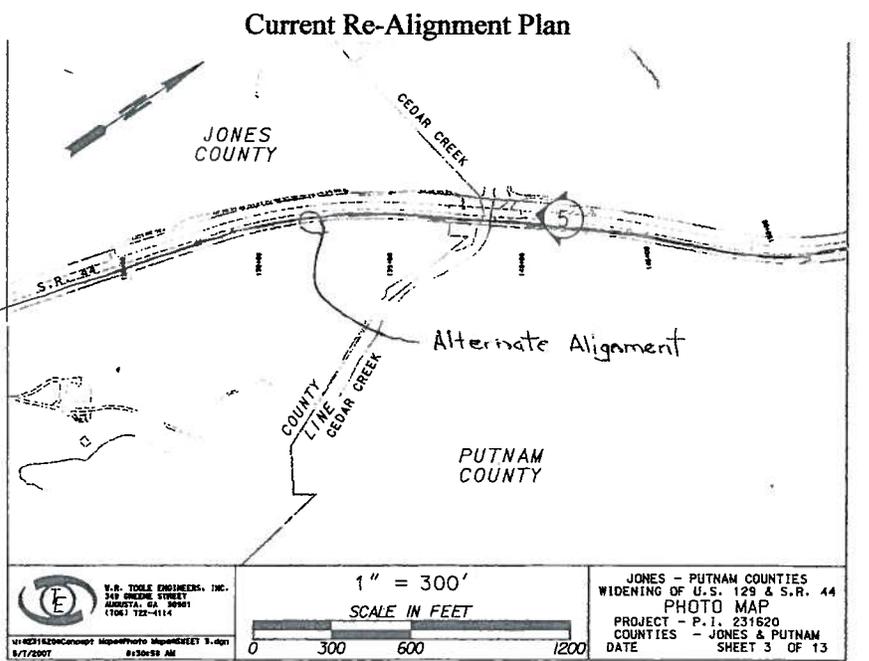
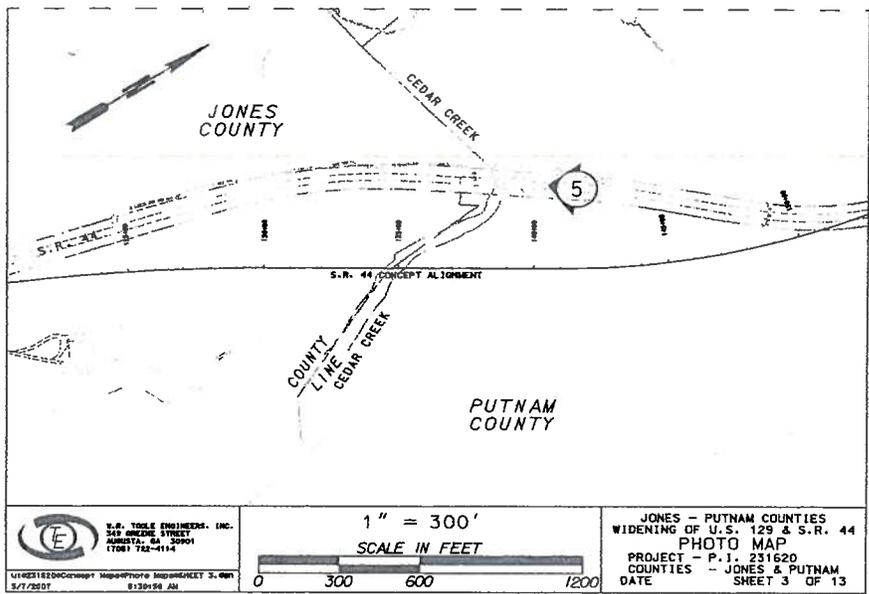
COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 18,415,540	\$	\$ 18,415,540
ALTERNATIVE	\$ 18,117,204	\$	\$ 18,117,204
SAVINGS	\$ 298,337	\$	\$ 298,337

# Illustrations

PROJECT: **Georgia Department of Transportation**  
**STP-002-4 (26) - P.I. No. 231620**  
**Widening of SR 44 - Jones/Putnam Counties**

ALTERNATIVE NO.: **RD-3**

DESCRIPTION: **FROM STATION 118+00 TO 150+00 UTILIZE EXISTING R.O.W.** SHEET NO.: **2 of 4**



Alternate Alignment Plan

# Calculations

PROJECT:	<b>Georgia Department of Transportation STP-002-4 (26) – P.I. No. 231620 Widening of SR 44 – Jones/Putnam Counties</b>	ALTERNATIVE NO.:	<b>RD-3</b>
DESCRIPTION:	<b>R.O.W. FROM STATION 118+00 TO 150+00 UTILIZE EXISTING R.O.W.</b>	SHEET NO.:	<b>3 of 4</b>

Original Right of Way/Land

Total: 285 acres - \$14,486,800  
 Commercial: 31 acres @ \$54,800/ac  
 Residential: 134 acres @ \$13,350/ac  
 Agricultural: 120 acres @ \$14,300/ac

Roadway Length

Station 116+00 to Station 150+00 => 3,400 lf

Reduced Land Area

Assume 80% utilization of old Right of Way  
 (3,400 lf x 100 ft x 0.80) / (43,560 sf / ac) = 6.24 acres

Agricultural: (6.24 ac) x (\$14,300/ac) => \$ 89,230

Net Cost	= \$ 89,230
Scheduling	55% => \$ 49,075
Administrative	60% => \$ 53,540
Inflation	40% => \$ 35,690
Total	= \$ 227,535

ALTERNATIVE COST: \$14,741,400 - \$227,535 = \$14,513,865

Clearing and Grubbing:

Original estimate- \$2,000,000/285 acres => \$7,000.00/ac  
 \$7,000.00/ac x 6.24 ac = \$43,680

ALTERNATIVE COST: \$2,000,000 - \$43,680 = \$1,956,320



# Value Analysis Design Alternative



PROJECT: Georgia Department of Transportation STP-002-4 (26) – P.I. No. 231620 Widening of SR 44 – Jones/Putnam Counties	ALTERNATIVE NO.: <b>RD-5</b>
DESCRIPTION: <b>WIDEN EXISTING ROAD WAY ON ONE SIDE TO ELIMINATE R/W TAKING ON BOTH SIDES (45+00 TO 115+00 &amp; 155+00 TO 210+00)</b>	SHEET NO.: 1 of 4

**Original Design:**

The Original Design acquires Right of Way off both sides of the roadway.

**Alternative:**

The Alternative Design proposes shifting the alignment to the west to eliminate the right of way taking on the east side of the roadway from station 45+00 to station 115+00 and shifting the alignment to the east to eliminate the right of way taking on the west side of the roadway from station 155+00 to station 210+00.

**Opportunities:**

- Reduce right of way acquisition cost
- Reduce the number of impacted properties
- Eliminate acquisition from historic property

**Risks:**

- Moderate design effort

**Technical Discussion:**

By shifting the alignment it will add 6.5' to the clear zone and should allow for the roadway to be built within the existing right of way. The additional right of way in the original concept appears to all be less than 20'.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 1,652,181	\$	\$ 1,652,181
ALTERNATIVE	\$ 452,074	\$	\$ 452,074
SAVINGS	\$ 1,200,107	\$	\$ 1,200,107

# Illustrations



PROJECT: **Georgia Department of Transportation**  
**STP-002 -4 (26) - P.I. No. 231620**  
**Widening of SR 44 - Jones/Putnam Counties**

ALTERNATIVE NO.:

**RD-5**

DESCRIPTION: **WIDEN EXISTING ROAD WAY ON ONE SIDE TO ELIMINATE**  
**R/W TAKING ON BOTH SIDES (45+00 TO 115+00 & 155+00 TO**  
**210+00)**

SHEET NO.: 2 of 4



# Calculations



PROJECT: **Georgia Department of Transportation**  
**STP-002 -4 (26) - P.I. No. 231620**  
**Widening of SR 44 - Jones/Putnam Counties**

ALTERNATIVE NO.:  
**RD-5**

DESCRIPTION: **WIDEN EXISTING ROAD WAY ON ONE SIDE TO ELIMINATE**  
**R/W TAKING ON BOTH SIDES (45+00 TO 115+00 & 155+00 TO**  
**210+00)**

SHEET NO.: 3 of 4

## Roadway Length:

Station 45+00 to Station 115+00 => 7,000 lf  
Station 155+00 to Station 210+00 => 5,500 lf  
Total: 12,500 lf

## Right of Way:

Assume all of the land area remains the same and the resulting savings is the acquisition cost for the 33 additional parcels, 1 residential relocation and structure less one commercial relocation and structure.

(33 parcels x \$15,000.00 each) = \$ 495,000  
(1 residential relocation x \$40,000 each) = \$ 40,000  
(1 residential structure x \$ 50,000 each) = \$ 50,000  
(1 commercial relocation x \$40,000 each) = -(\$ 40,000)  
(1 commercial structure x \$150,000 each) = -(\$ 150,000)  
Total: \$ 395,000

## Original Design Paving:

Area of paving: 12,500 lf x 6.5 ft = 81,250 sf / 9sf/sy => 9,027 sy  
6" GAB-(81,250 sf x 0.5 ft) x (135#/cf) / (2000#/ton) => 2,742 tons  
12.5 mm Superpave- (9027 sy) x (165#/sy) / (2000#/ton) => 745 tons  
19.0 mm Superpave- (9027 sy) x (220#/sy) / (2000#/ton) => 993 tons

## Alternative Design Paving:

Area of paving: 12,500 lf x 6.5 ft = 81,250 sf / 9sf/sy => 9,027 sy  
12" GAB-(81,250 sf x 1.0 ft) x (135#/cf) / (2000#/ton) => 5,484 tons  
12.5 mm Superpave- (9027 sy) x (165#/sy) / (2000#/ton) => 745 tons  
19.0 mm Superpave- (9027sy) x (220#/sy) / (2000#/ton) => 993 tons  
25.0 mm Superpave- (9027 sy) x (440#/sy) / (2000#/ton) => 1,986 tons

# COST WORKSHEET



**PROJECT:** Georgia Department of Transportation **ALTERNATIVE NO.:**  
**STP-002-4 (26) P.I. No. 231620**  
**Widening of SR 44 Jones/Putnam** **RD-5**  
**DESCRIPTION:** WIDEN EXISTING ROADWAY TO THE WEST;  
 ELIMINATE "R/W TAKING" TO THE EAST (45+00 to 115+00' 155+00 to 210+00) **SHEET NO.:** 4 of 4

CONSTRUCTION ITEM		ORIGINAL ESTIMATE			PROPOSED ESTIMATE		
ITEM	UNITS	NO. OF UNITS*	COST/ UNIT	TOTAL	NO. OF UNITS	COST/ UNIT	TOTAL
Net R/W Cost from sheet 3				\$ 375,000			
Scheduling Contingency		55%	\$ 375,000	\$ 206,250			
Adm/Court Cost		60%	\$ 581,250	\$ 348,750			
Inflation Factor		40%	\$ 930,000	\$ 372,000			
GAB	TN	2742	\$ 24.80	\$ 68,002	5484	\$ 24.80	\$ 136,003
12.5 mm SUPERPAVE	TN	745	\$ 83.28	\$ 62,044	745	\$ 83.28	\$ 62,044
19.0 mm SUPERPAVE	TN	933	\$ 74.96	\$ 69,938	933	\$ 74.96	\$ 69,938
25.0 mm SUPERPAVE	TN	0	\$ 72.00	-	1986	\$ 72.00	\$ 142,992
<b>Sub-total</b>				<b>\$1,501,983</b>			<b>\$410,976</b>
<b>Mark-up at 10%</b>				<b>\$150,198</b>			<b>\$41,098</b>
<b>TOTAL</b>				<b>\$1,652,181</b>			<b>\$452,074</b>
<b>Estimated Savings:</b>							<b>\$1,200,107</b>

# Design Suggestion

PROJECT: **Georgia Department of Transportation**  
**STP-002-4 (26) – P.I. No. 231620**  
**Widening of SR 44 – Jones/Putnam Counties**

ALTERNATIVE NO.:

**RD-7**

DESCRIPTION: **USE 60 MPH VS 55MPH**

SHEET NO.:

1 of 1

## **Original Design:**

The original design used a 55 mph design speed. The posted speed limit will be 55 mph.

## **Alternative:**

The alternative is to use a 60 mph design speed with a 55 mph posted speed limit.

## **Opportunities:**

- Enhance safety

## **Risks:**

- Increase constructions costs

## **Technical Discussion:**

Design speed should normally be 5 to 10 mph higher than the speed limit. A higher design speed would enhance safety as higher design criteria will be required.

# Value Analysis Design Alternative



PROJECT: **Georgia Department of Transportation**  
**STP-002-4 (26) – P.I. No. 231620**  
**Widening of SR 44 – Jones/Putnam Counties**

ALTERNATIVE NO.:

**RD-8**

DESCRIPTION: **USE EXISTING R/W Sta 210+00 to Sta. 245+00**

SHEET NO.:

1 of 5

## Original Design:

The original design proposes to construct the roadway along a new horizontal alignment, abandoning the existing ROW and purchasing new R/W.

## Alternative:

The alternative design would be to construct 4 new lane but adjacent to the existing roadway in order to utilize more of the existing right of way.

## Opportunities:

- Significantly reduce earthwork
- Significantly reduce R/W acquisition
- Reduces construction time and overhead
- Reduces impacts to adjacent property owners

## Risks:

- Requires minor redesign

## Technical Discussion:

The project is proposed to improve traffic safety and to allow a free flow (passing) of the traffic. The current design proposes the construction of a new 4 lane with depressed median (44'), turn lanes, and "U" Turn areas. From Sta 210+00 +/- to Sta. 245+00 +/- the existing alignment has a short curve (radius 1200+/-') that should be adequate for the proposed roadway. Modification of the approach and departure tangents can be accomplished by incorporation of Design Alternatives RD-5 and RD-20.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 18,414,540	\$	\$ 18,414,540
ALTERNATIVE	\$ 18,108,105	\$	\$ 18,108,105
SAVINGS	\$ 307,435	\$	\$ 307,435

# Illustrations



PROJECT: Georgia Department of Transportation  
STP-002-4 (26) - P.I. No. 231620  
Widening of SR 44 - Jones/Putnam Counties

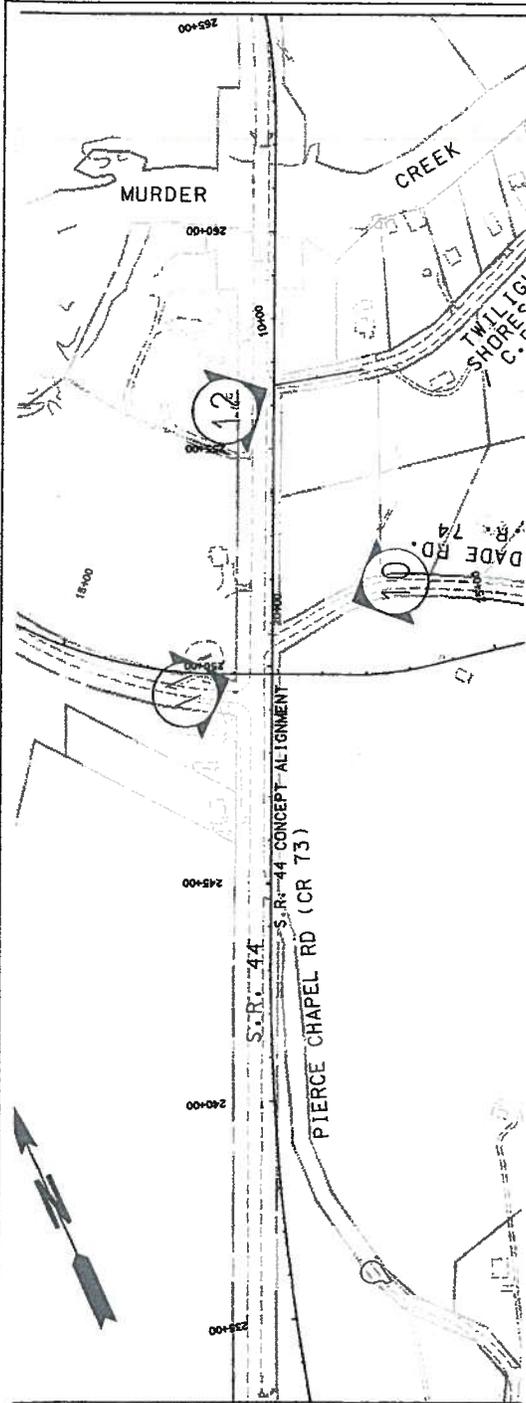
ALTERNATIVE NO.:

