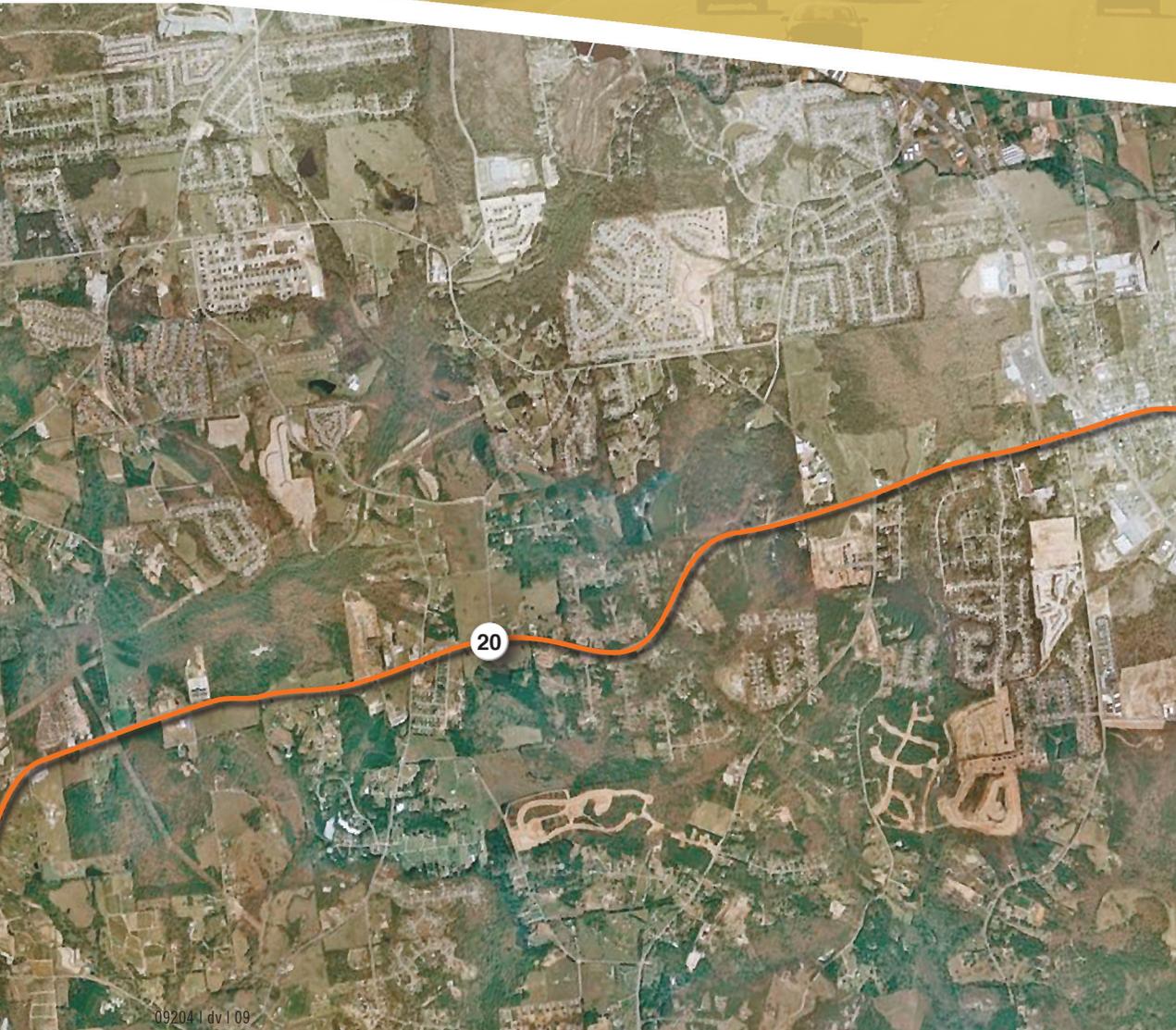


Value Engineering Study Report

Georgia Department of Transportation

STP00-2584-00(009) - P.I. No. 142000

**SR 20 from Rosebud Road to Brand Road
Including One Way Pair Gwinnett/Walton Counties**



Value Engineering Team



Design Team





September 25, 2009

Ms. Lisa Myers
Design Review Engineer Manager/VE Coordinator
Georgia Department of Transportation-Engineering Services
One Georgia Center
600 W. Peachtree Street NW
Atlanta, GA 30308

RE: Submittal of the final Value Engineering Report
STP00-2584-00(009) – P.I. No. 142000
SR 20 from Rosebud Road to Brand Road including One Way Pair
Gwinnett/Walton Counties

Dear Ms. Myers:

Please find enclosed two (2) hard copies and one (1) CD of our final Value Engineering Report for SR 20 from CR 20 from Rosebud Road to Brand Road including one way pair in Gwinnett/Walton Counties

Using the Value Engineering “Job Plan” – Investigation, Analysis (*Function*), Speculation, Evaluation & Development, the VE Team identified:

- Project goal to be “Improve Safety”
- Nine (9) Alternatives to improve the project safety and value of 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

A handwritten signature in black ink that reads "Randy S. Thomas".

Randy S. Thomas, CVS
Assistant Team Leader

Value Engineering Study Report

**Project No. STP00-2584-00(009)
P.I. No. 142000**

**SR 20 from Rosebud Road to Brand Road
Including One Way Pair**

Gwinnett/Walton Counties

Table of Contents

Executive Summary

- Introduction
- Project Description
- Project Concerns and Objectives
- Value Engineering Process
- Observations
- Conclusions and Recommendations
- Summary of Alternatives and Design Suggestions

Study Results

- Introduction
- Summary of Alternatives and Design Suggestions
- Documentation of Alternatives and Design Suggestions

Project Description

- Introduction of the Project
- Representative Documents

Value Engineering Process

- Introduction and Job Plan
- Agenda
- Pareto Charts
- Fast Diagram
- Attendance Sheet for Designers and VE Team Presentations
- Creative Idea Listing and Evaluation Worksheet

EXECUTIVE SUMMARY

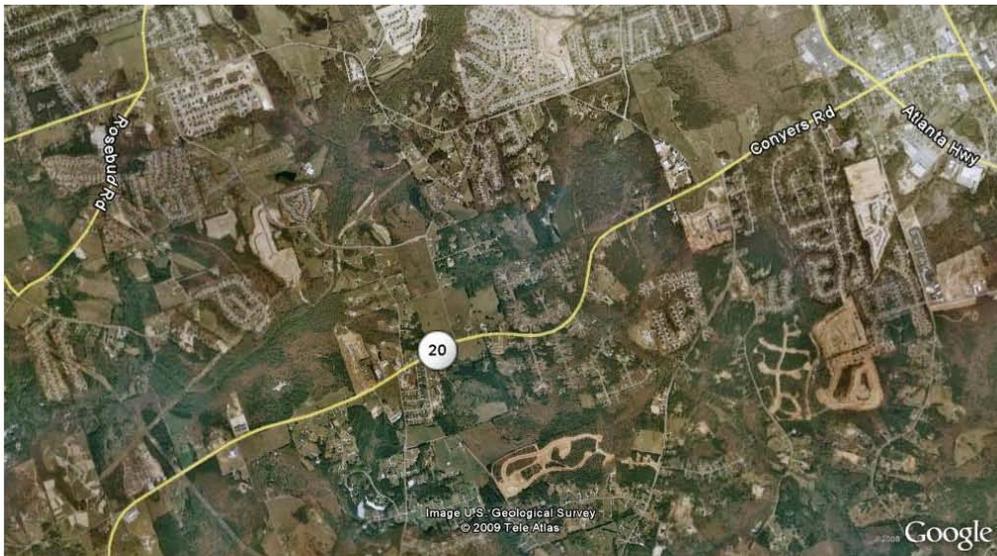
INTRODUCTION

The subject of the Value Engineering study is project STP00-2584-00(009) – P.I. No. 142000, SR 20 from Rosebud Rd. to Brand Rd., including a 1 Way Pair, Gwinnett/Walton Counties. The design for the project has been prepared by Gresham, Smith and Partners. At the time of the workshop, the plans had advanced to the preliminary design level.

PROJECT DESCRIPTION

The alignment for the intersection improvements and the four-lane section has been laid out with considerations for widening the entire length of SR 20 through this corridor to 4 lanes with a depressed or raised median in the future. The alignment was also set to aid in the maintenance of traffic during construction of the intersections as well as the future 4 lane section.

The project begins at Rosebud/Miller Bottom Road and immediately shifts to the west side of the existing roadway to avoid a church and cemetery between Moon Road and Center Hill Church Road. The connection for Moon Road has been relocated behind the church and cemetery to tie into the Center Hill Church Road rather than into SR-20



The estimated construction cost for the project is \$20,817,475. In addition, Right-of-Way costs are anticipated to be \$5,895,015 with reimbursable utilities cost estimated to be \$866,670. The projected total cost for the project is \$27,579,160.

PROJECT CONCERNS AND OBJECTIVES

- The accident rate for this project is primarily rear end and turning accidents
- Improve sight distances
- To not impact possible historic property
- Improve intersections to by controlling turn movements
- Prevent adverse impacts to the environment

VALUE ENGINEERING PROCESS

The Value Engineering team followed the seven step Value Engineering Job Plan as promulgated by SAVE International.

Using the first two steps of the Value Engineering Job Plan - Investigation & Analysis (*Function Analysis*); the VE Team identified the goal of this project to be “improve safety”.