**RD-8**

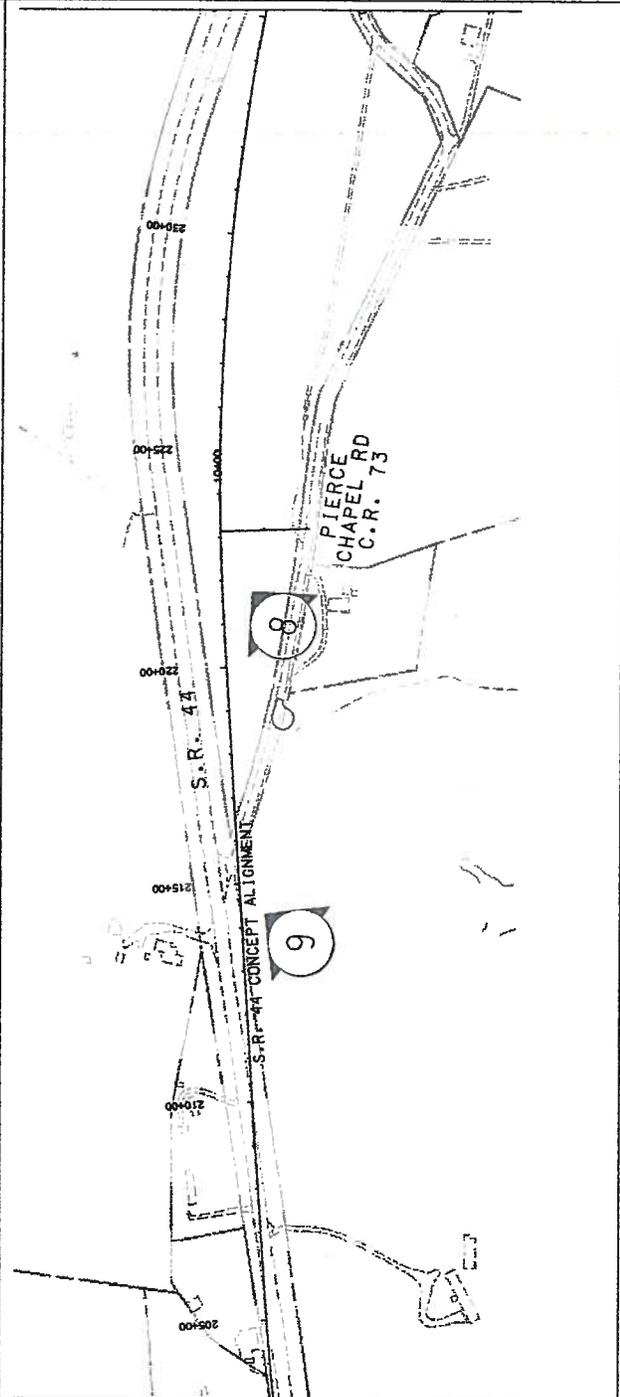
DESCRIPTION: USE EXISTING R.O.W. STA 210+00 TO 245+00

SHEET NO.:

2 of 5



Original Design



Original Design

# Illustrations



PROJECT: **Georgia Department of Transportation**  
**STP-002-4 (26) – P.I. No. 231620**  
**Widening of SR 44 – Jones/Putnam Counties**

ALTERNATIVE NO.:

**RD-8**

DESCRIPTION: **USE EXISTING R.O.W. STA 210+00 TO 245+00**

SHEET NO.:

3 of 5



# Calculations



PROJECT: **Georgia Department of Transportation**  
**STP-002-4 (26) - P.I. No. 231620**  
**Widening of SR 44 - Jones/Putnam Counties**

ALTERNATIVE NO.:  
**RD-8**

DESCRIPTION: **USE EXISTING R/W Sta. 210+00 Sta. 245+00**

SHEET NO.: 4 of 5

## Original Right of Way/Land

Total: 285 acres - \$14,486,800  
Commercial: 31 acres @ \$54,800/ac  
Residential: 134 acres @ \$13,350/ac  
Agricultural: 120 acres @ \$14,300/ac

## Roadway Length

Station 210+00 to Station 245+00 => 3,500 lf

## Reduced Land Area

Assume 80% utilization of old Right of Way  
(3,500 lf x 100 ft x 0.80) / (43,560 sf / ac) = 6.43 acres

Agricultural: (6.43 ac) x (\$14,300/ac) => \$ 91,949

Net Cost	= \$ <u>91,949</u>
Scheduling	55% => \$ 50,571
Administrative	60% => \$ 55,169
Inflation	40% => \$ <u>36,779</u>
Total	= \$ 234,486

ALTERNATIVE COST: \$14,741,400 - \$234,486 = \$14,506,914

## Clearing and Grubbing:

Original estimate- \$2,000,000/285 acres => \$7,000.00/ac  
\$7,000.00/ac x 6.43 ac = \$45,000

ALTERNATIVE COST: \$2,000,000 - \$45,000 = \$1,955,000



# Value Analysis Design Alternative



PROJECT: **Georgia Department of Transportation**  
**STP-002 -4 (26) - P.I. No. 231620**  
**Widening of SR 44 - Jones/Putnam Counties**

ALTERNATIVE NO.:

**RD-10**

DESCRIPTION: **Increase use existing R.O.W. 285+00 to 385+00**

SHEET NO.:

1 of 4

## Original Design:

The Original Design proposes constructing a 4-lane roadway adjacent to the existing roadway.

## Alternative:

The Alternative Design proposes constructing 4 new lanes but parallel and closer to the existing roadway in order to utilize more of the existing right of way.

## Opportunities:

- Reduced right of way
- 

## Risks:

- Moderate to minimal design effort

## Technical Discussion:

The designer stated that consideration had been given to leaving portions of the existing roadway in place in order to provide "local access" for farming equipment. It appears that the new roadway can be constructed approximately 25' closer and parallel to the old roadway utilizing more of the existing right of way with the new side ditch and back slope or the fore slope obliterating the old roadway.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 236,896	\$	\$ 236,896
ALTERNATIVE	\$ 0	\$	\$ 0
SAVINGS	\$ 236,896	\$	\$ 236,896

# Illustrations



PROJECT: Georgia Department of Transportation  
STP-002 -4 (26) - P.I. No. 231620  
Widening of SR 44 - Jones/Putnam Counties

ALTERNATIVE NO.:  
**RD-10**

DESCRIPTION: Increase use existing R.O.W. 285+00 to 385+00

SHEET NO.: 2 of 4



# Calculations



PROJECT: **Georgia Department of Transportation**  
**STP-002 -4 (26) - P.I. No. 231620**  
**Widening of SR 44 - Jones/Putnam Counties**

ALTERNATIVE NO.:

**RD-10**

DESCRIPTION: **Increase use existing R.O.W. 285+00 to 385+00**

SHEET NO.: **3 of 4**

Roadway Length:

Station 285+00 to Station 385+00 => 10,000 lf

Original Right of Way/Land

Total: 285 acres - \$14,486,800

Commercial: 31 acres @ \$54,800/ac

Residential: 134 acres @ \$13,350/ac

Agricultural: 120 acres @ \$14,300/ac

Reduced Land Area

Assume an average of Agricultural and Residential => \$14,000/ac

$(10,000 \text{ lf} \times 25 \text{ ft}) / (43,560 \text{ sf} / \text{ac}) = 5.74 \text{ acres}$

$(5.74 \text{ ac}) \times (\$14,000/\text{ac}) \Rightarrow \underline{\$ 80,360}$

Net Cost	= \$ 80,360
Scheduling	55% => \$ 44,200
Administrative	60% => \$ 48,215
Inflation	40% => \$ 32,145
Total	= \$ 204,920

Borrow:

Station 285+00 to Station 385+00 => 10,000 lf

Assume an average 2' depth in the 25' on the old right of way.

$10,000 \text{ lf} \times 25 \text{ ft} \times 2 \text{ ft} / (27 \text{ cf/cy}) \Rightarrow 1852 \text{ cy}$



# Value Analysis Design Alternative



PROJECT: **Georgia Department of Transportation**  
**STP-002 -4 (26) - P.I. No. 231620**  
**Widening of SR 44 - Jones/Putnam Counties**

ALTERNATIVE NO.:

**RD-11**

DESCRIPTION: **Intersect Joe Wooten Road, CR 61 and CR 59 at Sta 350.**

SHEET NO.: 1 of 4

## Original Design:

The original design realigned CR 61 on the west side of SR 44 to intersect SR 44 at station 361, which required construction of one access road approximately 1,000-ft in length. On the east side of SR 44, the original design first connected Joe Wooten Road to CR 59 and then brought CR 59 to intersect SR 44 at station 361, which required construction of two access roads, one approximately 1,000-ft in length and the other 700-ft.

## Alternative:

The alternative is to bring Joe Wooten Road and CR 61 to intersect SR 44 at station 350, which requires construction of one access road, approximately 800-ft in length. The alternative will then bring CR 59 to meet Joe Wooten Road, which requires construction of one access road approximately 600-ft in length.

## Opportunities:

- Reduce construction costs
- Reduce R/W impact

## Risks:

## Technical Discussion:

It appears reasonable to relocate the new connection of these existing roads to SR 44.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 301,503	\$	\$ 301,503
ALTERNATIVE	\$ 156,335	\$	\$ 156,335
SAVINGS	\$ 145,168	\$	\$ 145,168

# Illustrations



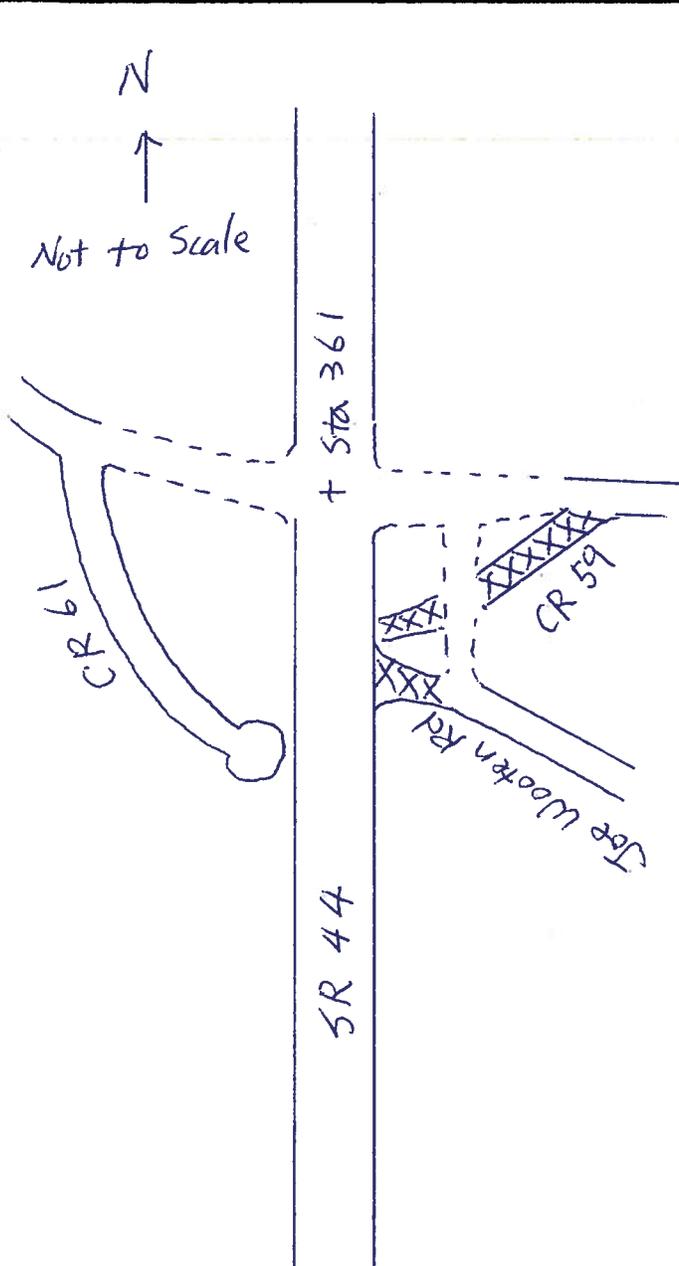
PROJECT: **Georgia Department of Transportation**  
**STP-002 -4 (26) - P.I. No. 231620**  
**Widening of SR 44 - Jones/Putnam Counties**

ALTERNATIVE NO.:

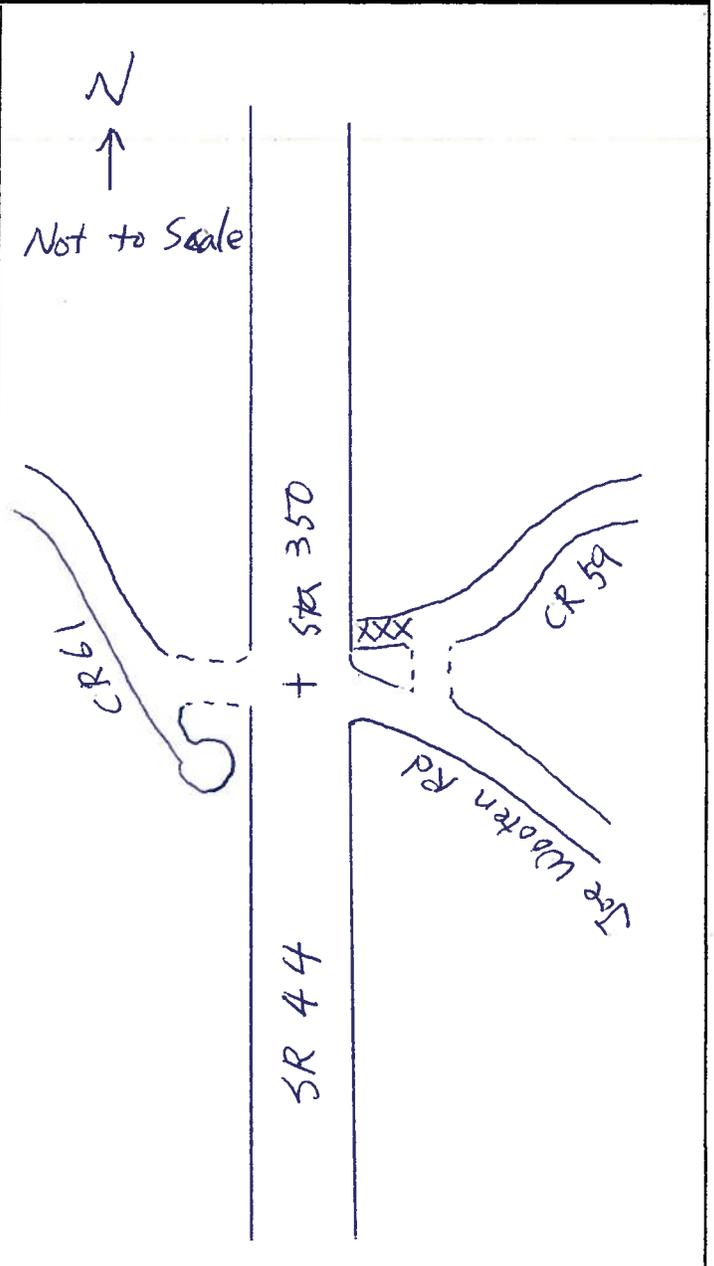
**RD-11**

DESCRIPTION: **Intersect Joe Wooten Road and Co Road 61 and Co Road 59**  
**at Sta 350+00**

SHEET NO.: 2 of 4



Original Design



VE Alternative

# CALCULATION



PROJECT:	<b>Georgia Department of Transportation</b> <b>STP-002 -4 (26) - P.I. No. 231620</b> <b>Widening of SR 44 - Jones/Putnam Counties</b>	ALTERNATIVE NO.:	<b>RD-11</b>
DESCRIPTION:	<b>INTERSECT JOE WOOTEN RD, CR 61 AND CR 59 AT STA. 350</b>	SHEET NO.:	3 of 4

<b>Connectors</b>	Length (Ft)	Width (Ft)		SY	
<b>Original</b>	1000		28	3,111	
	1000		28	3,111	
	700		28	2,178	
				8,400	

<b>Connectors</b>	Length (Ft)	Width (Ft)		SY	
<b>Alternative</b>	800		28	2,489	
	600		28	1,867	
		total sy		4,356	

<b>Original Design</b>							
ITEM	Area (sf)		Depth (ft)	=	Volume (cf)	weight (lbs)/cf	= weight
6" GAB	8,400	X	1	=	8,400	X 135	= 567 tons
ITEM	Area (sy)		weight (lbs)/sy	=	Tons		
12.5 mm SP	8,400	X	165	=	693		
19.0 mm SP	8,400	X	220	=	924		
25.0 mm SP	8,400	X	440	=	1,848		

<b>Alternative Design</b>							
ITEM	Area (sf)		Depth (ft)	=	Volume (cf)	weight (lbs)/cf	= weight
6" GAB	4,356	X	1	=	4,356	X 135	= 294 tons
ITEM	Area (sy)		weight (lbs)/sy	=	Tons		
12.5 mm SP	4,356	X	165	=	359		
19.0 mm SP	4,356	X	220	=	479		
25.0 mm SP	4,356	X	440	=	958		



# Value Analysis Design Alternative



PROJECT: **Georgia Department of Transportation  
STP-002 -4 (26) - P.I. No. 231620  
Widening of SR 44 - Jones/Putnam Counties**

ALTERNATIVE NO.:  
**RD-13**

DESCRIPTION: **Use existing R/W Station 405+00 to 580+00; use existing bridge**

SHEET NO.: 1 of 4

## Original Design:

The Original Design proposes roadway on new location west of the existing from station 405+00 to station 480+00, it utilizes the existing right of way from station 480+00 to station 508 +00 and proposes roadway on new location east of the existing from station 508+00 to station 580+00.

## Alternative:

The Alternative Design proposes constructing 4 new lanes south of and immediately adjacent to the existing roadway and utilize existing right of way from station 405+00 to station 475+00 (100 ft right), on new location from station 575+00 (100 ft right) to station 525+00 (700 ft left) and then south of and immediately adjacent to adjacent the existing roadway from station 525+00 (700 ft left) to station 580+00.

## Opportunities:

- Reduced right of way cost
- Reduced wetland impact
- Reduction in the number of relocations
- Potential to utilize more portions of the existing alignment
- Potential to utilize the Little River bridge

## Risks:

- Significant design effort

## Technical Discussion:

By basically “reversing” where existing location and new location segments were proposed, significant savings can be realized. Sufficient data was not available to evaluate whether additional portions of roadway could be widened as opposed to rebuilt or if the Little River Bridge could be utilized which would result in a savings of an additional \$1,155,000.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 19,680,540	\$	\$ 19,680,540
ALTERNATIVE	\$ 17,371,514	\$	\$ 17,371,514
SAVINGS	\$ 2,309,026	\$	\$ 2,309,026

# Illustrations



PROJECT: **Georgia Department of Transportation  
STP-002-4 (26) - P.I. No. 231620  
Widening of SR 44 - Jones/Putnam Counties**

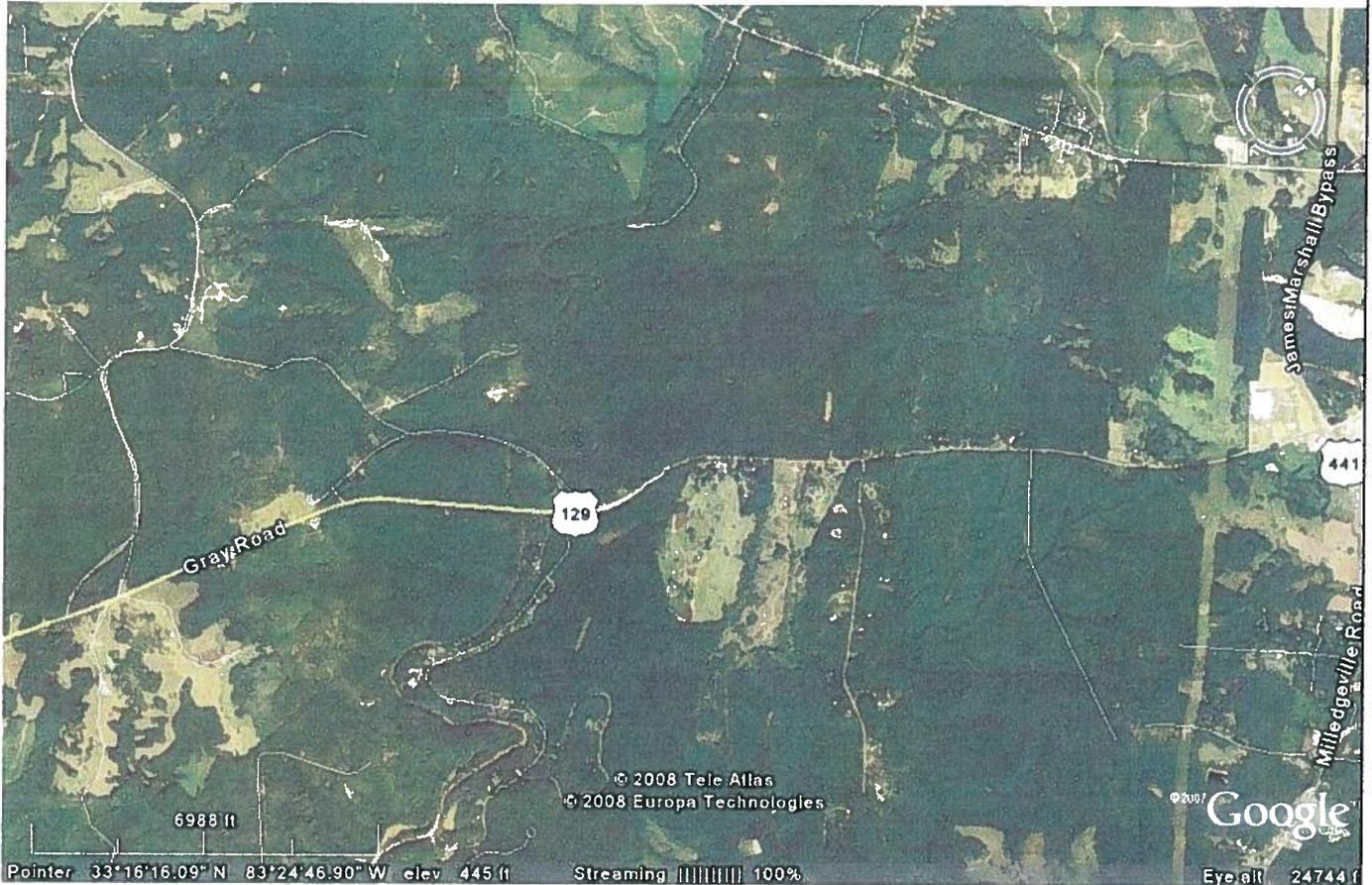
ALTERNATIVE NO.:

**RD-13**

DESCRIPTION: **Use existing R/W Station 405+00 to 580+00; use existing  
bridge**

SHEET NO.:

2 of 4



# Calculations



PROJECT: **Georgia Department of Transportation**  
**STP-002 -4 (26) - P.I. No. 231620**  
**Widening of SR 44 - Jones/Putnam Counties**

ALTERNATIVE NO.:  
**RD-13**

DESCRIPTION: **Use existing R/W Station 405+00 to 580+00; use existing bridge** SHEET NO.: 3 of 4

### Roadway Length: (existing utilized)

#### Original

Station 475+00 to Station 505+00 => 3,000 lf

#### Alternative

Station 405+00 to Station 475+00 => 7,000 lf

Station 525+00 to Station 580+00 => 5,500 lf

Difference: 9,500 lf

### Original Right of Way/Land

Total: 285 acres - \$14,486,800

Commercial: 31 acres @ \$54,800/ac

Residential: 134 acres @ \$13,350/ac

Agricultural: 120 acres @ \$14,300/ac

### Reduced Land Area

Assume 80% utilization of old Right of Way

$(9500 \text{ lf} \times 100 \text{ ft} \times 0.80) / (43,560 \text{ sf} / \text{ac}) = 17.45 \text{ acres}$

Assume average cost @ \$14,000/ac  $(17.45 \text{ ac}) \times (\$14,000/\text{ac}) \Rightarrow \$ 244,300$

Relocations @ \$40,000 each 2 each x \$40,000  $\Rightarrow \$ 80,000$

Net Cost = \$ 324,300

Scheduling 55%  $\Rightarrow \$ 178,365$

Administrative 60%  $\Rightarrow \$ 194,580$

Inflation 40%  $\Rightarrow \$ 129,720$

Total = \$ 826,965

ALTERNATIVE COST: \$14,741,400 - \$826,965 = \$13,914,435

### Clearing and Grubbing:

Original estimate- \$2,000,000/285 acres  $\Rightarrow \$7,000.00/\text{ac}$

$\$7,000.00/\text{ac} \times 17.45 \text{ ac} = \$122,150$

ALTERNATIVE COST: \$2,000,000 - \$122,150 = \$1,877,850

### Bridge Cost

Assume the Little River bridge can be utilized.

$280 \text{ lf} \times 41.25 \text{ ft} (\text{width}) = 11,550 \text{ sf}$



# Design Suggestion

PROJECT:	<b>Georgia Department of Transportation</b> <b>STP-002 -4 (26) – P.I. No. 231620</b> <b>Widening of SR 44 – Jones/Putnam Counties</b>	ALTERNATIVE NO.:	<b>RD-14</b>
DESCRIPTION:	<b>Connect existing road Sta 405+00 + 480+00 to new road at Sta 420+00 +473+00; delete tie at Sta 449+19</b>	SHEET NO.:	1 of 2

**Original Design:**

The original design shifted SR 44 to a new alignment from station 410 to station 480, and closed both terminus of the existing SR 44 to require the 7,600-ft section of the existing SR 44 to access the new SR 44 alignment via a single connection point at station 449+19, which required construction of a new access road approximately 700-ft long that connects the existing SR 44 and the new SR 44 alignment.

**Alternative:**

The alternative is provide two connection points, one at station 418 near the southern termini of the existing SR 44 and one at station 472 near the northern termini of the existing SR 44, and delete the connection point at station 449+19.

**Opportunities:**

- Better access to SR 44
- Possible cost reduction, two short access roads versus one 700-ft access road.

**Risks:**

- Require one more median opening on SR 44 that has a potential to negatively impact the SR 44 traffic.

**Technical Discussion:**

For the southern connection point at station 418, the next median opening to the north is located at station 444 if VE Alternative RD-17 is to be accepted, or at station 472 if VE Alternative RD-17 is not accepted. So the spacing to the north median opening is at least half of a mile regardless of whether VE Alternative RD-17 is accepted or not. The next median opening to the south is located at station 403+16 which is approximately 1,500-ft away.

For the northern connection point at station 472, the next median opening to the north is located at station 510+31 (Rose Creek Road), which is 3,500-ft away. The next median opening to the south is located at station 444 if VE Alternative RD-17 is to be accepted, or at station 418 if VE Alternative RD-17 is not accepted. So the spacing to the south median opening is at least half of a mile regardless of whether VE Alternative RD-17 is accepted or not.

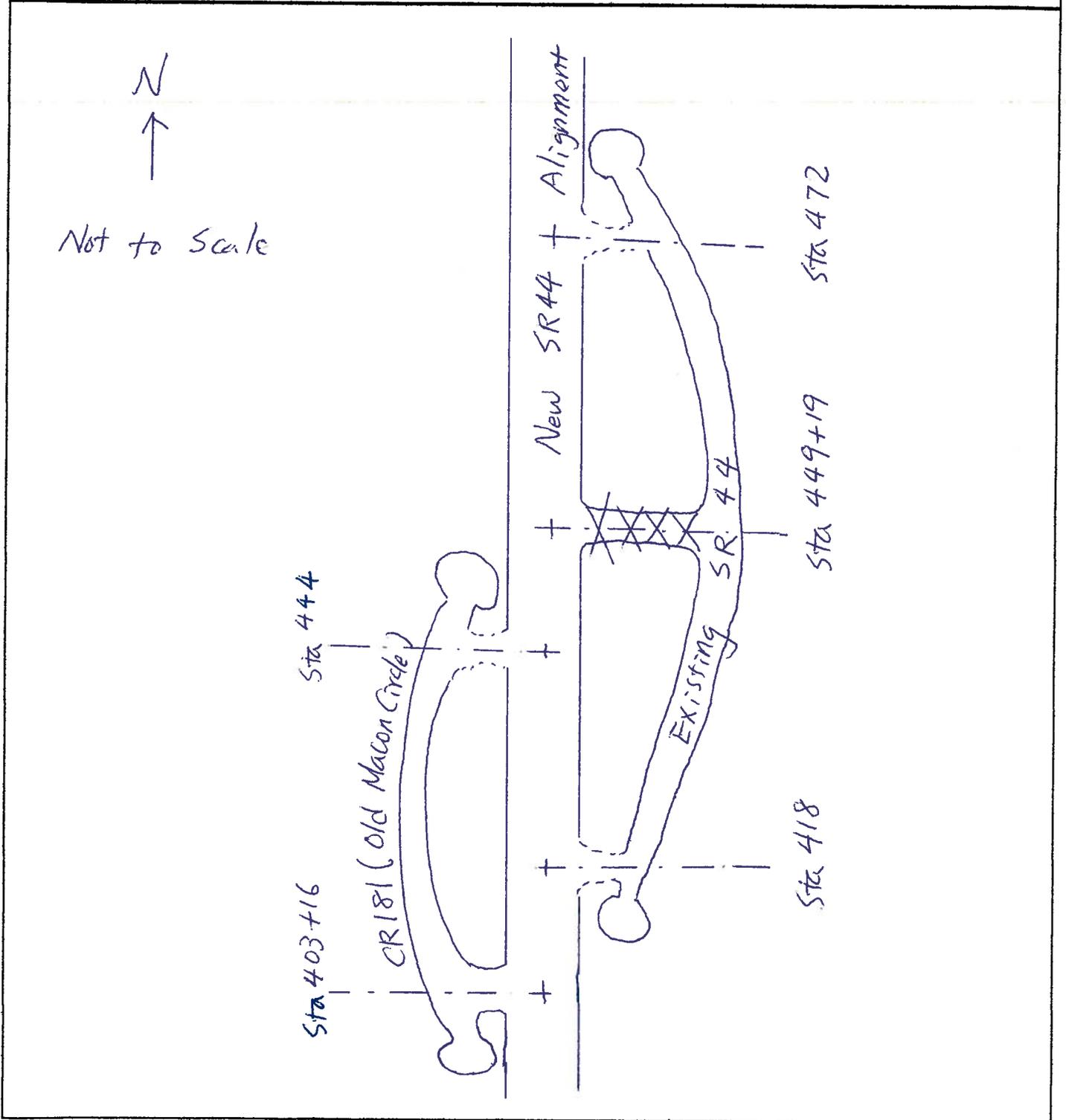
COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
<b>ORIGINAL DESIGN</b>	\$ 0	\$	\$ 0
<b>ALTERNATIVE</b>	\$ 0	\$	\$ 0
<b>SAVINGS</b>	\$ 0	\$	\$ 0

# Design Suggestion

PROJECT: **Georgia Department of Transportation**  
**STP-002 -4 (26) - P.I. No. 231620**  
**Widening of SR 44 - Jones/Putnam Counties**

ALTERNATIVE NO.:  
**RD-14**

DESCRIPTION: **Connect existing road Sta 405+00 + 480+00 to new road at Sta 420+00 + 473+00; delete tie at Sta 449+20** SHEET NO.: 2 of 2



# Design Suggestion

<b>PROJECT:</b> Georgia Department of Transportation STP-002 -4 (26) – P.I. No. 231620 Widening of SR 44 – Jones/Putnam Counties	ALTERNATIVE NO.: <b>RD-16</b>
<b>DESCRIPTION:</b> Provide tie at Sta. 565+00/delete cul de sac	SHEET NO.: 1 of 2

**Original Design:**

The original design shifted SR 44 to a new alignment from station 505 to station 575, and closed the northern termini of the existing SR 44 to require the 7,000-ft section of the existing SR 44 to access the new SR 44 alignment via a single connection point at station 510.

**Alternative:**

The alternative is provide a second connection point at station 565 near the northern termini of the existing SR 44 to allow the existing SR 44 to access the new SR 44 alignment.

**Opportunities:**

- Minimize local residents’ frustration in highway access.

**Risks:**

- Require one more median opening on SR 44 that has a potential to negatively impact the SR 44 traffic.