This led the team through the “Speculative, Evaluation & Development phases”.

The result was the identification and development of nine (9) alternatives which are recommended herein for implementation – see ***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.

Summary of Alternatives & Design Suggestions



PROJECT: Georgia Department of Transportation STP00-2584-00(009) – P.I. No. 142000 SR 20 from Rosebud Rd. to Brand Rd., Including 1 Way Pair Gwinnett/Walton Counties		SHEET NO.: 1 of 1
ALTERNATIVE NUMBER	DESCRIPTION OF ALTERNATIVE	INITIAL COST SAVINGS
	Roadway (RD)	
RD-1	Do not reconstruct Publix Road	\$ 338,141
RD-7	Relocate Tuck Road to align with Sharon Church Road	\$ 278,899
RD-8	Eliminate Tuck Road relocation	\$ 227,689
RD-9	Use a 12' shoulder in-lieu of a 16' shoulder in urban sections	\$ 535,230
RD-13	Reduce paved shoulder width on all rural and side street alignments	\$ 396,491
RD-20	Adjust design to not take residence at Sta. 302+00	\$ 343,255
RD-22	Delete/relocate "U" turn at Overlook Drive	\$ 115,491
RD-26	Shift SR 20 westerly to the north to allow truck turns	See RD-22
RD-27	Modify realignment on Centerville/Rosebud Road to the north	\$ 186,850
RD-28	Revise design to not take parcel at Sta. 185+00	\$ 329,333

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.

This introductory sheet is followed by a **Summary of Alternatives**. 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 enclosed **Summary of Alternatives** 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.

The 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



PROJECT: Georgia Department of Transportation STP00-2584-00(009) – P.I. No. 142000 SR 20 from Rosebud Rd. to Brand Rd., Including 1 Way Pair Gwinnett/Walton Counties		SHEET NO.: 1 of 1
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Value Analysis Design Alternative



PROJECT: **Georgia Department of Transportation
STP00-2584-00(009) – P.I. No. 142000
SR 20 from Rosebud Rd. to Brand Rd.,
Including 1 Way Pair
Gwinnett/Walton Counties**

ALTERNATIVE NO.:
RD - 1

DESCRIPTION: **Do not acquire or reconstruct Publix Drive**

SHEET NO.: **1 of 4**

Original Design:

The original design calls for the complete reconstruction and acquisition of the existing Publix Drive.

Alternative:

The alternative would be to leave Publix Drive as it is, modifying only the new improved intersections. It may improve operations if this section were made to be one-way going north-west.

Opportunities:

- Significant cost savings
- Reduce project delays for property acquisition

Risks:

- Minor re-design involved

Technical Discussion:

The existing Publix Drive was recently constructed. It appears to be in reasonable condition to not require reconstruction. Additionally, it might be prudent to make this section a one-way street heading to the north west and avoid any potential hazards with the existing day care facility

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 338,141	\$ 0	\$ 338,141
ALTERNATIVE	\$ 0	\$ 0	\$ 0
SAVINGS	\$ 338,141	\$ 0	\$ 338,141

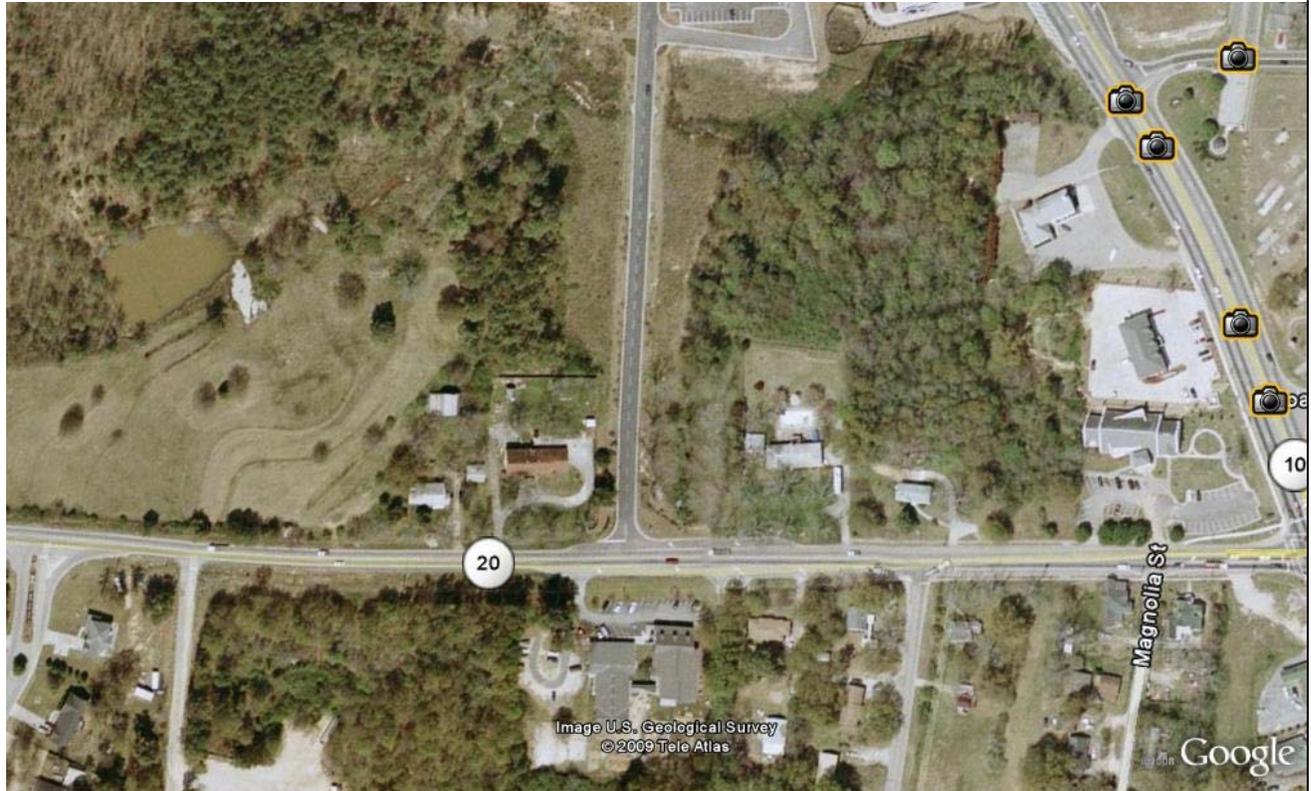
Illustration

PROJECT: **Georgia Department of Transportation
STP00-2584-00(009) – P.I. No. 142000
SR 20 from Rosebud Rd. to Brand Rd.,
Including 1 Way Pair
Gwinnett/Walton Counties**

ALTERNATIVE NO.:
RD-1

DESCRIPTION: **Do not reconstruct Publix Road**

SHEET NO.: **2** of **4**



Calculations



PROJECT: **Georgia Department of Transportation
STP00-2584-00(009) – P.I. No. 142000
SR 20 from Rosebud Rd. to Brand Rd.,
Including 1 Way Pair
Gwinnett/Walton Counties**

ALTERNATIVE NO.:
RD-1

DESCRIPTION: **Do not reconstruct Publix Drive**

SHEET NO.: **3** of **4**

Material	Location	FROM	TO	Length	Width	SF	SY	#/sy	#/cf	Tons
12.5mm	Publix Dr	50,051	50,597	546	24	13,104	1,456	165		120
19mm	Publix Dr	50,051	50,597	546	24	13,104	1,456	220		160
25mm	Publix Dr	50,051	50,597	546	24	13,104	1,456	440		320
12" GAB	Publix Dr	50,051	50,597	546	24	13,104			135	885



Cost Worksheet

PROJECT:	Georgia Department of Transportation STP00-2584-00(009) – P.I. No. 142000 SR 20 from Rosebud Rd. to Brand Rd., Including 1 Way Pair Gwinnett/Walton Counties	ALTERNATIVE NO.: RD-1
DESCRIPTION:	Do not acquire or reconstruct Publix Drive	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
Publix Road							
12.5 mm Superpave	TN	120	\$ 80.00	\$ 9,610	0	\$ 75.00	\$ -
19.0 mm Superpave	TN	160	\$ 80.00	\$ 12,813	0	\$ 80.00	\$ -
25.0 mm Superpave	TN	320	\$ 80.00	\$ 25,626	0	\$ 70.00	\$ -
GAB	SY	885	\$ 17.04	\$ 15,072	0	\$ 17.04	\$ -
Drainage	LS	1	\$ 50,000	\$ 50,000	0	\$ 50,000	\$ -
Right of Way				\$ -			\$ -
Land	Ac	1.25	\$ 20,000	\$ 25,069	0	\$ 20,000	\$ -
Improvements	Ea	0	\$ 100,000	\$ -	0	\$ 100,000	\$ -
Relocation	Ea	0	\$ 25,000	\$ -	0	\$ 25,000	\$ -
Damage	Ea	1	\$ 63,120	\$ 63,120	0	\$ 63,120	\$ -
Scheduling Contingency		55%	\$ 88,189	\$ 48,504	55%	\$ -	\$ -
Adm/Court Cost		60%	\$ 136,693	\$ 82,016	60%	\$ -	\$ -
Sub-total				\$ 331,829			\$ -
Cons't Mark-up 10.00%				\$ 6,312			\$ -
TOTAL				\$ 338,141			\$ -
Estimated Savings:							\$338,141

Value Analysis Design Alternative



PROJECT: **Georgia Department of Transportation
STP00-2584-00(009) – P.I. No. 142000
SR 20 from Rosebud Rd. to Brand Rd.,
Including 1 Way Pair
Gwinnett/Walton Counties**

ALTERNATIVE NO.:
RD- 7

DESCRIPTION: **Relocate Tuck Road to align with Sharon Church Road**

SHEET NO.: **1** of **4**

Original Design:

The original design calls for re-aligning Sharon Church Road and relocating Tuck Road in order to achieve a minimum spacing between median openings.