**Technical Discussion:**

The next median opening to the north from the new connection point is located at station 595 (to the Wal-Mart plaza) which is 3,000-ft away. The next median opening to the south from the new connection point is located at station 510 which is more than a mile away. The new connection point should have minimum impact on the SR 44 traffic.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
<b>ORIGINAL DESIGN</b>	\$ 0	\$	\$ 0
<b>ALTERNATIVE</b>	\$ 0	\$	\$ 0
<b>SAVINGS</b>	\$ 0	\$	\$ 0

# Design Suggestion

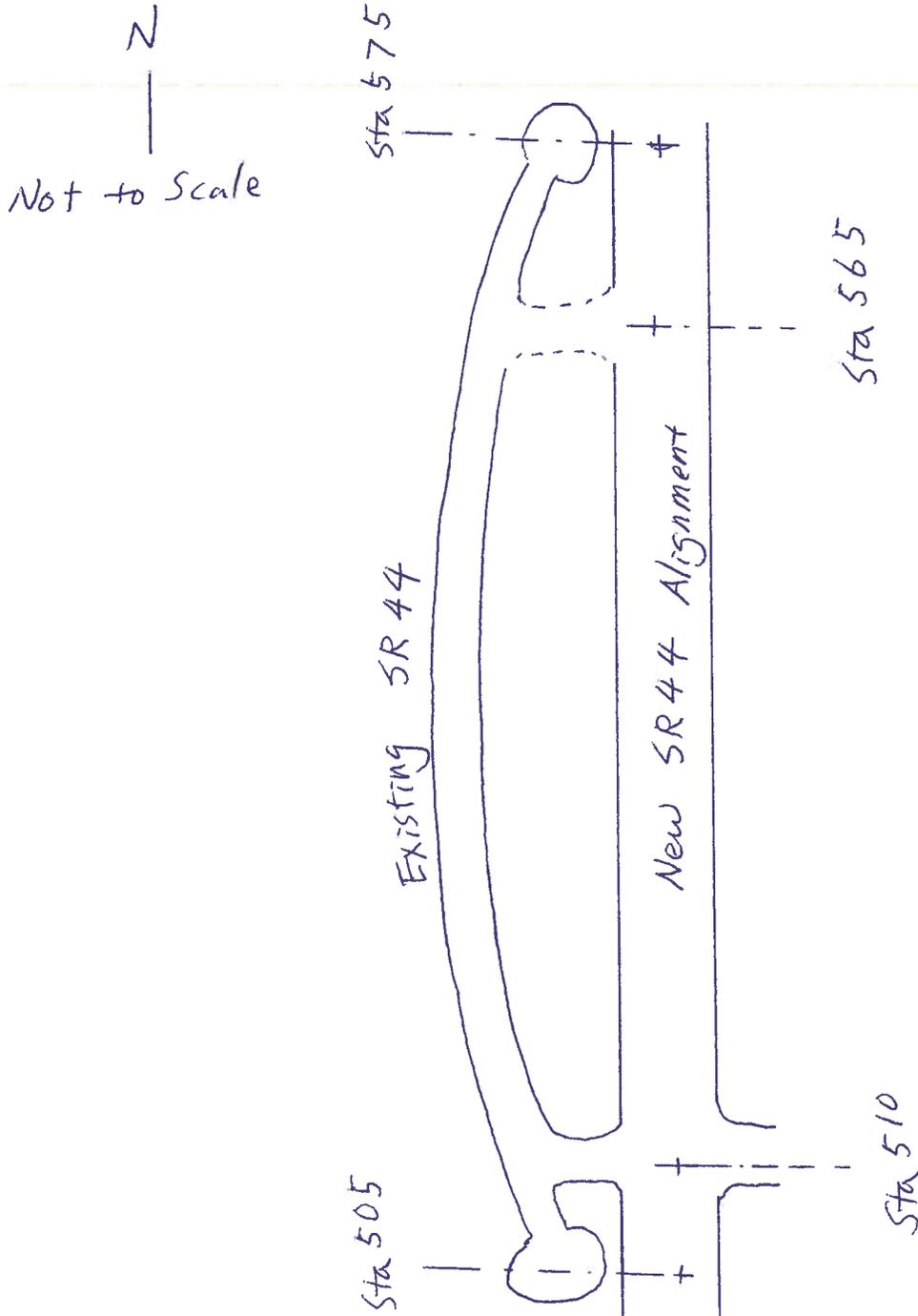
PROJECT: **Georgia Department of Transportation**  
**STP-002-4 (26) - P.I. No. 231620**  
**Widening of SR 44 - Jones/Putnam Counties**

ALTERNATIVE NO.:

**RD-16**

DESCRIPTION: **Provide tie at Sta 565+00/delete cul de sac**

SHEET NO.: 2 of 2



# Design Suggestion



**PROJECT:** Georgia Department of Transportation  
 STP-002 -4 (26) - P.I. No. 231620  
 Widening of SR 44 - Jones/Putnam Counties

ALTERNATIVE NO.:

**RD-17**

**DESCRIPTION:** Provide tie in at Sta. 444+00/delete cul de sac

SHEET NO.: 1 of 2

**Original Design:**

The original design shifted SR 44 to a new alignment from station 410 to station 480, and required the entire CR 181 (Old Macon Circle, approximately 5,800-ft in length) to access the new SR 44 alignment via a single connection point at station 403+16.

**Alternative:**

The alternative is provide a right-in-right-out connection point at station 444 to allow CR 181 to access the new SR 44 alignment via a second access point.

**Opportunities:**

- Minimize local residents' frustration in highway access.

**Risks:**

- Require one more median opening on SR 44 that has a potential to negatively impact the SR 44 traffic.

**Technical Discussion:**

The next median opening to the north from the new connection point is located at station 472, which is more than half of a mile away if VE Alternative RD-14 is to be accepted. The spacing will be reduced to 500-ft if VE Alternative RD-14 is not accepted. Under this circumstance, the new connection point at station 444 could be restricted to right-in and right-out.

The next median opening to the south from the new connection point is located at station 418 which is half of a mile away if VE Alternative RD-14 is to be accepted. The spacing will be increased to 4,100-ft if VE Alternative RD-14 is not accepted.

The new connection point should have minimum impact on the SR 44 traffic.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 0	\$	\$ 0
ALTERNATIVE	\$ 0	\$	\$ 0
SAVINGS	\$ 0	\$	\$ 0

# Design Suggestion

PROJECT: **Georgia Department of Transportation**  
**STP-002 -4 (26) - P.I. No. 231620**  
**Widening of SR 44 - Jones/Putnam Counties**

ALTERNATIVE NO.:

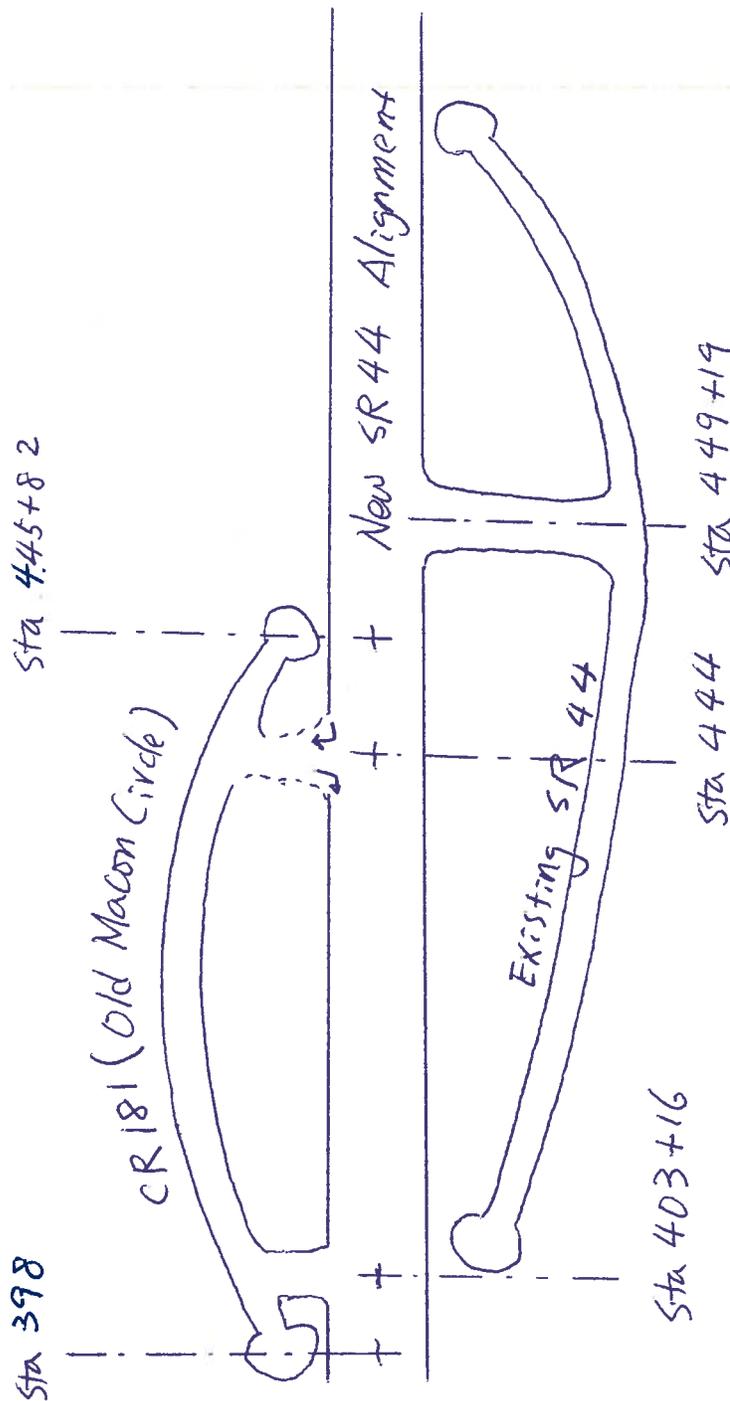
**RD-17**

DESCRIPTION: **Provide tie in at Sta 444+00/delete cul de sac**

SHEET NO.:

2 of 2

N  
↑  
Not to scale



# Value Analysis Design Alternative



**PROJECT:** Georgia Department of Transportation  
 STP-002 -4 (26) - P.I. No. 231620  
 Widening of SR 44 - Jones/Putnam Counties

ALTERNATIVE NO.:  
**RD-18**

**DESCRIPTION:** Use 32' depressed median

SHEET NO.: 1 of 4

**Original Design:**

The Original Design utilizes a 44' depressed median.

**Alternative:**

The Alternative Design proposes the use of a 32' depressed median.

**Opportunities:**

- Reduced Right of Way
- Reduced earthwork

**Risks:**

- Significant design effort

**Technical Discussion:**

The use of a 44' median provides a better margin of safety. It also provides the opportunity to build a 6-lane rural/ditch/section by simply converting the median to a 20' raised section. The 32' median should be more than adequate for the 55 mph posted speed and lower traffic volumes associated with this roadway. The 32' median roadway can be converted to a 6-lane urban/curb and gutter section by converting the median to a 20' raised section and adding curb and gutter to the outside shoulder. In addition, unless development of the corridor changes significantly it is not anticipated that it will generate traffic volumes necessitating a 6-lane section until well beyond the 2032 design year.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 23,539,340	\$	\$ 23,539,340
ALTERNATIVE	\$ 22,304,695	\$	\$ 22,304,695
SAVINGS	\$ 1,234,645	\$	\$ 1,234,645

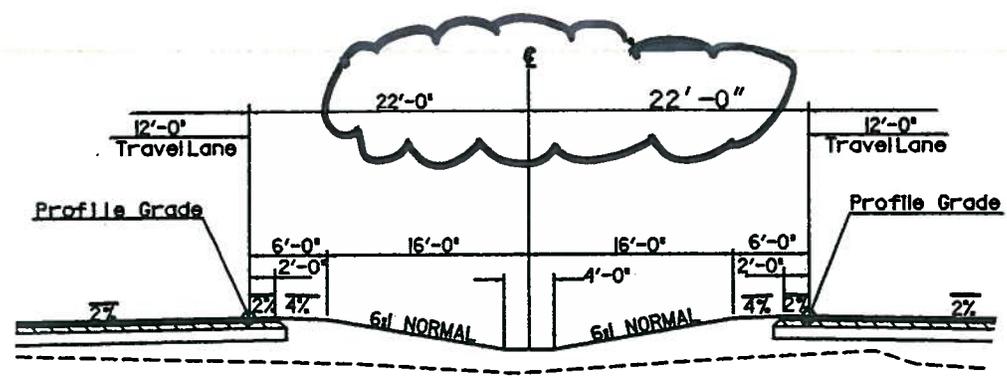
# Illustrations

PROJECT: **Georgia Department of Transportation**  
**STP-002 -4 (26) - P.I. No. 231620**  
**Widening of SR 44 - Jones/Putnam Counties**

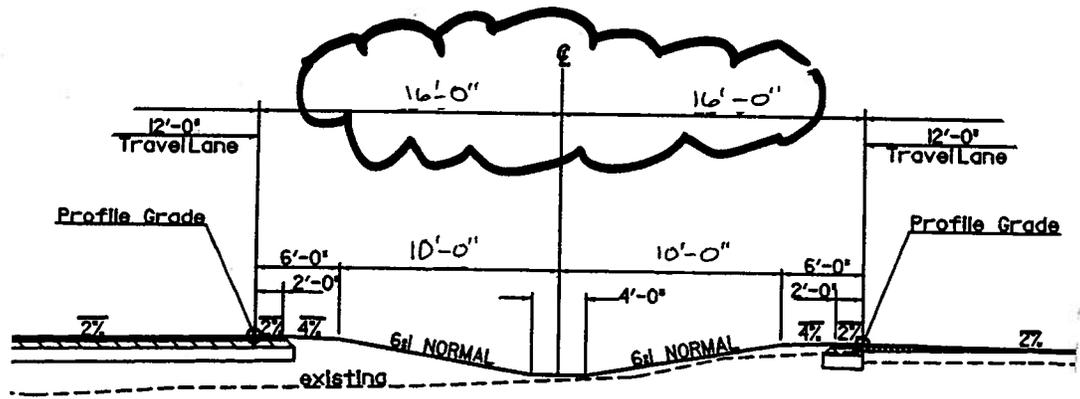
ALTERNATIVE NO.: **RD-18**

DESCRIPTION: **Use 32' depressed median**

SHEET NO.: **2 of 4**



ORIGINAL DESIGN



ALTERNATIVE DESIGN

# Calculations



PROJECT: **Georgia Department of Transportation**  
**STP-002 -4 (26) - P.I. No. 231620**  
**Widening of SR 44 - Jones/Putnam Counties**

ALTERNATIVE NO.:

**RD-18**

DESCRIPTION: **Use 32' depressed median**

SHEET NO.: 3 of 4

## Original Right of Way/Land

Total: 285 acres - \$14,486,800

Commercial: 31 acres @ \$54,800/ac

Residential: 134 acres @ \$13,350/ac

Agricultural: 120 acres @ \$14,300/ac

## Roadway Length

Station 10+00 to Station 605+00 => 59,500 lf

## Reduced Land Area

$(59,500 \text{ lf} \times 12 \text{ ft}) / (43,560 \text{ sf} / \text{ac}) = 16.39 \text{ acres}$

Commercial:  $(31/285) \times (16.39 \text{ ac}) \times (\$54,800/\text{ac}) \Rightarrow \$ 97,695$

Residential:  $(134/285) \times (16.39 \text{ ac}) \times (\$13,350/\text{ac}) \Rightarrow \$ 102,870$

Agricultural:  $(120/285) \times (16.39 \text{ ac}) \times (\$14,300/\text{ac}) \Rightarrow \$ 98,685$

Total= \$ 299,250

Net Cost	= \$ 299,250
Scheduling	55% => \$ 164,590
Administrative	60% => \$ 179,550
Inflation	40% => \$ 119,700
Total	= \$ 763,090

ALTERNATIVE COST: \$14,741,400 - \$763,090 = \$13,978,310

## Earthwork-

Assume a 2' average depth and 20% borrow(based on the preliminary estimate)

Unclassified excavation-  $(2 \text{ ft} \times 59,500 \text{ lf} \times 12 \text{ ft}) / (27 \text{ cf} / \text{cy}) \Rightarrow 52,900 \text{ cy}$

ALTERNATIVE TOTAL: 1,000,000 cy - 52,900 cy = 947,100 cy

Borrow- .20 x 59,200 cy => 11,840 cy

ALTERNATIVE TOTAL: 200,000 cy - 11,840 cy = 188,160 cy



# Value Analysis Design Alternative



**PROJECT: Georgia Department of Transportation  
STP-002 -4 (26) – P.I. No. 231620  
Widening of SR 44 – Jones/Putnam Counties**

ALTERNATIVE NO.:

**RD-20**

**DESCRIPTION: Shift alignment east Station 240+00 to Station 265+00 to  
reduce right of way impacts**

SHEET NO.: 1 of 4

**Original Design:**

The Original Design proposes acquiring property off of both side of the existing right of way while completely rebuilding the existing roadway.

**Alternative:**

The Alternative design would propose acquiring all the right of way off the east side of the existing right of way.

**Opportunities:**

- Reduce the number of acquisitions
- Reduce the number of displacements

**Risks:**

- Moderate design effort

**Technical Discussion:**

By acquiring all of the right of way off the east side of the existing corridor you can reduce the displacements from 4 to 1 and reduce the number of parcel acquisitions from 13 to 6.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 1,677,000	\$	\$ 1,677,000
ALTERNATIVE	\$ 0	\$	\$ 0
SAVINGS	\$ 1,677,000	\$	\$ 1,677,000

# Illustrations



PROJECT: **Georgia Department of Transportation  
STP-002 -4 (26) - P.I. No. 231620  
Widening of SR 44 - Jones/Putnam Counties**

ALTERNATIVE NO.:

**RD-20**

DESCRIPTION: **Shift alignment east Station 240+00 to Station 265+00 to  
reduce right of way impacts**

SHEET NO.: 2 of 4



Sta. 240+00 to Sta. 265+00

# Calculations



PROJECT: **Georgia Department of Transportation  
STP-002 -4 (26) – P.I. No. 231620  
Widening of SR 44 – Jones/Putnam Counties**

ALTERNATIVE NO.:

**RD-20**

DESCRIPTION: **Shift alignment east Station 240+00 to Station 265+00 to  
reduce right of way impacts**

SHEET NO.:

3 of 4

## Roadway Length:

Station 240+00 to Station 265+00 => 2,500 lf

## Right of Way:

Assume all of the land area remains the same and the resulting savings is the acquisition cost for the 7 parcels acquisitions, 3 additional relocations and 3 additional structures

(7 parcels x \$15,000 each)	=	\$105,000
(3 relocations x \$40,000 each)	=	\$120,000
(3 structures x \$ 50,000 each)	=	<u>\$150,000</u>
Total		\$375,000



# Value Analysis Design Alternative



PROJECT: **Georgia Department of Transportation**  
**STP-002 -4 (26) - P.I. No. 231620**  
**Widening of SR 44 - Jones/Putnam Counties**

ALTERNATIVE NO.:  
**RD-21**

DESCRIPTION: **Bifurcate roadway to reduce earthwork**

SHEET NO.: 1 of 4

**Original Design:**

The original design provides for both roadways to have a common profile grade line.

**Alternative:**

The alternative design proposes bifurcating the vertical alignment of the roadway and increase the sideslopes of the median to reduce the amount of borrow required to construct the roadway

**Opportunities:**

- Reduce the required earthwork/borrow.

**Risks:**

- Moderate increase in design effort.
- Reduce median ditch capacity

**Technical Discussion:**

A minor bifurcation (~1 foot) in conjunction with steeper side slopes in the median will allow you to reduce the required fill material. Minor bifurcations should not substantially affect the safety or operation of the roadway.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 466,084	\$	\$ 466,084
ALTERNATIVE	\$ 0	\$	\$ 0
SAVINGS	\$ 466,084	\$	\$ 466,084

# Illustrations

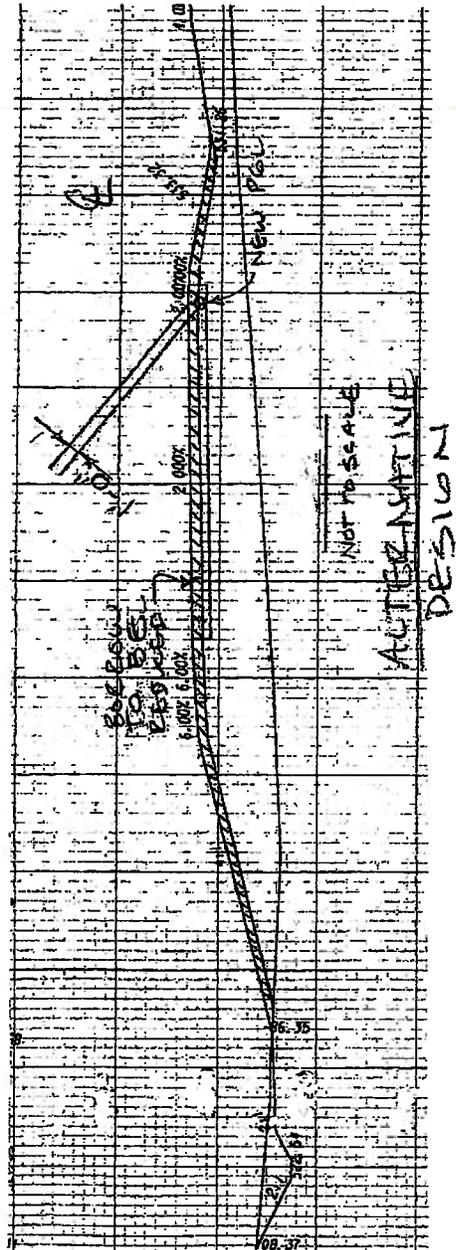


PROJECT: Georgia Department of Transportation  
STP-002 -4 (26) - P.I. No. 231620  
Widening of SR 44 - Jones/Putnam Counties

ALTERNATIVE NO.:  
**RD-21**

DESCRIPTION: **Bifurcate roadway to reduce earthwork**

SHEET NO.: 2 of 4



Station Varies

# Calculations



PROJECT: **Georgia Department of Transportation**  
**STP-002 -4 (26) - P.I. No. 231620**  
**Widening of SR 44 - Jones/Putnam Counties**

ALTERNATIVE NO.:

**RD-21**

DESCRIPTION: **Bifurcate roadway to reduce earthwork**

SHEET NO.: 3 of 4

## Roadway Length

Station 10+00 to Station 605+00 => 59,500 lf

## ASSUMPTIONS:

- Bifurcation of 1 foot
- Half of the roadway back bone -average of 75 feet in width (1 side)
- Bifurcation on 50% of the roadway

## REDUCED EMBANKMENT/BORROW:

$(1' \times 75') \times (0.50 \times 59,500 \text{ lf}) / (27 \text{ cf/cy}) \Rightarrow 82,639 \text{ cy}$



# Value Analysis Design Alternative



PROJECT:	<b>Georgia Department of Transportation STP-002 -4 (26) – P.I. No. 231620 Widening of SR 44 – Jones/Putnam Counties</b>	ALTERNATIVE NO.:	<b>RD-22</b>
DESCRIPTION:	<b>Increase use of existing R/W</b>	SHEET NO.:	<b>1 of 5</b>

**Original Design:**

The Original Design proposes constructing a 4-lane roadway on a new alignment.

**Alternative:**

This alternative is proposed to show the overall benefit of implementing a number of smaller changes into one overall change. Because, if the individual proposed changes were evaluated individually, they may not appear to be worth doing by themselves, whereas if one evaluates all of them as one change, then it appears reasonable that the whole may be worthwhile. This Alternative Design proposes constructing the 4 new lanes without significantly relocating the roadway alignment so as to utilize more of the existing right of way. This alternative includes represents the recommendations of Alternatives RD-3, RD-8, RD-10 and RD-20.

**Opportunities:**

- Reduce right of way cost
- Reduce project construction time
- Reduce project permitting time

**Risks:**

- Moderate re-design effort
- May delay project

**Technical Discussion:**

The original concept for the project called for the intermediate widening of the existing two lane roadway to provide 4 lanes passing zones. Subsequently the project concept was upgraded to provide a new four lane facility. The original concept was concerned with many areas of steep grades or blind turns and accordingly was designed to eliminate those conditions by relocating the roadway alignment to eliminate those conditions. However, it appears that this logical design for improving the two lane system while keeping the two lane facility, was carried forward to the new four lane facility. It appears that the current roadway alignment could be utilized as its deficiencies would be negated by a total four lane facility.

The cost savings below summarize the savings of RD-3, RD-8, RD-10, and RD-20.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ see 3,8,10,& 20	\$	\$ see 3,8,10,& 20
ALTERNATIVE	\$ see 3,8,10,& 20	\$	\$ see 3,8,10,& 20
SAVINGS	\$ 2,519,668	\$	\$ 2,519,668

# Illustrations



PROJECT: **Georgia Department of Transportation  
STP-002 -4 (26) - P.I. No. 231620  
Widening of SR 44 - Jones/Putnam Counties**

ALTERNATIVE NO.:

**RD-22**

DESCRIPTION: **INCREASE USE OF EXISTING R/W**

SHEET NO.:

2 of 5



Beginning Sta. 10+00 to Sta. 85+00



Cedar Creek - Sta. 115+00 to Sta. 155+00

# Illustrations



PROJECT: **Georgia Department of Transportation  
STP-002 -4 (26) - P.L. No. 231620  
Widening of SR 44 - Jones/Putnam Counties**

ALTERNATIVE NO.:

**RD-22**

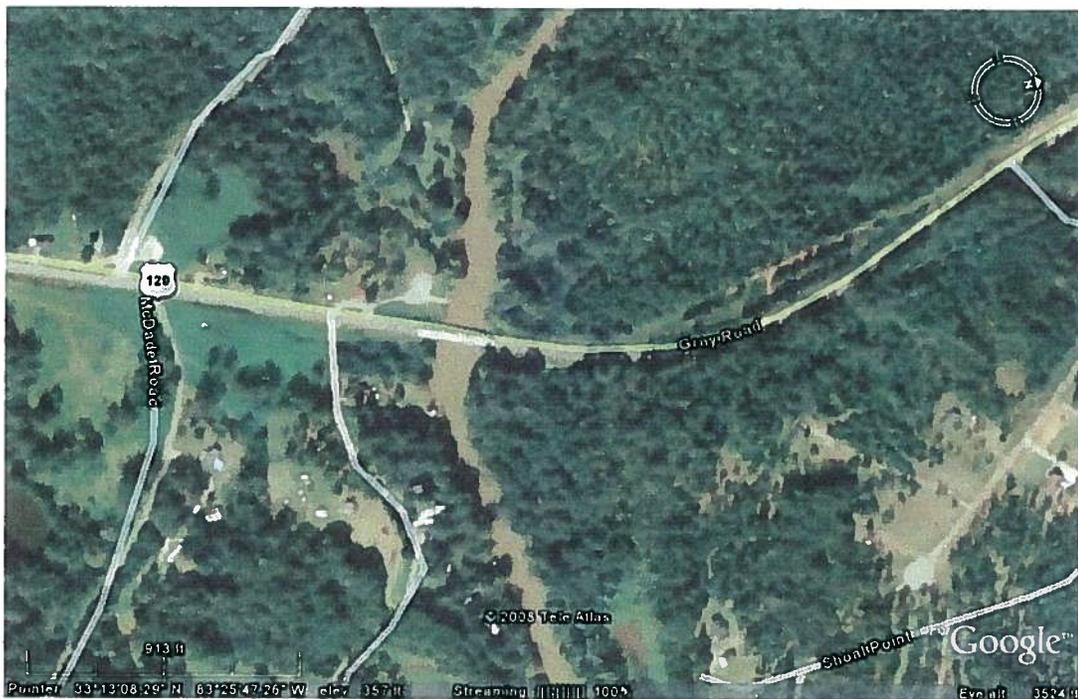
DESCRIPTION: **INCREASE USE OF EXISTING R/W**

SHEET NO.:

3 of 5



Pierce Chapel Sta. 210+00 to Sta. 245+00



Murder Creek - Sta. 145+00 to Sta. 285+00



# Illustrations



PROJECT: **Georgia Department of Transportation  
STP-002 -4 (26) – P.I. No. 231620  
Widening of SR 44 – Jones/Putnam Counties**

ALTERNATIVE NO.:

**RD-22**

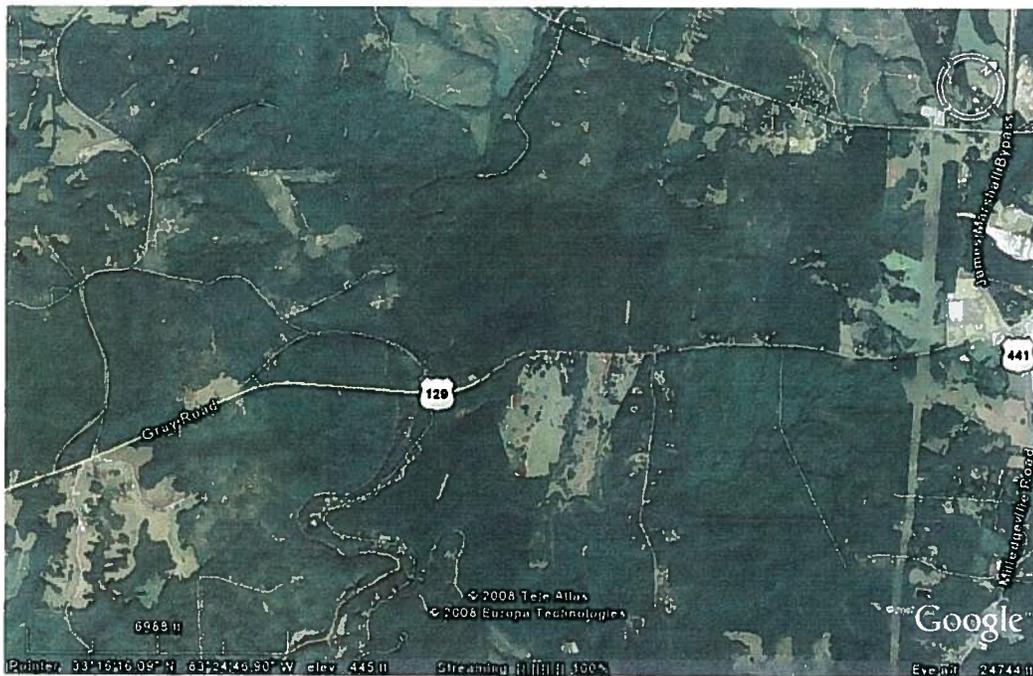
DESCRIPTION: **INCREASE USE OF EXISTING R/W**

SHEET NO.:

5 of 5



Eatonton Sta. 500+00 to Sta. 585+00



Eatonton Sta. 500+00 to Sta. 585+00

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## ***Project Description***

## **PROJECT DESCRIPTION**

Project STP-002-4(26) consists of the widening of SR 44 located in Jones/Putnam Counties. This will include widening SR 44 from the existing 2 lanes to a 4 lane facility with a 44' depressed median. The project begins on the southern end of Mathis Road in Jones County. The project extends on the northern end to US 441 just south of Eatonton in Putnam County. The total project length is 10.73 miles. Existing vertical and horizontal alignments will be revised. Three bridges over Cedar Creek, Murder Creek, and Little River are within design limits of the project and will be replaced.

The purpose of this project is to adequately accommodate future capacity needs on SR 44 in Jones and Putnam Counties. Proposed widening would improve the design and operational mobility at the SR 212/SR 44 intersection (turn lanes; signals; and other upgrades will be added as appropriate). This project will also improve the vertical and horizontal geometry to meet current GDOT design criteria.

Project STP-002-4(26) the estimated construction cost is \$61,447,394. The preliminary R/W acquisition cost is \$14,741,400.

This project does have some environmental concerns that may affect the widening of SR 44 throughout Jones/Putnam Counties. There are 12 property displacements that have been proposed with the project. In addition, there are cemeteries and proposed historical sites located within the project area as well. Specific pond, stream, and wetland locations will need to be identified and analyzed further to determine future impacts on the project. Additionally, future commercial development and current high volume traffic areas within the project area must be considered when determining cost factors.

## **REPRESENTATIVE DOCUMENTS**

- Project Concept Report
- Construction Cost Estimates
- Right of Way Cost Estimates
- Typical Sections
- Construction Drawings
- Traffic Analysis

The VE Team utilized the supplied project materials noted above and the current GDOT standard drawings, details and specifications.

Representative documents follow:

D.O.T. 66

DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE STP-002-4(26) Putnam County OFFICE Preconstruction  
P. I. No. 231620

DATE April 8, 2004

FROM  Margaret B. Pirkle, P.E., Assistant Director of Preconstruction

TO <sup>for</sup> SEE DISTRIBUTION

SUBJECT REVISED PROJECT CONCEPT REPORT APPROVAL

Attached for your files is the approval for subject project.

MBP/cj

Attachment

DISTRIBUTION:

David Mulling  
Harvey Keepler  
Jerry Hobbs  
Percy Middlebrooks  
Michael Henry  
Phillip Allen  
Joe Palladi (file copy)  
Brent Story  
Mike Thomas  
BOARD MEMBER

DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FEB 11 2004  
DATE February 10, 2004

**FROM** *GMB*  
George M. Brewer, District Design Engineer

**TO** Margaret B. Pirkle, P.E., Assistant Director of Preconstruction

**SUBJECT** STP-002-4(26) Putnam PI No. 231620  
Revised Project Concept Report

Attached is the original copy of the Revised Concept Report for your further handling for approval in accordance with the Plan Development Process (PDP).

The above mentioned project consists of the construction of four passing lanes and a turn lane on SR 44 between Eatonton and Gray.

The project is now revised to widen SR 44 to a 4 lane facility with a 44' depressed median from Mathis Road in Jones County to US 441 in Putnam County. This revision is in accordance with recommendations from the Planning Office.

The revised concept as presented herein and submitted for approval is consistent with that which is included in the Regional Transportation Improvement Program (RTP) and/or the State Transportation Improvement Program (STIP).