Alternative:

The alternative would propose relocating Tuck Road to align with Sharon Church Road to form a single intersection. Existing Tuck Road would be connected to Sharon Church Road on the west and connected to SR 20 at its current location but with right-in/ right-out access.

Opportunities:

- Reduced paving costs
- Reduced R.O.W. costs
- Some minimal reduction in the time of construction
- Elimination of a median opening and consolidation of major turning movements
- Improved safety and operations

Risks:

- Moderate re-design involved

Technical Discussion:

By relocating Tuck Road to align with Sharon Church Road it would allow you to improve the spacing of the necessary full median openings now and any projects in the future. Consolidation of the two full median openings should also improve safety and operations, in addition to reducing overall length of the required work and the amount of required R.O.W. It should also be noted that Tuck Road will operate at LOS F before the design year of the project and will adversely affect Sharon Church Road. By relocating Tuck Road as the alternative suggests, it should improve the operation of all the roadways involved.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 540,991	\$ 0	\$ 540,991
ALTERNATIVE	\$ 262,092	\$ 0	\$ 262,092
SAVINGS	\$ 278,899	\$ 0	\$ 278,899

Illustration

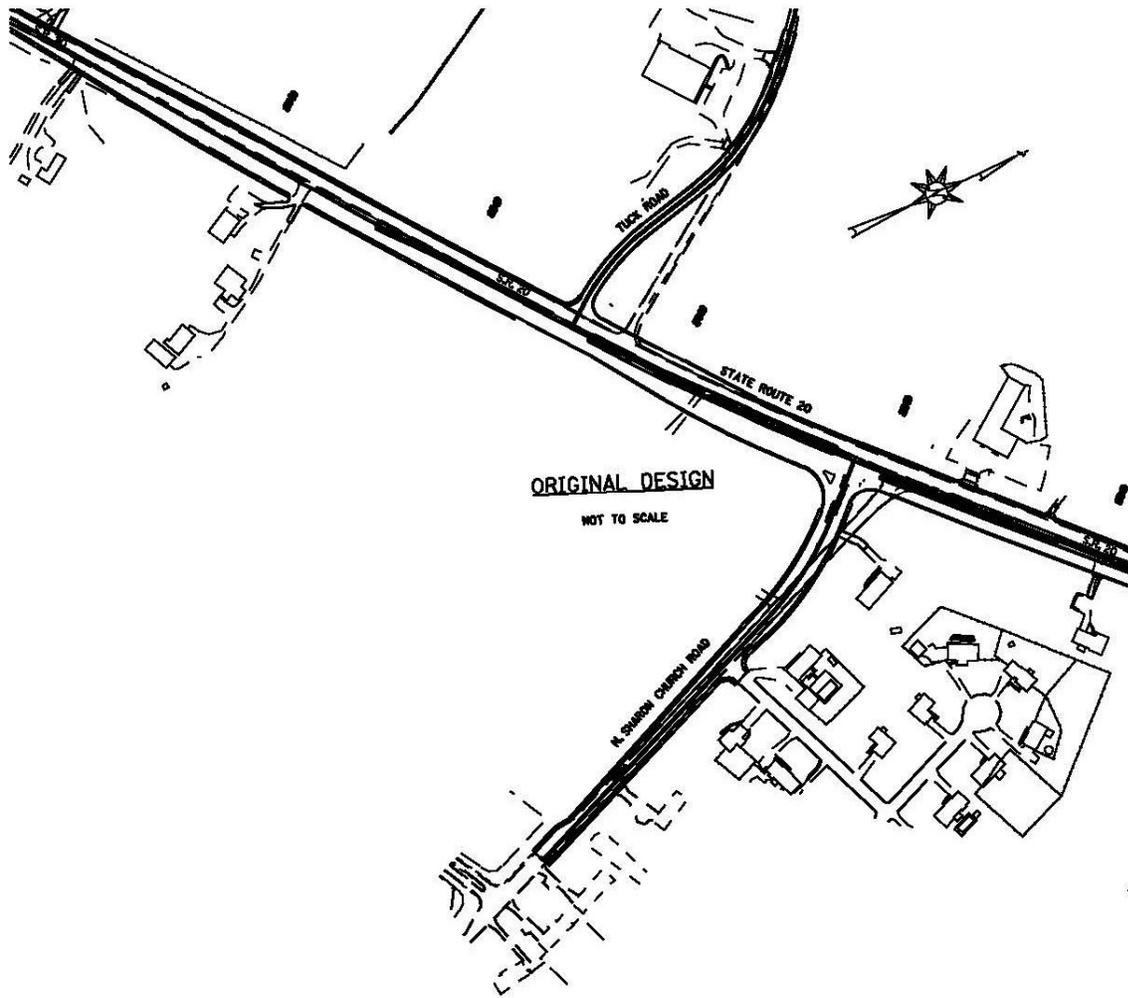


PROJECT: Georgia Department of Transportation
STP00-2584-00(009) – P.I. No. 142000
SR 20 from Rosebud Rd. to Brand Rd.,
Including 1 Way Pair
Gwinnett/Walton Counties

ALTERNATIVE NO.:
RD-7

DESCRIPTION: Relocate Tuck Road to align with Sharon Church Road

SHEET NO.: 2 of 5



Illustration



PROJECT: Georgia Department of Transportation
STP00-2584-00(009) – P.I. No. 142000
SR 20 from Rosebud Rd. to Brand Rd.,
Including 1 Way Pair
Gwinnett/Walton Counties

ALTERNATIVE NO.:
RD-7

DESCRIPTION: Relocate Tuck Road to align with Sharon Church Road

SHEET NO.: 3 of 5



Calculations



PROJECT: **Georgia Department of Transportation
STP00-2584-00(009) – P.I. No. 142000
SR 20 from Rosebud Rd. to Brand Rd.,
Including 1 Way Pair
Gwinnett/Walton Counties**

ALTERNATIVE NO.:
RD-7

DESCRIPTION: **Relocate Tuck Road to align with Sharon Church Road**

SHEET NO.: **4 of 5**

Assume earthwork costs offset each other

Reduced Paving:

SR-20 ~ Station 263+65 to ~Station 273+35 = 970 LF

Base Layers- (970 x (80'-24')) / (9 SF/SY) => 6,036 SY

Final Surface- (970 x 80') / (9 SF/SY) => 8,622 SY

Superpave 12.5mm = (8,622 SY x 165/#2000/TN) = 711.3 TN => 712 TN

Superpave 19.0mm = (6,036 SY x 220/#2000/TN) = 664.0 TN => 664 TN

Superpave 25.0mm = (6,036 SY x 440/#2000/TN) = 1,327.9 TN => 1,328 TN

10" GAB = 54,324 SF x 135#/CF x (10"/12") / (2000#/TN) = 3,055.5 TN => 3,056 TN

Reduced Curb & Gutter:

SR-20 ~ Station 267+90 to ~Station 272+15 = 425 LF

425 LF x 2 sides => 850 LF

Reduced Drainage:

~Station 260+25 48" RCP = 160 LF 48" FES = 2 EA

18" Side Drains- 3 EA x (50'/EA) = 150 LF 18" FES = 6 EA

Reduced Right of Way-

Reduction (970 LF x (180' - 100' wide)) / (43,560 sf /ac) = 1.78 acres

Net Cost 1.78 ac x \$20,000.00/ac = \$ 35,600

Scheduling 55% = \$ 19,580

Administrative 60% = \$ 21,360

Inflation 40% = \$ 14,240

Total = \$ 90,780

Additional Paving:

Tuck Road- Assume an additional 500 LF

(500 x 28') / (9 SF/SY) => 1,556 SY

Superpave 12.5mm = (1,556 SY x 165/#2000/TN) = 128.4 TN => 129 TN

Superpave 19.0mm = (1,556 SY x 220/#2000/TN) = 171.2 TN => 172 TN

Superpave 25.0mm = (1,556 SY x 440/#2000/TN) = 342.3 TN => 343 TN

10" GAB = 14,004 SY x 135#/CF x (10"/12") / (2000#/TN) = 787.7 TN => 788 TN

Additional Right of Way-

Reduction (500 LF x 100' wide) / (43,560 sf /ac) = 1.15 acres

Net Cost 1.15 ac x \$20,000.00/ac = \$ 23,000

Scheduling 55% = \$ 12,650

Administrative 60% = \$ 13,800

Inflation 40% = \$ 9,200

Total = \$ 58,650

Additional Signalization Cost

Assume approximately \$20,000

Value Analysis Design Alternative



PROJECT: Georgia Department of Transportation
STP00-2584-00(009) – P.I. No. 142000
SR 20 from Rosebud Rd. to Brand Rd.,
Including 1 Way Pair
Gwinnett/Walton Counties

ALTERNATIVE NO.:
RD- 8

DESCRIPTION: Eliminate Tuck Road relocation

SHEET NO.: 1 of 5

Original Design:

The original design calls for re-aligning Sharon Church Road and relocating Tuck Road in order to achieve a minimum spacing between median openings.