DATE 3/29/04

*James H. Pirkle*  
State Transportation Planning Administrator

*Distribution:*

David Mulling  
Harvey Keepler  
Phillip Allen  
Joe Palladi  
Percy Middlebrooks

MAR 30 2004

# REVISED PROJECT CONCEPT REPORT

**Need and Purpose:** *See attached sheets.*

**Project location:** *The project is located on SR 44/US 129 in Putnam County between Eatonton and Gray and beginning at MP 0.1 just north of the Jones County/Putnam County line and ending at MP 5.5 just south of Little River. The total length of the project is 5.4 miles.*

**Description of the approved concept:** *The original concept proposed to construct four passing lanes between MP 0.1 and MP 5.5 and a turn lane at the intersection of SR 212 and SR 44. The original project length was 5.4 miles.*

**PDP Classification:**

Full Oversight ( ), Exempt(X), SF( ), Other ( )

**Functional Classification:** *Rural Minor Arterial*

**U. S. Route Number(s):** 129

**State Route Number(s):** 44

**Traffic (AADT) as shown in the approved concept:**

Current Year: 7,000 (2000)

Design Year: 10,500 (2020)

**Proposed features to be revised:** *The project is revised to widen SR 44 from the existing 2 lanes to a 4 lane facility with a 44' depressed median. The project limits will be extended for logical termini beginning on the southern end at Mathis Road (MP 12.90) in Jones County which is the northern termini of Project No. STP-0001-00(040) and extending on the northern end to US 441 (MP 9.04) just south of Eatonton in Putnam County. The total project length is 10.73 miles. The existing vertical and horizontal alignments will be corrected to meet current design criteria. The bridges over Cedar Creek, Murder Creek, and Little River are within the limits of the project will be replaced.*

**Programmed/Schedule:**

P.E.: Authorized

R/W: FY 2003

Construction: FY 2006

**Revised cost estimates:**

1. Construction cost including inflation and E&C: \$44,828,000
2. Right-of-way: \$6,240,920
3. Utilities: \$1,961,400

Is the project located in a Non-attainment area? Yes  No

**Recommendation:** *The District recommends that the proposed revision to the concept be approved for implementation.*

Attachments:

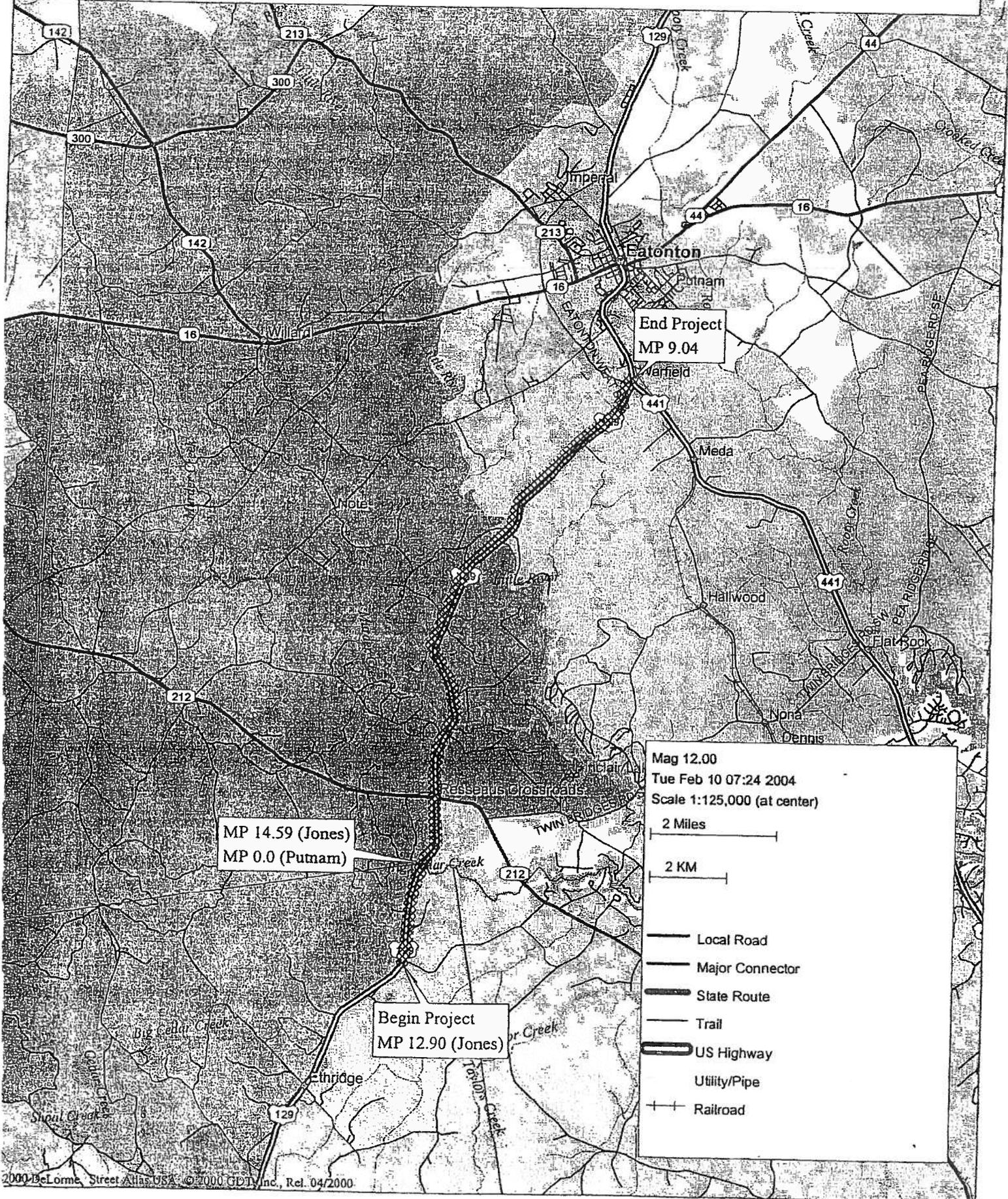
1. Sketch Map,
2. Cost Estimate.
3. Recommendation letter from Planning

• Exempt projects

Concur: Thomas R. Durbin  
Director of Preconstruction

Approve: Paul W. White  
Chief Engineer

# STR-002-4(26) Putnam



Mag 12.00  
Tue Feb 10 07:24 2004  
Scale 1:125,000 (at center)

2 Miles  
2 KM

- Local Road
- Major Connector
- State Route
- Trail
- US Highway
- Utility/Pipe
- Railroad

## Estimate Report for file "PI 231620"

Section 1 - ROADWAY					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
150-1000	1	LUMP	300000.00	TRAFFIC CONTROL - STP-002-4(26)	300000.00
153-1300	1	EA	54000.00	FIELD ENGINEERS OFFICE TP 3	54000.00
201-1500	1	LUMP	2000000.00	CLEARING & GRUBBING - STP-002-4(26)	2000000.00
205-0001	1000000	CY	5.53	UNCLASS EXCAV	5530000.00
206-0002	200000	CY	5.64	BORROW EXCAV, INCL MATL	1128000.00
207-0203	1200	CY	64.77	FOUND BK FILL MATL, TP II	77724.00
310-1101	260000	TN	24.80	GR AGGR BASE CRS, INCL MATL	6448000.00
318-3000	1500	TN	25.89	AGGR SURF CRS	38835.00
402-1812	2570	TN	69.37	RECYCLED ASPH CONC LEVELING, INCL BITUM MATL & H LIME	178280.90
402-3121	94000	TN	72.00	RECYCLED ASPH CONC 25 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME	6768000.00
402-3130	36000	TN	83.28	RECYCLED ASPH CONC 12.5 MM SUPERPAVE, GP 2 ONLY, INCL BITUM MATL & H LIME	2998080.00
402-3190	48000	TN	74.96	RECYCLED ASPH CONC 19 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME	3598080.00
413-1000	85000	GL	2.60	BITUM TACK COAT	221000.00
433-1200	1700	SY	177.63	REINF CONC APPROACH SLAB, INCL SLOPED EDGE	301971.00
436-1000	7000	LF	10.10	ASPHALTIC CONCRETE CURB - 4 IN	70700.00
441-0204	1500	SY	41.88	PLAIN CONC DITCH PAVING, 4 IN	62820.00
441-0301	12	EA	2248.99	CONC SPILLWAY, TP 1	26987.88
446-1100	40000	LF	8.24	PVMT REINF FABRIC STRIPS, TP 2, 18 INCH WIDTH	329600.00
456-2012	20	GLM	2022.06	INDENTATION RUMBLE STRIPS, GROUND IN PLACE (CONTINUOUS)	40441.20
500-3101	1500	CY	693.90	CLASS A CONCRETE	1040850.00
500-3200	32	CY	581.37	CLASS B CONCRETE	18603.84
500-3800	110	CY	1080.01	CLASS A CONCRETE, INCL REINF STEEL	118801.10
511-1000	113993	LB	0.99	BAR REINF STEEL	112853.07
550-1180	7511	LF	50.30	STORM DRAIN PIPE, 18 IN, H 1-10	377803.30
550-1240	933	LF	61.02	STORM DRAIN PIPE, 24 IN, H 1-10	56931.66
550-1360	304	LF	89.90	STORM DRAIN PIPE, 36 IN, H 1-10	27329.60
550-2150	1114	LF	42.00	SIDE DRAIN PIPE, 15 IN, H 1-10	46788.00
550-2180	680	LF	33.30	SIDE DRAIN PIPE, 18 IN, H 1-10	22644.00
550-2240	222	LF	35.62	SIDE DRAIN PIPE, 24 IN, H 1-10	7907.64
550-3318	8	EA	702.33	SAFETY END SECTION 18 IN, STORM DRAIN, 4:1 SLOPE	5618.64
550-3324	2	EA	1107.56	SAFETY END SECTION 24 IN, STORM DRAIN, 4:1 SLOPE	2215.12
550-3615	62	EA	598.00	SAFETY END SECTION 15 IN, SIDE DRAIN, 6:1 SLOPE	37076.00
550-3618	40	EA	712.60	SAFETY END SECTION 18 IN, SIDE DRAIN, 6:1 SLOPE	28504.00
550-3624	8	EA	1066.75	SAFETY END SECTION 24 IN, SIDE DRAIN, 6:1 SLOPE	8534.00
550-4218	21	EA	674.86	FLARED END SECTION 18 IN, STORM DRAIN	14172.06
550-4224	3	EA	834.79	FLARED END SECTION 24 IN, STORM DRAIN	2504.37
573-2006	9400	LF	18.25	UNDDR PIPE INCL DRAINAGE AGGR, 6 IN	171550.00
576-1015	400	LF	36.01	SLOPE DRAIN PIPE, 15 IN	14404.00
603-2181	1690	SY	54.71	STN DUMPED RIP RAP, TP 3, 18 IN	92459.90
603-6008	15	SY	93.33	SAND-CEMENT BAG RIP RAP, 8 IN	1399.95
603-7000	1690	SY	4.83	PLASTIC FILTER FABRIC	8162.70
610-9099	1	LUMP	4989.90	REM WINGALLS & PARAPETS	4989.90
610-9099	1	LUMP	4989.90	REM WINGALLS & PARAPETS	4989.90
610-9230	1	LUMP	4500.00	REM CLVT, CONCRETE	4500.00
610-9230	1	LUMP	4500.00	REM CLVT, CONCRETE	4500.00
610-9230	1	LUMP	4500.00	REM CLVT, CONCRETE	4500.00
610-9230	1	LUMP	4500.00	REM CLVT, CONCRETE	4500.00
622-1033	3000	Unavailable	25.00	PRECAST CONCRETE MEDIAN BARRIER, METHOD 3	75000.00
634-1200	170	EA	115.04	RIGHT OF WAY MARKER	19556.80
636-5030	24	EA	53.29	DELINEATOR, TP 3	1278.96
641-1100	500	LF	60.41	GUARDRAIL, TP T	30205.00

641-1200	8000	LF	18.61	GUARDRAIL, TP W	148880.00
641-5001	12	EA	700.92	GUARDRAIL ANCHORAGE, TP 1	8411.04
641-5012	24	EA	1881.82	GUARDRAIL ANCHORAGE, TP 12	45163.68
654-1001	60	EA	4.47	RAISED PVMT MARKERS TP 1	268.20
654-1003	836	EA	4.69	RAISED PVMT MARKERS TP 3	3920.84
654-1010	25	EA	39.47	RAISED PVMT MARKERS TP 10	986.75
668-2100	76	EA	2666.50	DROP INLET, GP 1	202654.00
668-2110	6	LF	311.96	DROP INLET, GP 1, ADDL DEPTH	1893.60
668-5000	1	EA	2562.26	JUNCTION BOX	2562.26
668-8011	823	SF	43.66	SAFETY GRATE, TP 1	35932.18
668-8013	93	SF	52.19	SAFETY GRATE, TP 3	4853.67
<b>Section Sub Total:</b>					<b>\$32,999,179.71</b>

**Section 2 - EROSION CONTROL**

Item Number	Quantity	Units	Unit Price	Item Description	Cost
163-0240	2000	TN	266.50	MULCH	533000.00
700-6910	200	AC	1230.03	PERMANENT GRASSING	246006.00
700-7000	400	TN	70.32	AGRICULTURE LIME	28128.00
700-7010	700	GL	23.76	LIQUID LIME	16632.00
700-8000	450	TN	379.39	FERTILIZER MIXED GRADE	170725.50
700-8100	400000	LB	3.30	FERTILIZER NITROGEN CONTENT	1320000.00
710-9000	7000	SY	4.60	PERMANENT SOIL REINFORCING MAT	32200.00
<b>Section Sub Total:</b>					<b>\$2,346,691.50</b>

**Section 3 - TEMPORARY EROSION CONTROL**

Item Number	Quantity	Units	Unit Price	Item Description	Cost
163-0232	200	AC	676.15	TEMPORARY GRASSING	135230.00
163-0240	5000	TN	266.50	MULCH	1332500.00
163-0300	26	EA	1845.31	CONSTRUCTION EXIT	47978.06
163-0520	2500	6	18.29	CONSTRUCT AND REMOVE TEMPORARY PIPE SLOPE DRAIN	45725.00
163-0521	610	EA	247.41	CONSTRUCT AND REMOVE TEMPORARY DITCH CHECKS	150920.10
163-0530	1400	LF	4.49	CONST. AND REMOVE BALED STRAW EROS. CHECK	6286.00
163-0550	10	EA	296.52	CONST. AND REMOVE INLET SEDIMENT TRAP	2965.20
165-0010	1500	LF	1.25	MAINTENANCE OF TEMP SILT FENCE, TP A	1875.00
165-0030	6540	LF	1.58	MAINTENANCE OF TEMP SILT FENCE, TP C	10333.20
165-0040	255	EA	88.24	MAINTENANCE OF EROSION CONTROL CHECKDAMS/DITCH CHECKS	22501.20
165-0050	400	LF	2.38	MAINTENANCE OF SILT RETENTION BARRIER	952.00
165-0070	1400	LF	1.99	MAINTENANCE OF BALED STRAW EROSION CHECK	2786.00
165-0101	52	EA	717.28	MAINTENANCE OF CONSTRUCTION EXIT	37298.56
165-0105	76	EA	116.60	MAINTENANCE OF INLET SEDIMENT TRAP	8861.60
167-1000	2	EA	1181.84	WATER QUALITY MONITORING AND SAMPLING	2363.68
167-1500	24	MO	981.43	WATER QUALITY INSPECTIONS	23554.32
170-1000	400	LF	13.51	FLOATING SILT RETENTION BARRIER	5404.00
171-0010	3000	LF	2.84	TEMPORARY SILT FENCE, TYPE A	8520.00
171-0030	13080	LF	4.06	TEMPORARY SILT FENCE, TYPE C	53104.80
700-8000	24	TN	379.39	FERTILIZER MIXED GRADE	9105.36
715-2200	46000	SY	2.10	BITUMINOUS TREATED ROVING, WATERWAYS	96600.00
716-2000	21800	SY	1.55	EROSION CONTROL MATS, SLOPES	33790.00
<b>Section Sub Total:</b>					<b>\$2,038,654.08</b>

**Section 4 - TRAFFIC SIGNS AND MARKINGS**

Item Number	Quantity	Units	Unit Price	Item Description	Cost
636-1020	553	SF	20.19	HIGHWAY SIGNS, TP 1 MATL, REFL SHEETING TP 3	11165.07
636-1029	96	SF	17.79	HIGHWAY SIGNS, TP 2 MATL, REFL SHEETING TP 3	1707.84
636-1031	183	Unavailable	25.00	HIGHWAY SIGNS, TP 1 MATL, REFL SHEETING TP 6	4575.00
636-2070	1144	LF	9.22	GALV STEEL POSTS, TP 7	10547.68

636-2080	253	LF	11.11	GALV STEEL POSTS, TP 8	2810.83
636-2090	318	LF	10.06	GALV STEEL POSTS, TP 9	3199.08
636-3010	14	EA	602.38	GROUND MOUNTED BREAKAWAY SIGN SUPPORT	8433.32
653-0120	62	EA	81.63	THERMOPLASTIC PVMT MARKING, ARROW, TP 2	5061.06
653-0170	33	EA	88.86	THERMOPLASTIC PVMT MARKING, ARROW, TP 7	2932.38
653-0210	4	EA	125.93	THERMOPLASTIC PVMT MARKING, WORD, TP 1	503.72
653-1501	75700	LF	0.83	THERMOPLASTIC SOLID TRAF STRIPE, 5 IN, WHITE	62831.00
653-1502	72340	LF	0.67	THERMOPLASTIC SOLID TRAF STRIPE, 5 IN, YELLOW	48467.80
653-1704	160	LF	5.21	THERMOPLASTIC SOLID TRAF STRIPE, 24 IN, WHITE	833.60
653-3501	66505	GLF	0.55	THERMOPLASTIC SKIP TRAF STRIPE, 5 IN, WHITE	36577.75
653-6004	12953	SY	3.68	THERMOPLASTIC TRAF STRIPING, WHITE	47667.04
653-6006	3980	SY	3.54	THERMOPLASTIC TRAF STRIPING, YELLOW	14089.20
<b>Section Sub Total:</b>					<b>\$261,402.37</b>

<b>Section 5 - FENCING</b>					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
610-0301	1	EA	196.13	REM GATE - 262+81 LT.	196.13
610-0301	1	EA	196.13	REM GATE - 344+50 LT.	196.13
611-4996	1	EA	479.75	RESET GATE - 262+81 LT.	479.75
611-4996	1	EA	479.75	RESET GATE - 344+50 LT.	479.75
643-0010	6048	LF	5.25	FIELD FENCE WOVEN WIRE	31752.00
<b>Section Sub Total:</b>					<b>\$33,103.76</b>

<b>Section 6 - BRIDGE NO. 1 LT &amp; RT(CEDAR CREEK)</b>					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
543-1100	1	LS	1275000.00	CONSTR OF BRIDGE - COMPLETE	1275000.00
603-2024	700	SY	53.51	STN DUMPED RIP RAP, TP 1, 24 IN	37457.00
603-7000	700	SY	4.83	PLASTIC FILTER FABRIC	3381.00
<b>Section Sub Total:</b>					<b>\$1,315,838.00</b>

<b>Section 7 - BRIDGE NO. 2 LT &amp; RT(MURDER CREEK)</b>					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
543-1100	1	LS	1250000.00	CONSTR OF BRIDGE - COMPLETE	1250000.00
603-2024	742	SY	53.51	STN DUMPED RIP RAP, TP 1, 24 IN	39704.42
603-7000	742	SY	4.83	PLASTIC FILTER FABRIC	3583.86
<b>Section Sub Total:</b>					<b>\$1,293,288.28</b>

<b>Section 8 - BRIDGE NO. 3 LT &amp; RT(LITTLE RIVER)</b>					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
543-1100	1	LS	1350000.00	CONSTR OF BRIDGE - COMPLETE	1350000.00
603-2024	795	SY	53.51	STN DUMPED RIP RAP, TP 2, 24 IN	42540.45
603-7000	795	SY	4.83	PLASTIC FILTER FABRIC	3839.85
<b>Section Sub Total:</b>					<b>\$1,396,380.30</b>

**Total Estimated Cost: \$41,684,538.00**

**Subtotal Construction Cost \$41,684,538.00**

E&C Rate 10.0 % \$4,168,453.80

Inflation Rate 5.0 % @ 6.0 Years \$15,594,402.62

<b>Total Construction Cost</b>	<b>\$61,447,394.42</b>
Right Of Way	\$14,741,400.00
ReImb. Utilities	\$0.00
	<hr/>
<b>Grand Total Project Cost</b>	<b>\$76,188,794.42</b>

# Preliminary Right of Way Cost Estimate

Date: 6/1/07

Project: STP-002-4(26) Jones/Putnam Counties

Existing/Required R/W: Varies/Varies

Project Termini: SR 44 from US 441 South to Stallings Road

Project Description: SR 44 Widening improvement

Land:

P.I. Number: 231620

No. Parcels:

Commercial	31ac. @ \$54,800/ac.	= \$1,698,800.00	
Residential	134ac. @ \$13,350/ac..	= \$ 1,072,000.00	
Agricultural	120ac. @ \$14,300/ac.	= \$1,716,000.00	
<b>TOTAL</b>			<b>\$4,486,800.00</b>

Improvements: Total: \$400,000.00

Relocation:

Commercial 2 @ \$25,000/parcel	=	\$50,000
Residential 10 @ \$40,000/parcel	=	\$400,000

**TOTAL** **\$850,000.00**

Damages:

Proximity - 25% of \$400,000	\$100,000
Consequential - \$200,000	\$ 80,000
Cost to Cure - 75,000	\$ 75,000

**TOTAL** **\$375,000**

**SUB-TOTAL:** **\$5,711,800.00**

Net Cost		\$5,711,800.00
Scheduling Contingency	55 %	\$3,141,490.50
Adm/Court Cost	60 %	\$5,311,974.00
Market Appreciation	40 %	\$5,666,105.60

**TOTAL** **\$14,731,370.10**

**Total Cost** **\$14,741,400.00**

Prepared By: Cheryl H. Brewer

Approved: \_\_\_\_\_  
Howard P. Copeland  
R/W Administrator

REVISED: 12-8-06

# Jones & Putnam County Land Sales

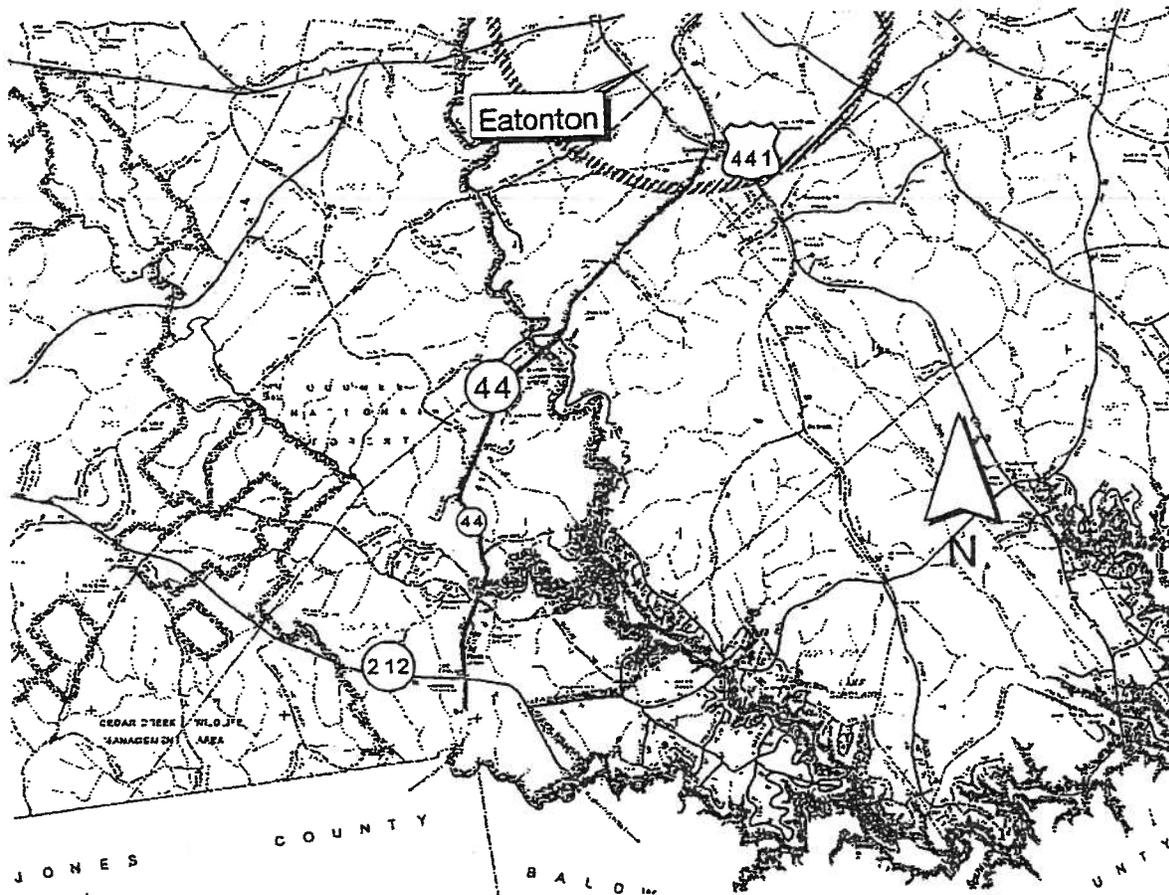
<u>Highest &amp; Best Use</u>	<u>Size (acres)</u>	<u>Value/ac</u>	<u>Sales price</u>
Small Tract Residential	0.510	\$ 15,490	\$ 7,900
	4.57	\$ 13,350	\$ 61,000*
	7.06	\$ 8,085	\$ 57,086
Agricultural / Residential	25.00	\$ 5,100	\$ 127,551
	36.93	\$ 5,400	\$ 200,000
	44.91	\$ 5,900	\$ 265,700
Agricultural	149.90	\$ 14,350	\$ 2,151,660
	201.20	\$ 6,500	\$ 1,307,500
	749.45	\$ 5,070	\$ 3,801,800
Commercial	1.12	\$ 59,100	\$ 66,200
	5.29	\$ 54,800	\$ 290,000
	15.28	\$ 49,100	\$ 750,000

PROJECT #	COUNTY	UTILITY COST ESTIMATE	P.I. NUMBER	LAYOUT DATE
STP-002-4 (26)	Pulnam	Four Passing Lanes on SR 44 west of Eatonton	231620	1/30/04
REIMBURSABLE QUANTITY	NON-REIMBURSABLE QUANTITY	ITEM DESCRIPTION	REIMBURSABLE COST	
85	0	TRI-COUNTY EMC Relocate Distribution Power Poles	\$212,500.00	\$0.00
			\$0.00	\$0.00
			\$0.00	\$0.00
			\$0.00	\$0.00
		Tri-County EMC also has facilities located within the existing Right of Way on portions of the project limits.	\$0.00	\$0.00
			\$0.00	\$0.00
			\$0.00	\$0.00
		WATER	\$212,500.00	\$0.00
		NONE		
		There are no water facilities located within the project limits.	\$0.00	\$0.00
		SEWER	\$0.00	\$0.00
		NONE		
		There are no sewer facilities located within the project limits.	\$0.00	\$0.00
		TELEPHONE	\$0.00	\$0.00
		BELLSOUTH		
21320	0	Relocate Aerial Facilities	\$138,580.00	\$0.00
2	0	Relocate Remote Terminal	\$250,000.00	
2	0	Telephone Booths	\$3,000.00	
			\$391,580.00	\$0.00
			\$0.00	\$0.00
			\$0.00	\$0.00
			\$0.00	\$0.00
			\$0.00	\$0.00
			\$0.00	\$0.00
			\$783,160.00	\$0.00



Need and Purpose Statement:  
SR 44 Four-Lane Widening:  
Extension to US 441 south of Eatonton  
PI No. 231620

SR 44 Widening: Putnam County



**Background**

The original project concept for STP-002-4(26) P.I. 231620 consisted of constructing 4 passing lanes in Putnam County between Eatonton and Gray, in four segments. It also included an intersection improvement for SR 44 and SR 212, where a traffic signal would be placed, due to a high number of accidents.

In December 2002, the District Office requested that the Office of Planning review the passing lanes project and determine if a 2-4 lane widening project were more appropriate. The Office of Planning reviewed the project and recommended that a widening be pursued instead of a passing lane project.

The proposed project's southern terminus is CR 104/Mathis Rd. in Jones County. The northern terminus is at the intersection of SR 44 and US 441 (Eatonton Bypass), south of Eatonton city limits [Note: Approximately 9.03 miles of the proposed project is located in Putnam County and approximately 1.59 miles is located in Jones County].

**Community Issues**

Putnam County is 345 square miles with a 2001 population estimate of 19,094 (compared to state population of 8.4 million). Census Tract 13237960300, the area directly south of Eatonton and west of US 129/SR 44, has a population of 4,386.

- White 83.8%
- Black 14.16%
- American Indian .32%
- Asian .43%
- Other .34%

Along Census Tract 13237960300, in 2000 there were 2,872 housing units resulting in a home ownership rate of 63.9%. The average travel time to work for residents was approximately 21 minutes compared to the state average in 2000 of 27.7 minutes.

CT 13237960300	% Minority	\$0-25K	\$25-50K	\$50-75K	\$75-100K	\$100K+
	15%	27%	30%	21%	10%	12%

Putnam County is ranked among the fastest growing counties in the state not only in population but for its employment rate as well. The Eatonton area has 2 industrial parks referred to as the North Park and the South Park; both are located on US 441. The South Park consists of businesses such as Horton Homes, Inc. (largest employer in the county) which employs 1,800 workers. Perky Cap Co. is another business in South Park. Near South Park on US 441, Georgia Power has an operation located on Lake Sinclair, which employs 484 workers. North Park consists of businesses as well, Hylite is one of those.

There is not an industrial presence along SR 44 traveling south from Eatonton, thus the area is mostly rural. However, SR 44 south serves as a major regional corridor for truck and freight movement traveling between Eatonton and Macon.

**Accident Data**

With the exception of 1995, the accident and injury rates for SR 44 are below the statewide average for similar facilities. However, in both 1995 and 1997 there were four fatalities reported, therefore the fatality rate for those years was higher than the state average. [In 1997, there was two separate accidents resulting in 3 fatalities)

Year	1995		1996		1997		2000		2001	
	SR 44	State								
Accidents	40		25		33		28		35	
Accident Rate	254	200	143	224	167	210	171		179	
Injuries	30		23		19		6		9	
Injury Rate	190	130	132	137	96	127	37		46	
Fatalities	4		0		3		0		0	
Fatality Rate	6.35	2.99	0	2.65	15.18	2.94	0		0	

\* State averages were not available for 1999 - 2001

From the SR44/US441 intersection to the Jones County line (0 to 9.03 miles), there were 97 accidents on SR 44 from 1995 to 1997. The majority (47 total) of these accidents was classified as "not a collision with a motor vehicle" and they were classified as the following:

- Overturns (9) or 19%
- Embankment (4) or 9%
- Tree (8) or 17%

- Other (11) or 23%
- Deer (11) or 23%
- Ditch (4) or 9%

Another significant portion of the 97 accidents was classified as 'Angle' which accounted for 32%. The rest of the accidents were 'rear end', accounting for 13%, "side-swipe" 4%, and "head-on" 3%.

At the intersection of SR 212/SR 44 (mile point 1.1) between 1995 thru 1997, there were 38 accidents recorded. Of those 38 accidents, 66% or 25 total were classified as 'Angle'; 'Head on' accounted for 3 total; 'Not a Collision with another vehicle' accounted for 5; and 'Rear End' accounted for 5 total.

The proposed widening would improve the design and operational mobility at the SR 212/SR 44 intersection (Turn lanes; signals; and other upgrades will be added as appropriate).

The injury and accident rates for SR 44 in Jones County (mile posts 13 – 14.59) are very low. However, 1995 was the only year the accident rate exceeded the state average. Most of the accidents (4 of the 5) were ones classified as "not a collision with a motor vehicle". These collisions involved hitting an animal or a tree.

**Jones County**

	1995		1996		1997		2000		2001	
	SR 44	State								
Accidents	4		1		0		3		5	
Accident Rate	253	200	57	224	0	210	68		118	
Injuries	1		0		0		1		1	
Injury Rate	63	130	0	137	0	127	23		24	
Fatalities	0		0		0		0		0	
Fatality Rate	0	2.99	0	2.65	0	2.94	0		0	

\* State averages were not available for 1999 - 2001

**Traffic Volume Data**

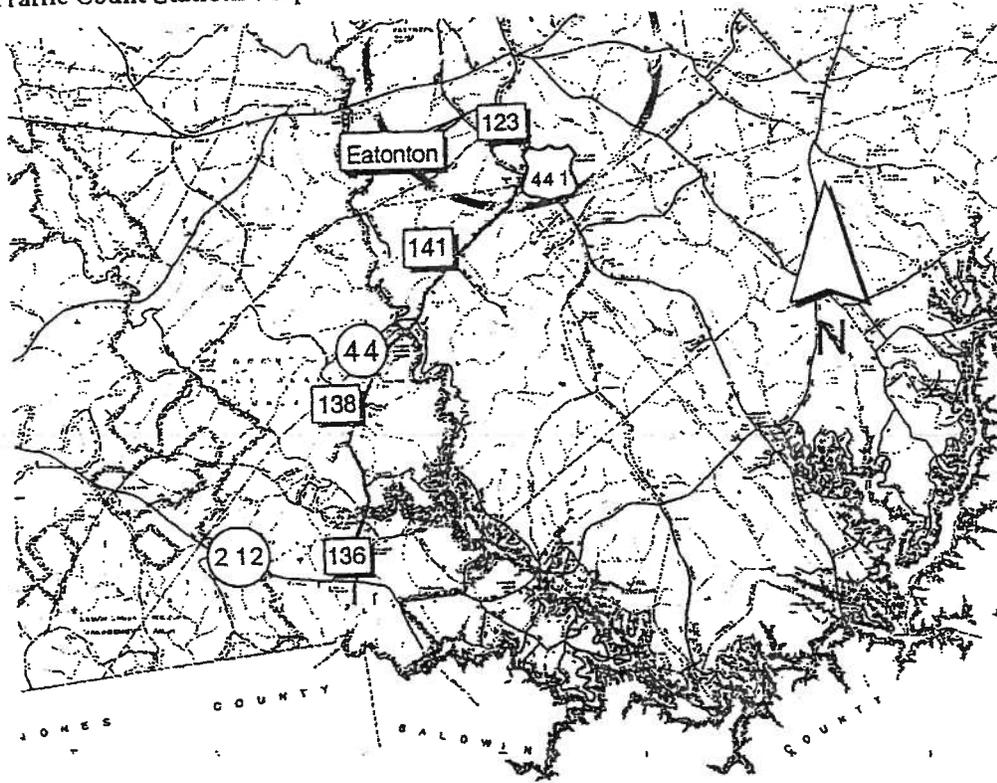
SR 44 is a north and south two lane facility classified as a Rural Minor Arterial. It has a posted speed limit of 55 mph. SR 44 is a major route into Eatonton. Travelers from Gray, Milledgeville, and or SR 212 are the principal users of SR 44.