Alternative:

The alternative would propose eliminating the relocation of Tuck Road. Existing Tuck Road would be connected to SR 20 at its current location but with right-in right-out access. U-turns at Sharon Church Road and the end of the raised median section would provide access for Tuck Road. The raised median would be extended to Station 265+00 to provide a greater weaving section for Tuck Road traffic wishing to U-turn and proceed eastbound.

Opportunities:

- Reduced paving costs
- Reduced R.O.W. costs
- Some minimal reduction in the time of construction
- Elimination of a median opening and consolidation of major turning movements
- Improve safety and operations

Risks:

- Moderate re-design involved
- Local opposition

Technical Discussion:

By eliminating the relocation of Tuck Road it would allow you to improve the spacing of the necessary full median openings now and any projects in the future. It should also be noted that Tuck Road will operate at LOS F before the design year of the project and will adversely affect Sharon Church Road.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 239,305	\$ 0	\$ 239,305
ALTERNATIVE	\$ 11,616	\$ 0	\$ 11,616
SAVINGS	\$ 227,689	\$ 0	\$ 227,689

Illustration



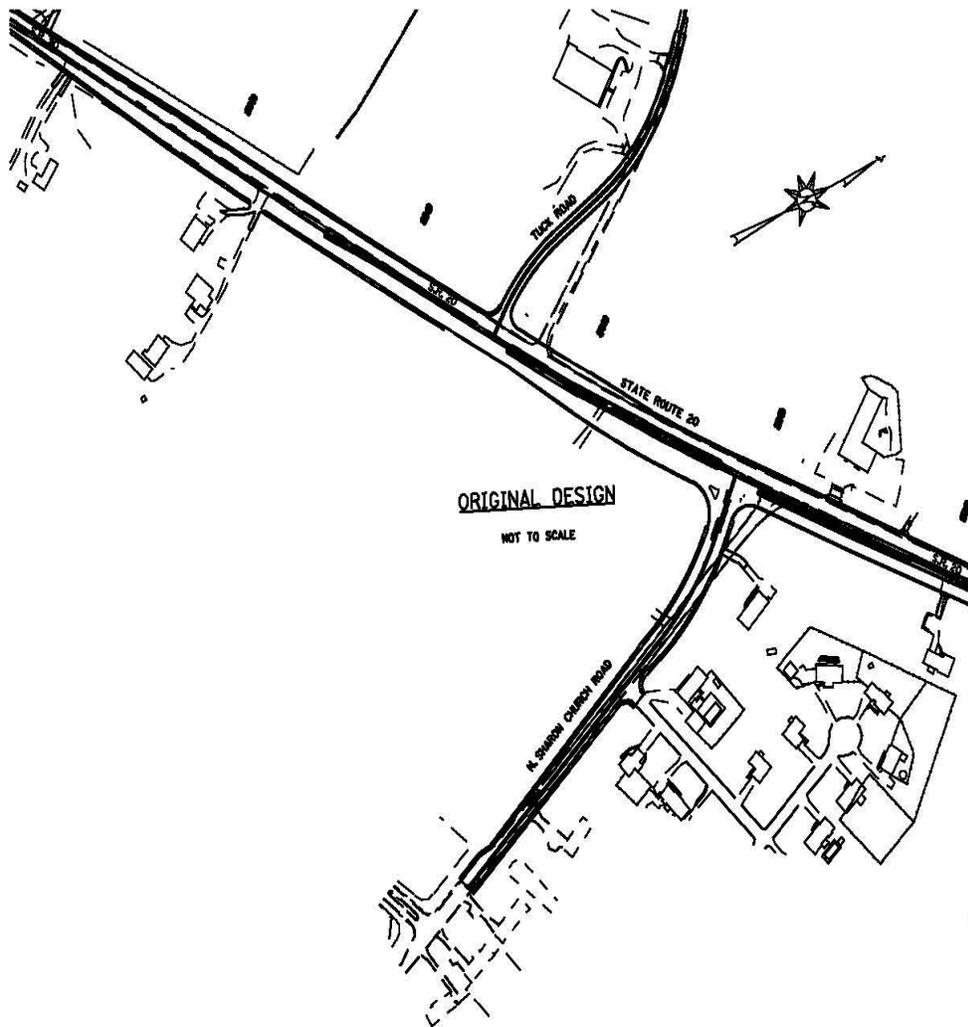
PROJECT: Georgia Department of Transportation
STP00-2584-00(009) – P.I. No. 142000
SR 20 from Rosebud Rd. to Brand Rd.,
Including 1 Way Pair
Gwinnett/Walton Counties

ALTERNATIVE NO.:
RD-8

DESCRIPTION: Eliminate Tuck Road relocation

SHEET NO.: 2 of 5

Original Design



Illustration



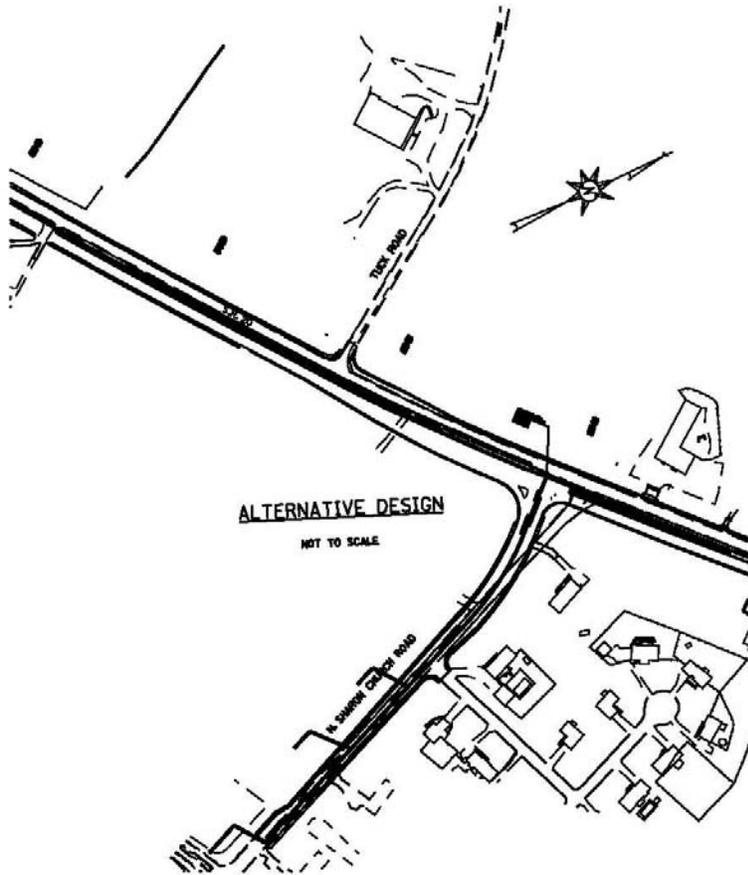
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SR 20 from Rosebud Rd. to Brand Rd.,
Including 1 Way Pair
Gwinnett/Walton Counties

ALTERNATIVE NO.:
RD-8

DESCRIPTION: Eliminate Tuck Road relocation

SHEET NO.: 3 of 5

Alternative Design



Calculations



PROJECT: **Georgia Department of Transportation
STP00-2584-00(009) – P.I. No. 142000
SR 20 from Rosebud Rd. to Brand Rd.,
Including 1 Way Pair
Gwinnett/Walton Counties**

ALTERNATIVE NO.:
RD-8

DESCRIPTION: **Eliminate Tuck Road relocation**

SHEET NO.: **4** of **5**

Assume earthwork cost at \$20,000 complete.

Reduced Paving:

$(800 \times 28') = 22,400 \text{ SF} / (9 \text{ SF/SY}) \Rightarrow 2,489 \text{ SY}$

Superpave 12.5mm = $(2,489 \text{ SY} \times 165/\#2000/\text{TN}) = 205.3 \text{ TN} \Rightarrow 206 \text{ TN}$

Superpave 19.0mm = $(2,489 \text{ SY} \times 220/\#2000/\text{TN}) = 273.80 \text{ TN} \Rightarrow 274 \text{ TN}$

Superpave 25.0mm = $(2,489 \text{ SY} \times 440/\#2000/\text{TN}) = 547.6 \Rightarrow 548 \text{ TN}$

10" GAB = $22,400 \text{ SF} \times 135\#/\text{CF} \times (10''/12'') / (2000\#/\text{TN}) = 1,260 \text{ TN}$

Reduced Right of Way-

Additional R.O.W. varies 150' to 40': assume 100' average

Reduction $(800 \text{ LF} \times 100' \times 43,560 \text{ sf/ac}) = 1.84 \text{ acres}$

Net Cost 1.84 ac x \$20,000.00/ac = \$ 36,800

Scheduling 55% = \$ 20,240

Administrative 60% = \$ 22,080

Inflation 40% = \$ 14,720

Total = \$ 93,840

Additional Curb & Gutter:

Assume additional curbing on SR-20 to provide a raise median from ~Station 265+00 to Sharon Church Road.