2025 traffic volumes were projected by the Office of Planning. Future traffic volume projections are based on 4% annual growth, whereas from 1991 thru 2001 traffic grew at an average of 4% annually.

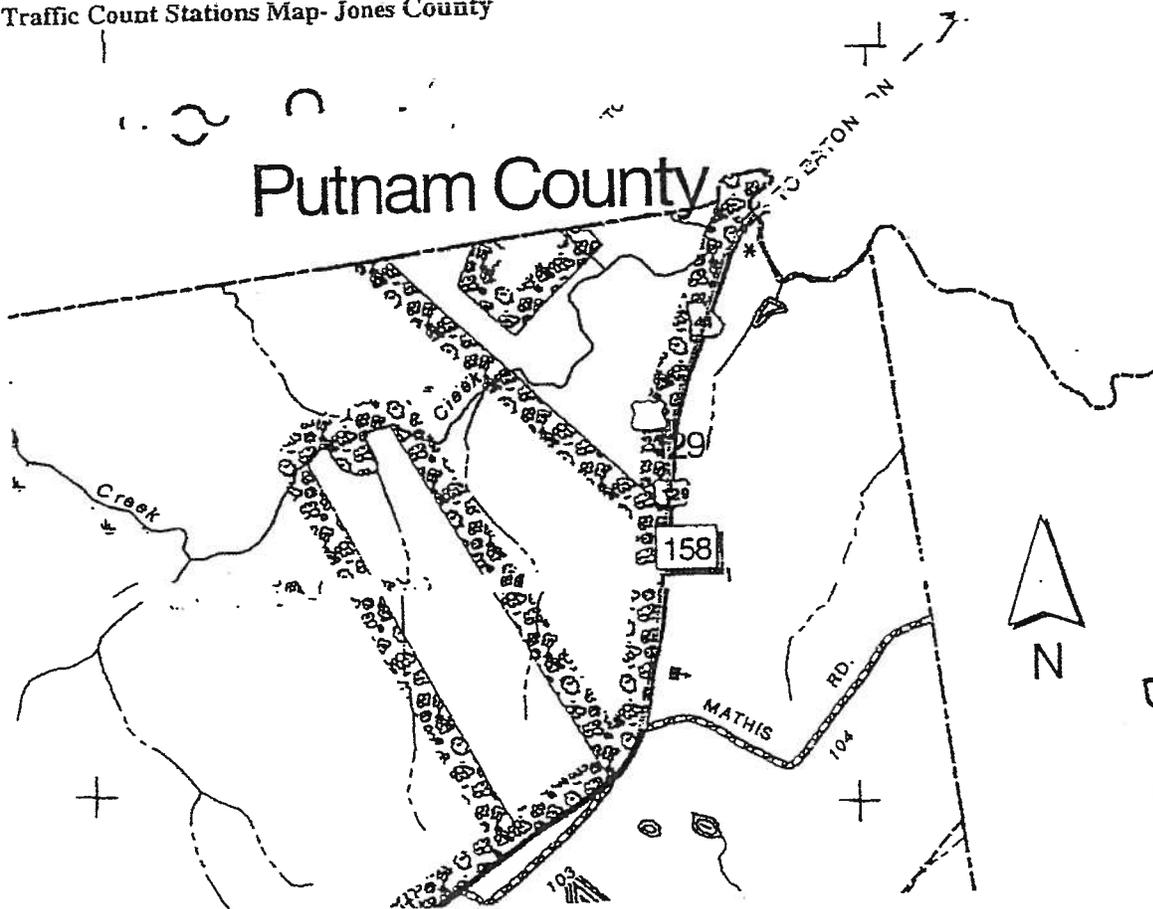
IC No.	IC Location Along SR 44	2001 AADT	Projected AADT (2025)
136	Putnam Co.- Between Jones County line and SR 212	5,900	15,660
138	Putnam Co.- North of Wcotan Rd. and south of River Oaks Rd.	5,830	15,475
141	Putnam Co.- Between River Oaks Rd and south of US 441 intersection	6,120	16,244
123	Putnam Co.- North of W. Bypass and south of SR 16/SR 24 intersection	9,630	25,561
158	Jones Co.- Between Fortville Rd and just north of Mathis Rd.	7,330	19,456

See traffic station location on pg. 5

Traffic Count Stations Map - Putnam County



Traffic Count Stations Map- Jones County



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# ***Value Engineering Process***

# ***VALUE ENGINEERING PROCESS***

## **Introduction**

This report summarizes the analysis and conclusions by the PBS&J Value Engineering team as they performed a VE Study during the period of Feb. 4 thru Feb. 7, 2008 in Atlanta, Georgia, for the Georgia Department of Transportation.

The Value Engineering Study team and its leadership were provided by PBS&J. This VE Team consisted of the following:

Les M. Thomas, P.E., CVS-Life	Certified Value Specialist
Luke Clarke, P.E., AVS	Highway Design Engineer
Dr. John Luh, AVS	Highway Construction Specialist
Randy S. Thomas, AVS	Assistant Team Leader
Craig S. Thomas, AVS	Assistant Team Leader

The Value Engineering Team followed the Seven Step Value Engineering job plan as promulgated by SAVE International. This Seven Step job plan includes the following:

- **Investigation/Information Phase** – during this phase of the VE Team’s work, the team received a briefing from the Georgia Department of Transportation (GDOT) design team and staff. This briefing included discussions of the design intent behind the project, the cost concerns, the physical project limitations. In the working session that followed, the VE Team developed cost models from the cost data provided by the designers and familiarized themselves with the construction drawings and other data that was available to the team. Some of the representative project information (concept report, cost estimate, and special provisions) may be found in the tabbed section of this report entitled ***Project Description***. Following this current narrative the reader will also find a cost model done in the Pareto fashion, i.e., identifying the highest costs down to the lowest costs for the larger construction cost elements. This cost model, developed by the VE Team, was used by the VE Team to help focus their week of work. The headings on the Pareto Chart also were used as headings for creative phase activities.
- **Analysis Phase** – during this phase the VE Team determined the “**Functions**” of the project. This was accomplished by reviewing the project from the simplest format in asking the questions of “What is the project suppose to do?”, and “How is it suppose to accomplish this purpose? In the Value Engineering vernacular, the answers to these questions are cast in the form of active verbs and measurable nouns. These verb/noun pairs form the basis of the function analysis which distinguishes a Value Engineering effort from a potentially damaging cost cutting exercise.

- The important functions of the project were identified as follows:
  - **Project Objective/Goals**
    - **Improve Level of Service**
    - **Increase Capacity**
    - **Separate Traffic**
    - **Provide for future growth**
  - **Project Basic Functions**
    - **Construct Additional Traffic Lanes**
    - **Construction Additional Turn Lanes**
    - **Provide Separation of Traffic**
    - **Provide “U” Turn Lanes**
    - **Provide Traffic Controls**
- **Speculation Phase** - The VE team performed a brainstorming session to identify ideas that might help meet the project objectives:
  - Improve Level of Service
  - Improve Safety
  - Increase Capacity
  - Reduce construction and life cycle costs
  - Reduce the time of construction

This brainstorming session initially identified numerous ideas that were then evaluated in the Judgment phase. The reader will find the creative worksheets enclosed. These same work sheets were also used to record the results of the Judgment/Evaluation Phase.

- **Evaluation Phase** – Once the VE Team identified the creative ideas, it was necessary to decide which alternatives should be carried forward. This is the work of the Evaluation or Judgment Phase. The VE Team reflected back on the project constraints and objectives shared with the team by the owner’s representatives, in the kick-off meeting on the first day of the workshop. From that guidance, the team selected ideas that they believed would improve the project by a vote process.

- Following that selection process, the VE Team used the following values as measures of whether or not an alternative had enough merit to be carried forward in the VE process:
  - Construction Cost Savings
  - Maintainability
  - Ability to Implement the Idea
  - General Acceptability of the Alternatives
  - Constructability

Based on these measurement sticks, the VE Team evaluated the alternatives and graded them from 5 (Excellent) down to 1 (Poor). Other notes about the alternatives are annotated at the bottom of the enclosed creative and evaluation sheets.

- **Development Phase** – During this phase, the VE Team developed each of the selected design alternatives. This effort included a detailed explanation of the idea with sketches as appropriate to clarify the idea from the original concept, advantages and disadvantages, a technical explanation and an estimation of the cost and resultant savings if implemented. (see the tabbed section – Study Results)
- **Recommendation Phase** – During this phase the VE Team reviews the alternative ideas to confirm which ones are appropriate for the project, have an opportunity for success and which will improve the value of the project if implemented.
- **Presentation Phase** – As noted earlier, the team made an informal “out-briefing” on the last day of the workshop, designed to inform the Owners and the Designers of the initial findings of the VE Study. This written report is intended to formalize those findings.

The following **Function – Worth - Cost** Analysis, was utilized to focus the team and stimulate brainstorming; a copy of the **Attendance Sheets** is also attached so that the reader can be informed about who participated in the Study proceedings.



# FUNCTION ANALYSIS AND COST-WORTH

PROJECT: Georgia Department of Transportation  
 STP- 002 - 4(26) P.I. 231620  
 Widening of SR 44 Jones/Putnam Counties

SHEET NO.: 1 of 2

NO.	ELEMENT	FUNCTION			COST (000)	WORTH (000)	COMMENTS
		VERB	NOUN	KIND			
1	OVERALL PROJECT	Increase	Traffic Capacity	B	76,188	76,188	C/W = 1.00
		Enhance	Safety	RS			
2	ROW	Accommodate	Widening	B	14,741	14,741	CW = 1.00
		Facilitate	Utilities	RS			
		Accommodate	Amenities	S			
3	RECYCLED ASPHALT CONCRETE	Support	Wearing Course	B	15,720	15,720	C/W = 1.00
4	ROADWAY	Transport	Vehicles	B	9,798	9,798	C/W = 1.00
5	EXCAVATION	Remove	Debris	B	6,658	6,658	C/W = 1.00
6	EROSION CONTROL	Prevent	Erosion	S	4,385	4,385	C/W = 1.00
		Protect	Environment	S			
		Route	Stormwater	S			
7	BRIDGE NO. 3 LT & RT (Little River)	Transport	Vehicles	B	1,396	1,396	C/W = 1.00

Function defined as: Action Verb  
 Measurable Noun

Kind: B = Basic  
 S = Secondary  
 RS = Required Secondary

HO = Higher Order  
 LO = Lower Order

Cost/Worth Ratio =  
 (Total Cost ÷ Basic Worth)







# DESIGNER PRESENTATION MEETING PARTICIPANTS



February 4, 2008

Georgia Department of Transportation		STP - 002 - 4 (26) - P.I. No. 231620 Counties: Jones/Putnam		
NAME	ORGANIZATION & TITLE	E-MAIL	PHONE	
Lisa Myers	 GDOT - Engineering Services	<a href="mailto:lm Myers@dot.ga.gov">lm Myers@dot.ga.gov</a>	404-651-7468	
Ron Wishon	 GDOT - Engineering Services	<a href="mailto:ron.wishon@dot.ga.gov">ron.wishon@dot.ga.gov</a>	404-651-7470	
Foster Grimes	 Tennille - Design	<a href="mailto:fgirimes@dot.ga.gov">fgirimes@dot.ga.gov</a>	478-552-4643	
Carry Morris	 Tennille - Design	<a href="mailto:cmorris@dot.ga.gov">cmorris@dot.ga.gov</a>	478-552-4640	
Kraig Collins	 Tennille - Design	<a href="mailto:kr Collins@dot.ga.gov">kr Collins@dot.ga.gov</a>	404-699-3473	
Richard Marshall	 GDOT - GO	<a href="mailto:richard_marshall@dot.state.ga.us">richard_marshall@dot.state.ga.us</a>	404-656-5306	
Lamar M. Pruitt, Jr.	 GDOT - Thomaston - Construction	<a href="mailto:L.Pruitt@dot.ga.gov">L.Pruitt@dot.ga.gov</a>	706-646-6911	
Clinton B Ford	 GDOT - Macon	<a href="mailto:clinton.ford@dot.state.ga.us">clinton.ford@dot.state.ga.us</a>	478-757-2601	
Mike Nash	 GDOT - TSD	<a href="mailto:mnash@dot.ga.gov">mnash@dot.ga.gov</a>	404-635-8146	
Wesley Brock	 GDOT - Right of Way	<a href="mailto:wbrock@dot.ga.gov">wbrock@dot.ga.gov</a>	404-656-3738	
Les Thomas	 PBS&J	<a href="mailto:lmthomas@pbsi.com">lmthomas@pbsi.com</a>	678-677-6420	
Luke Clarke	 PBS&J - Highway/Roadway Design	<a href="mailto:lwclarke@pbsi.com">lwclarke@pbsi.com</a>	205-969-3776	
Randy Thomas	 PBS&J	<a href="mailto:rsthomas@pbsi.com">rsthomas@pbsi.com</a>	770-883-1545	
John Luh	 PBS&J	<a href="mailto:zluh@pbsi.com">zluh@pbsi.com</a>	678-247-2606	
Craig Thomas	 PBS&J	<a href="mailto:csthomas@pbsi.com">csthomas@pbsi.com</a>	404-313-5437	
Chad Sweeney	 WR Toole Engineering	<a href="mailto:csweeney@wrtoole.com">csweeney@wrtoole.com</a>	706-722-4114	
Bob Baisden	 WR Toole Engineering	<a href="mailto:Rbaisden@wrtoole.com">Rbaisden@wrtoole.com</a>	706-722-4114	

**VE TEAM PRESENTATION  
MEETING PARTICIPANTS**



Georgia Department of Transportation		February 7, 2008		
STP - 002 - 4 (26) - P.I. No. 231620 Counties: Jones/Putnam				
NAME	ORGANIZATION & TITLE	E-MAIL	PHONE	
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# CREATIVE IDEA LISTING & EVALUATION



PROJECT: **Georgia Department of Transportation**  
**STP-002-4 (26) – P.I. No. 231620**  
**Widening of SR 44 – Jones/Putnam Counties**

SHEET NO.: 1 of 2

NO.	IDEA DESCRIPTION	RATING
<b>ROADWAY (RD)</b>		
RD-1	Use type "A" in lieu of type "B"	4
RD-2	Reduce "Storage" of type "B"	4
RD-3	From Sta. 118+00 to 150+00 utilize existing R/W	4
RD-4	Utilize 24' raised median at SR 212 intersection	1
RD-5	Widen existing road way on one side; to eliminate R/W taking on both sides (45+00 to 115+00' and 155+00 to 210+00)	5
RD-6	Provide a signal at SR -44/212	ABD
RD-7	Use 60 mph vs 55 mph	DS
RD-8	Use existing R/W Sta 210+00 to 245+00	5
RD-9	Revise Rabbit Skip to Rightt In/Rightt Out; Revise McCade Road to Rightt In/Rightt.Out; relocate median opening to Twilight Shores	2
RD-10	Increase use of existing R/W from 285+00 to 385+00	4
RD-11	Intersect Joe Wooten Road and CR 61 at Sta. 350+00	5
RD-12	Connect CR 59 at Sta. 361+00 (included in RD - 11)	ABD
RD-13	Use R/W Sta 405+00 to 480+00; use existing bridge	5
RD-14	Connect existing road Sta. 405+00 + 580+00 to new road at Sta. 420+00 +473+00; delete tie at Sta. 449+20	DS
RD-15	Use existing R/W from Sta. 500+00 to Sta. 580+00 (included with RD-13)	ABD
RD-16	Provide tie at Sta. 565+00/delete cul de sac	DS
RD-17	Provide tie in at Sta. 444+00/delete cul de sac	DS
RD-18	Use 32' depressed median	5
RD-19	Use a three lane roadway	2
RD-20	Shift alignment east Sta. 240+00 to Sta. 265+00; reduce R/W impacts	4
RD-21	Bifurcate the roadway in selected areas	5

Rating: 1→2 = Generally not acceptable;      3 = Little Opportunity for Positive Change;      4→5 = Most likely to be Developed;  
 DS = Design Suggestion;      ABD = Already Being Done