400 LF x 2 sides => 800 LF



Cost Worksheet

PROJECT:	Georgia Department of Transportation STP00-2584-00(009) – P.I. No. 142000 SR 20 from Rosebud Road to Brand Road, including One Way Pair Gwinnett/Walton Counties	ALTERNATIVE NO.: RD- 8
DESCRIPTION:	Eliminate Tuck Road relocation	SHEET NO.: 5 of 5

CONSTRUCTION ITEM		ORIGINAL ESTIMATE			PROPOSED ESTIMATE		
ITEM	UNITS	NO. OF UNITS	COST/ UNIT	TOTAL	NO. OF UNITS	COST/ UNIT	TOTAL
12.5 mm Superpave	TN	206	\$ 80.00	\$ 16,480	0	\$ 80.00	\$ -
19.0 mm Superpave	TN	274	\$ 80.00	\$ 21,920	0	\$ 80.00	\$ -
25.0 mm Superpave	TN	548	\$ 80.00	\$ 43,840	0	\$ 80.00	\$ -
GAB	TN	1,260	\$ 17.04	\$ 21,470	0	\$ 17.04	\$ -
Curb & Gutter Type-7	LF	0	\$ 13.20	\$ -	800	\$ 13.20	\$ 10,560
Earthwork	LS	1	\$ 20,000.00	\$ 20,000	0		\$ -
Right of Way	LS	1	\$ 93,840.00	\$ 93,840	0	\$ -	\$ -
			\$ 54,642	\$ -		\$ 54,642	\$ -
Sub-total				\$ 217,550			\$ 10,560
Cons't Mark-up 10.00%				\$ 21,755			\$ 1,056
TOTAL				\$ 239,305			\$ 11,616
Estimated Savings:							\$227,689

Value Analysis Design Alternative



PROJECT:	Georgia Department of Transportation STP00-2584-00(009) – P.I. No. 142000 SR 20 from Rosebud Rd. to Brand Rd., Including 1 Way Pair Gwinnett/Walton Counties	ALTERNATIVE NO.:	RD-9
DESCRIPTION:	Use a 12' shoulder in lieu of a 16' shoulder in urban sections	SHEET NO.:	1 of 4

Original Design:

The original design calls for a 16' shoulder where sidewalk is proposed throughout the majority of the project.

Alternative:

The alternative would narrow the shoulder from 16' typical to 12' typical where sidewalk is placed throughout the project.

Opportunities:

- Reduction in ROW acquisition and costs
- Reduction in earthwork quantities

Risks:

- Minimal design impacts
- Reduces area for current and future utility storage
- May force steeper slope ties

Technical Discussion:

The reduction of the shoulder width from 16'-0" to 12' -0" throughout the project would allow the curb and gutter and the 5' -0" sidewalk to be constructed while reducing the ROW impact required to construct the project. The alternative would allow a 2' grassed strip from the back of curb to the front face of the 5' sidewalk, as shown in the alternative sketch.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 5,614,305	\$ 0	\$ 5,614,305
ALTERNATIVE	\$ 5,079,075	\$ 0	\$ 5,079,075
SAVINGS	\$ 535,230	\$ 0	\$ 535,230

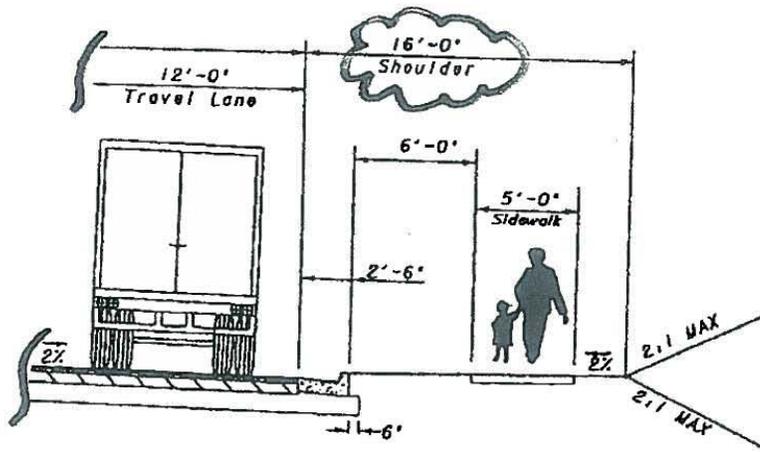
Illustration

PROJECT: Georgia Department of Transportation
STP00-2584-00(009) – P.I. No. 142000
SR 20 from Rosebud Rd. to Brand Rd.,
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Gwinnett/Walton Counties

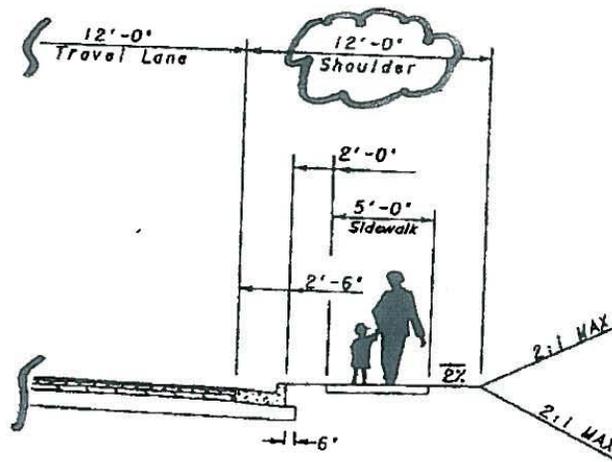
DESCRIPTION: Use a 12' shoulder in lieu of a 16' shoulder in urban sections

ALTERNATIVE NO.:
RD-9

SHEET NO.: 2 of 4



ORIGINAL DESIGN



ALTERNATIVE DESIGN

Calculations



PROJECT: **Georgia Department of Transportation
STP00-2584-00(009) – P.I. No. 142000
SR 20 from Rosebud Rd. to Brand Rd.,
Including 1 Way Pair
Gwinnett/Walton Counties**

ALTERNATIVE NO.:
RD-9

DESCRIPTION: **Use a 12' shoulder in lieu of a 16' shoulder in urban
sections**

SHEET NO.: **3** of **4**

ROW costs are derived from cost estimate provided to the team dated April 25, 2002. Composite value per SF was derived by total burdened cost(\$5,614,300) divided by total area(15AC) to arrive at a median, burdened dollar value.

Locations of 16' shoulder, per typical sections:

A. STA 675+86-STA 678+38 R&L=252LF x 8' width saved=2016 SF saved

B. STA 658+38-STA 676+50 R&L=1812 LF x 8' width saved=14,496 SF saved

C. Average STA 300+00-STA 302+00 R&L transition=200LF x 8'=1,600SF saved

D. STA 268+00-STA 300+00= 3200LF x 8' w=25,600 SF saved

E. STA 635+83-STA 658+38= 2255 LF x 8' w=18,040 SF saved

F. STA 676+50-STA 675+86=64 LF x 8' w=512SF saved

Total SF saved=62,264SF/ 43,560sf/ac=1.43AC saved

Value Analysis Design Alternative



PROJECT: Georgia Department of Transportation
STP00-2584-00(009) – P.I. No. 142000
SR 20 from Rosebud Rd. to Brand Rd.,
Including 1 Way Pair
Gwinnett/Walton Counties

ALTERNATIVE NO.:
RD-13

DESCRIPTION: Reduce paved shoulder width on all rural and side street alignments

SHEET NO.: 1 of 4

Original Design:

The original design calls for 6.5 foot paved shoulder.

Alternative:

The proposed alternative would provide 2.0 foot paved shoulder.

Opportunities:

- Reduction in pavement costs
- Reduction in ROW costs
- Reduction in construction time
- Provide a consistent cross section in rural and side street sections

Risks:

- Reduction in usable/traversable shoulder
- Moderate design impacts

Technical Discussion:

The original design calls for a 6.5 foot paved shoulder, however AASHTO allows as small as a 2 foot paved shoulder (AASHTO, A Policy on Geometric Design of Highways and Streets, page 314) based on the project criteria. A two foot shoulder will not provide sufficient width to accommodate pedestrian and bicycle traffic, but this type of traffic should be discouraged or restricted from this facility

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 8,547,000	\$ 0	\$ 8,547,000
ALTERNATIVE	\$ 8,150,509	\$ 0	\$ 8,150,509
SAVINGS	\$ 396,491	\$ 0	\$ 396,491

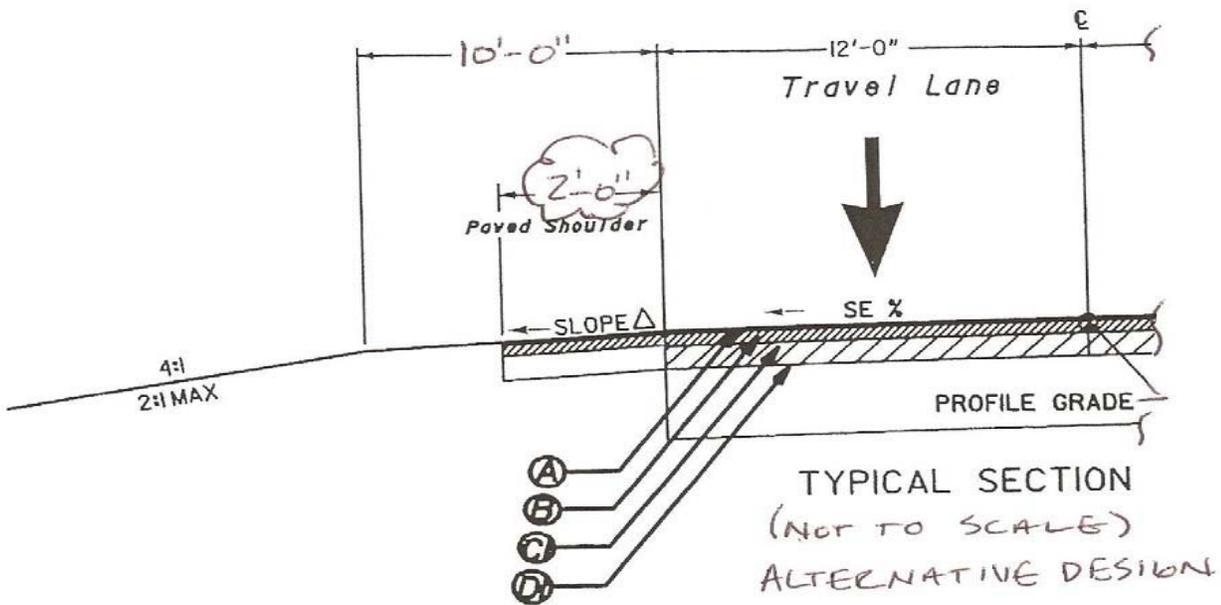
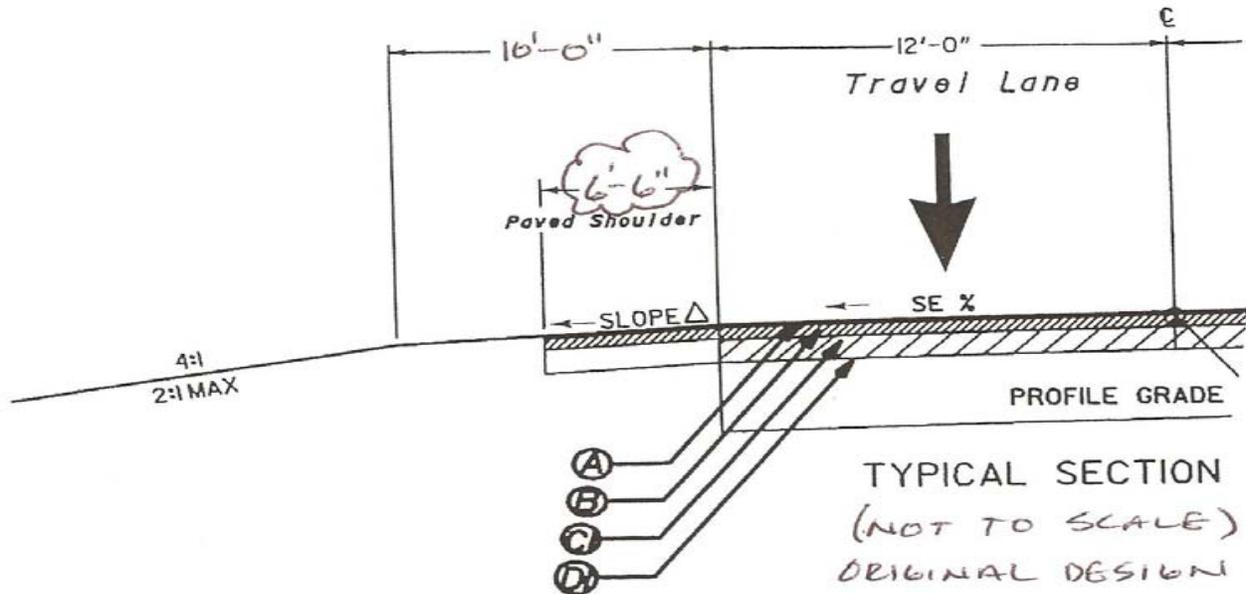
Illustration

PROJECT: Georgia Department of Transportation
STP00-2584-00(009) – P.I. No. 142000
SR 20 from Rosebud Rd. to Brand Rd.,
Including 1 Way Pair
Gwinnett/Walton Counties

ALTERNATIVE NO.:
RD-13

DESCRIPTION: Reduce paved shoulder width on all rural and side street
alignments

SHEET NO.: 2 of 4



Calculations



**PROJECT: Georgia Department of Transportation
STP00-2584-00(009) – P.I. No. 142000
SR 20 from Rosebud Rd. to Brand Rd.,
Including 1 Way Pair
Gwinnett/Walton Counties**

**ALTERNATIVE NO.:
RD-13**

**DESCRIPTION: Reduce paved shoulder width on rural and side street
alignments**

SHEET NO.: 3 of 4

Replace 6'-6" paved shoulder with 2' paved shoulder in the following locations:

- A. Centerville-Rosebud-510+30 to 506+02- 428 LF x 2 sides=856 LF
- B. Centerville-Rosebud- 510+30-520+00=970 LF x 2 sides=1940 LF
- C. Centerville-Rosebud- 506+02-505+00=102LF x 2 sides=204 LF
- D. SR 20 Intersection #1- STA 49+38-STA 78+00=2862LF x 2 sides=5724 LF
- E. SR 20 Intersection #2- STA 93+00-STA112+00= 1900LF x 2 sides=3800LF
- F. SR 20 Intersection #3- STA 171+00-STA 190+00=1900LF x 2 sides=3800LF
- G. SR 20- STA 257+06-STA268+00=1094LF x 2 sides=2188LF
- H. Center Hill Church Road- STA 500+00-STA507+83=783LF x 2=1566LF
- I. N.Sharon Church Road- STA 500+00-STA511+02=1102LF x 2=2204LF

Total length=22,282LF x 4.5'w reduction/9=11,141SY

Conservatively estimate 1/2 AC in ROW savings since deduction will be taken from both sides of roadway.

Material	Location	From	To	Length	Width	SF	SY	#/sy	#/cf	Tons
12.5mm				22,282	4.5	100,269	11,141	165		919
19mm				22,282	4.5	100,269	11,141	220		1,226
25mm				22,282	4.5	100,269	11,141	330		1,838
12" GAB				22,282	4.5	100,269			135	6,768



Cost Worksheet

PROJECT:	Georgia Department of Transportation STP00-2584-00(009) – P.I. No. 142000 SR 20 from Rosebud Road to Brand Road, including One Way Pair Gwinnett/Walton Counties	ALTERNATIVE NO.:	RD- 13
DESCRIPTION:	Reduce paved shoulder width on rural and side street alignments	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
12.5 mm Superpave	TN	18,000	\$ 80.00	\$ 1,440,000	17,081	\$ 80.00	\$ 1,366,480
19.0 mm Superpave	TN	23,500	\$ 80.00	\$ 1,880,000	22,274	\$ 80.00	\$ 1,781,920
25.0 mm Superpave	TN	47,000	\$ 80.00	\$ 3,760,000	45,162	\$ 80.00	\$ 3,612,960
GAB	SY	125,000	\$ 17.04	\$ 2,130,000	118,232	\$ 17.04	\$ 2,014,673
Sub-total				\$ 7,770,000			\$ 7,409,553
Cons't Mark-up 10.00%				\$ 777,000			\$ 740,955
TOTAL				\$ 8,547,000			\$ 8,150,509
Estimated Savings:							\$396,491

Value Analysis Design Alternative



PROJECT: Georgia Department of Transportation
 STP00-2584-00(009) – P.I. No. 142000
 SR 20 from Rosebud Rd. to Brand Rd.,
 Including 1 Way Pair
 Gwinnett/Walton Counties

ALTERNATIVE NO.:
RD - 20

DESCRIPTION: Revise design to not “take” parcel at Sta. 302+00

SHEET NO.: 1 of 4

Original Design:

The original design at the intersection of the south westerly bound one way with SR 20, requires the taking of the existing residence to the west.

Alternative:

The alternative would be to revise the design, to intersect slightly to the north and east such that the proposed right-of-way line would coincide with the existing property lines thereby not relocating that resident.

Opportunities:

- Significant cost savings
- Reduce project delays for property acquisition
- Eliminate relocation of resident

Risks:

- Minor re-design involved

Technical Discussion:

It appears reasonable to slightly move the intersection to avoid the existing residence. The current design does not appear to provide for any functional requirement that a slight shift would negate.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 343,255	\$ 0	\$ 343,255
ALTERNATIVE	\$ 0	\$ 0	\$ 0
SAVINGS	\$ 343,255	\$ 0	\$ 343,255

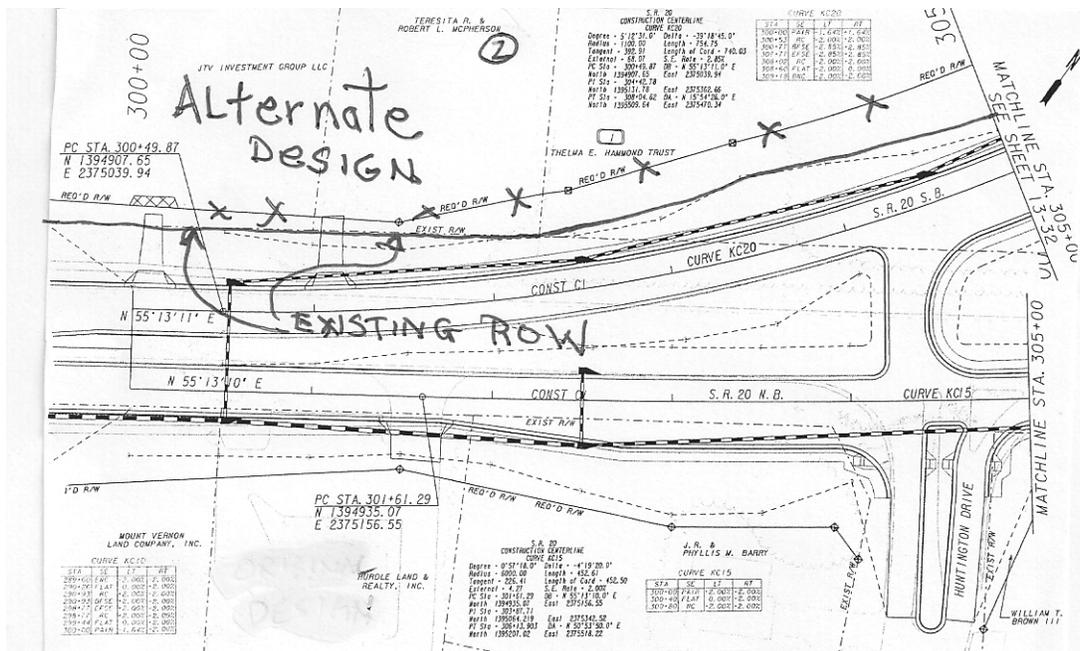
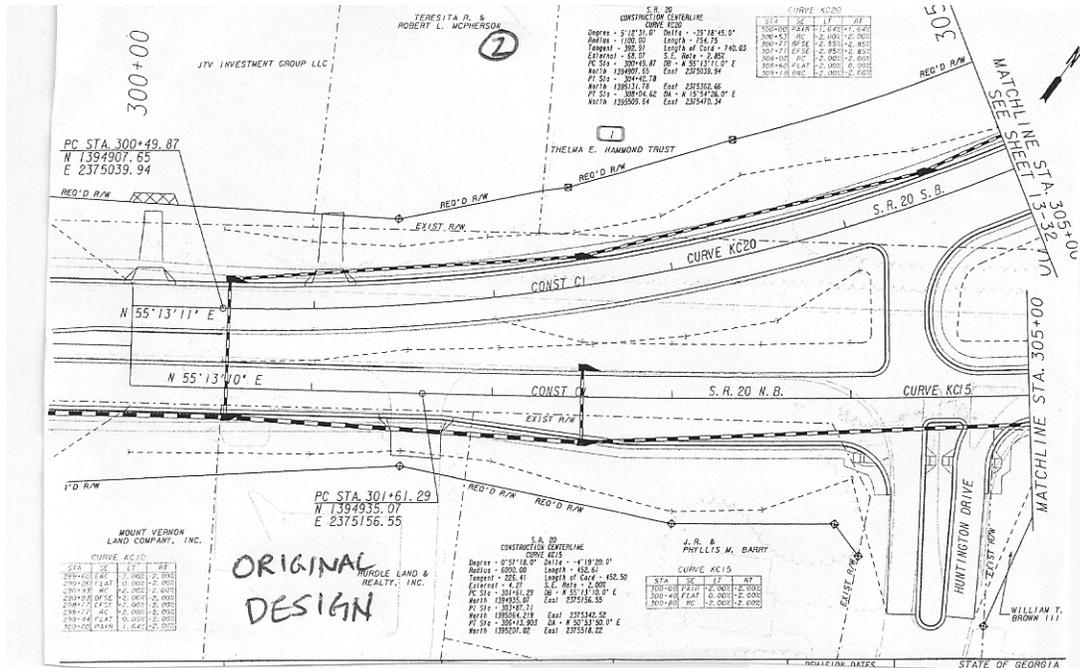
Illustration

PROJECT: Georgia Department of Transportation
STP00-2584-00(009) – P.I. No. 142000
SR 20 from Rosebud Rd. to Brand Rd.,
Including 1 Way Pair
Gwinnett/Walton Counties

ALTERNATIVE NO.:
RD-20

DESCRIPTION: Revise design to not “take” parcel at Sta. 302+00

SHEET NO.: 2 of 4



Calculations



PROJECT: **Georgia Department of Transportation
STP00-2584-00(009) – P.I. No. 142000
SR 20 from Rosebud Rd. to Brand Rd.,
Including 1 Way Pair
Gwinnett/Walton Counties**

ALTERNATIVE NO.:
RD-20

DESCRIPTION: **Revise design to not “take” parcel at Sta. 302+00**

SHEET NO.: **3** of **4**

The current estimate does not show costs for residential relocations so the following is presented as an indication of magnitude.

	length	width	SF	AC	Residence
ROW	15	550	8250	0.19	
Improvements				0	\$ 100,000
Relocation					\$ 25,000
Damages			0		0



Cost Worksheet

PROJECT:	Georgia Department of Transportation STP00-2584-00(009) – P.I. No. 142000 SR 20 from Rosebud Rd. to Brand Rd., Including 1 Way Pair Gwinnett/Walton Counties	ALTERNATIVE NO.:	RD-20
DESCRIPTION:	Revise design to not “take” parcel at Sta. 302+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
Right-of-Way							
Land	Ac	0.04	\$ 20,000	\$ 826	0	\$ 20,000	\$ -
Improvements	Ea	1	\$ 100,000	\$ 100,000	0	\$ 100,000	\$ -
Relocation	Ea	1	\$ 25,000	\$ 25,000	0	\$ 25,000	\$ -
Damage	Ea	1	\$ -	\$ -	0	\$ -	\$ -
Scheduling Contingency		55%	\$ 125,826	\$ 69,205	0%	\$ -	\$ -
Adm/Court Cost		60%	\$ 195,031	\$ 117,019	0%	\$ -	\$ -
Sub-total				\$ 312,050			\$ -
Const Mark-up	10.00%			\$ 31,205			\$ -
TOTAL				\$ 343,255			\$ -

Estimated Savings:	\$343,255
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Value Analysis Design Alternative



PROJECT: Georgia Department of Transportation
 STP00-2584-00(009) – P.I. No. 142000
 SR 20 from Rosebud Rd. to Brand Rd.,
 Including 1 Way Pair
 Gwinnett/Walton Counties

ALTERNATIVE NO.:
RD-22

DESCRIPTION: Delete/relocate u-turn at Overlook Drive

SHEET NO.: 1 of 5

Original Design:

The original design calls for a u-turn with pavement eyebrows at Overlook Drive at approximately STA 295+00 on SR 20 south of the one way pair split.

Alternative:

The alternative would not construct the u-turn at this location.

Opportunities:

- ROW cost savings
- Pavement cost savings
- Eliminate impact to major utility vault

Risks:

- Minimal redesign effort
- Forces longer distance for u-turn movement

Technical Discussion:

The alternative proposes to delete the existing u-turn at STA +/-295+00 just south of the one way pairs junction. The alternative removes the pavement eyebrows, as well as the dedicated storage for u-turners in the NB lane. Removal of the eyebrow in this location will reduce the ROW required on the west side near STA 295+00, possibly minimizing or eliminating impacts to a large utility vault on the west side near STA 294+25. No costs were estimated for mitigation/elimination of this utility relocation. The VE team discussed alternatives to providing u-turn access in an alternate location, and speculated that more ROW may be required at the proposed median crossing at Huntington Drive on the west side to facilitate a wider radius to accommodate truck u-turns. This area of potential additional ROW acquisition is on property requiring a displacement in the current design. This alternative could potentially accommodate u-turn traffic with less cost and disruption.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 16,306,736	\$ 0	\$ 16,306,736
ALTERNATIVE	\$ 16,191,245	\$ 0	\$ 16,191,245
SAVINGS	\$ 115,491	\$ 0	\$ 115,491

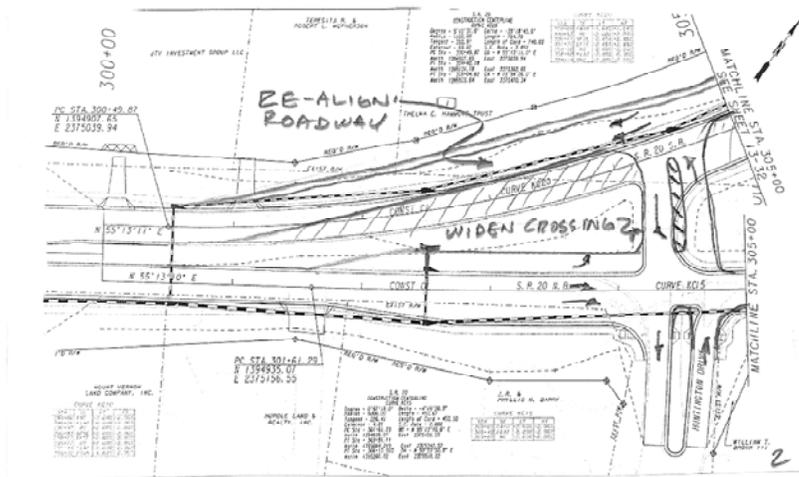
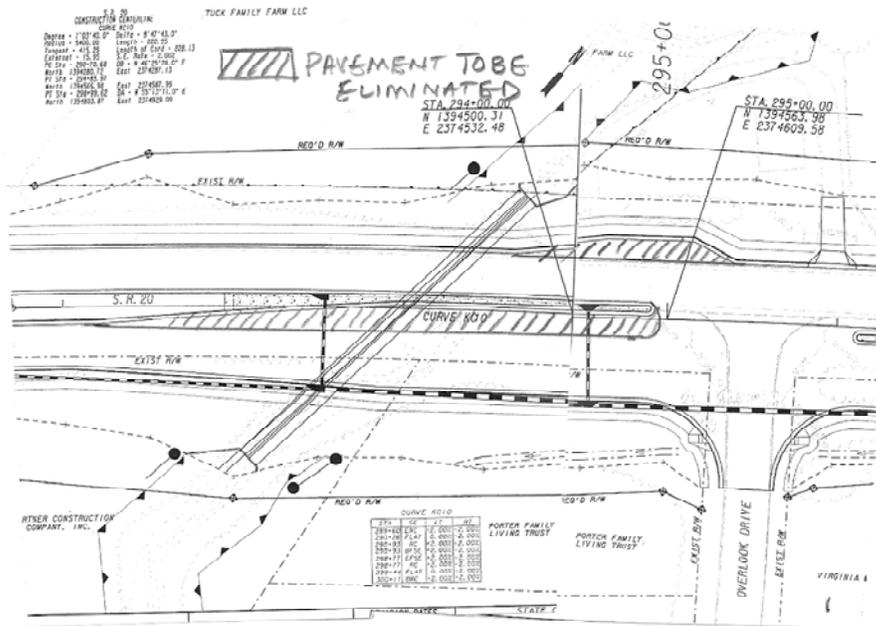
Illustration

PROJECT: **Georgia Department of Transportation
STP00-2584-00(009) – P.I. No. 142000
Widening of SR 20 from Rosebud/Miller Bottom Road
to SR 81 in Loganville
Gwinnett/Walton Counties**

ALTERNATIVE NO.:
RD-22

DESCRIPTION **Delete/relocate u-turn at Overlook Drive**

SHEET NO.: **3** of **5**



Calculations



**PROJECT: Georgia Department of Transportation
STP00-2584-00(009) – P.I. No. 142000
SR 20 from Rosebud Rd. to Brand Rd.,
Including 1 Way Pair
Gwinnett/Walton Counties**

**ALTERNATIVE NO.:
RD-22**

DESCRIPTION: Delete/relocate u-turn at Overlook Drive

SHEET NO.: 4 of 5

ROW costs are derived from cost estimate provided to the team dated April 25, 2002. Composite value per SF was derived by total burdened cost(\$5,614,300) divided by total area(15AC) to arrive at a median, burdened dollar value.

AREA-

Turn lane- 291+00-295+00= 400LF x 10' avg w=4000SF

Median opening=295+00-296+00= 100LF x 14' W=1400SF

Pavement Eyebrow= 293+50-295+50= 200LF x 12' w=2400SF

7800SF total area/43560 sf/ac=0.18AC saved

Material	Location	FROM	TO	Length	Width	SF	SY	#/sy	#/cf	Tons
12.5mm	SR 20			0		7,800	867	165		72
19mm	SR 20			0		7,800	867	220		95
25mm	SR 20			0		7,800	867	440		191
10" GAB	SR 20			0		7,800			135	527

Value Analysis Design Alternative



PROJECT: Georgia Department of Transportation
 STP00-2584-00(009) – P.I. No. 142000
 SR 20 from Rosebud Rd. to Brand Rd.,
 Including 1 Way Pair
 Gwinnett/Walton Counties

ALTERNATIVE NO.:
RD- 27

DESCRIPTION: Modify re-alignment on Centerville/Rosebud Road to the north

SHEET NO.: 1 of 5

Original Design:

The original design calls for re-aligning Centerville/Rosebud Road in order eliminate an undesirable skew.

Alternative:

The alternative would propose utilizing a smaller radius curve and reducing the amount of work on the side street.

Opportunities:

- Reduced paving costs
- Reduced R.O.W. costs

Risks:

- Moderate re-design involved
- Local opposition
- Smaller radius curve on the intersection approach

Technical Discussion:

By using a minimum radius for a 35 mph design speed (314' R @ .08 Superelevation rate) the amount of work can be greatly reduced. A larger radius on the approach to the intersection might be desirable, but it appears the smaller radius should be adequate.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 186,850	\$ 0	\$ 186,850
ALTERNATIVE	\$ 0	\$ 0	\$ 0
SAVINGS	\$ 186,850	\$ 0	\$ 186,850

Illustration

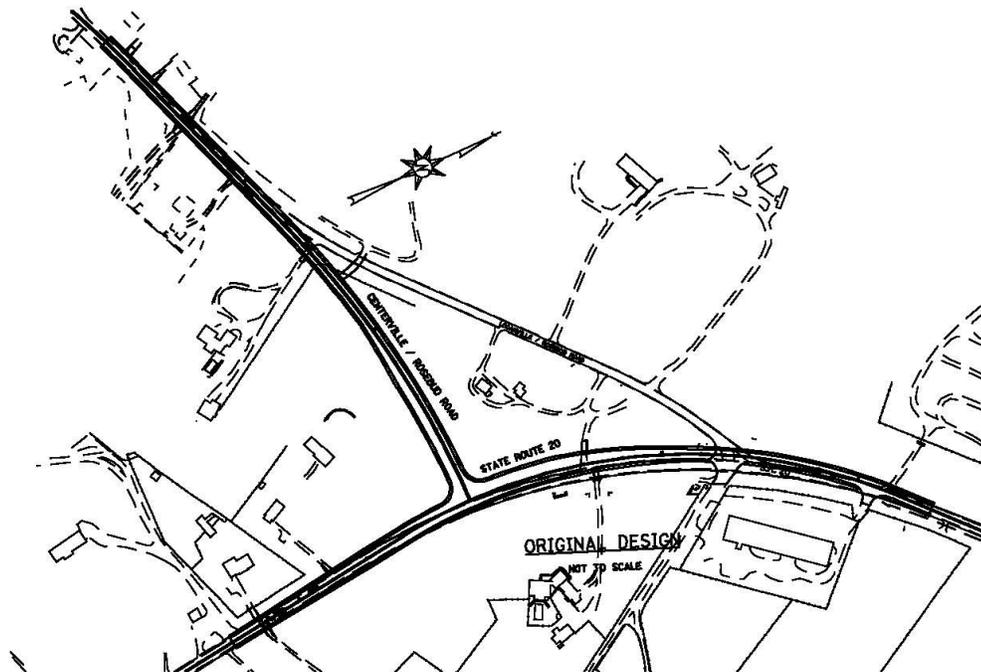


PROJECT: **Georgia Department of Transportation
STP00-2584-00(009) – P.I. No. 142000
SR 20 from Rosebud Rd. to Brand Rd.,
Including 1 Way Pair
Gwinnett/Walton Counties**

ALTERNATIVE NO.:
RD-27

DESCRIPTION: **Modify re-alignment on Centerville / Rosebud Road**

SHEET NO.: **2** of **5**



Illustration

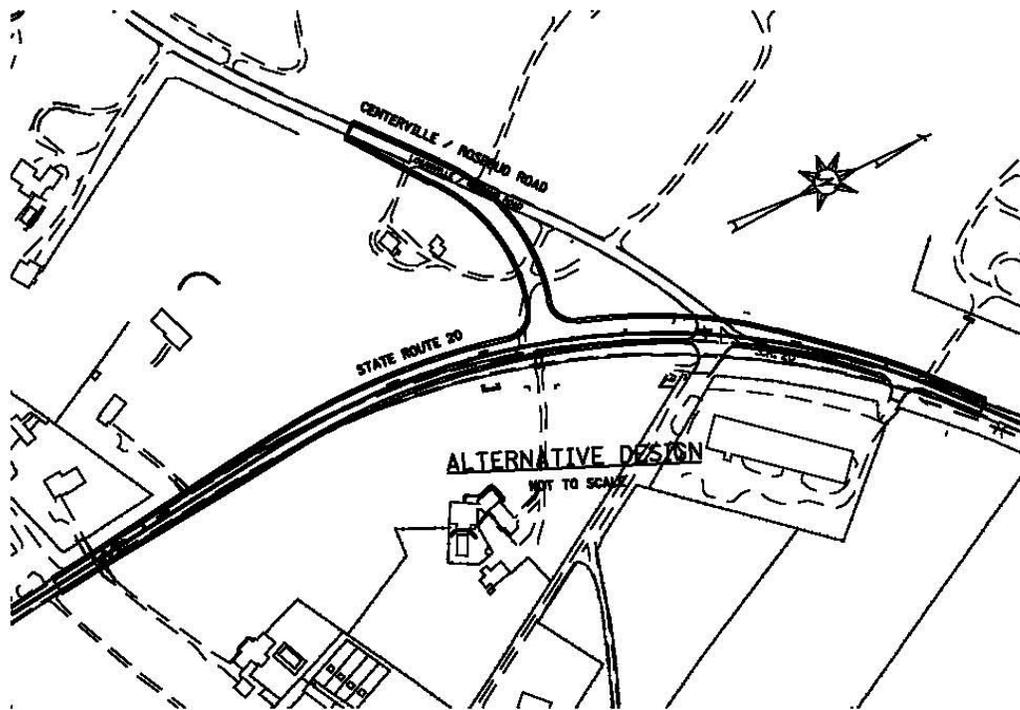


PROJECT: Georgia Department of Transportation
STP00-2584-00(009) – P.I. No. 142000
SR 20 from Rosebud Rd. to Brand Rd.,
Including 1 Way Pair
Gwinnett/Walton Counties

ALTERNATIVE NO.:
RD-27

DESCRIPTION: **Modify re-alignment on Centerville / Rosebud Road**

SHEET NO.: 3 of 5



Calculations



PROJECT: **Georgia Department of Transportation
STP00-2584-00(009) – P.I. No. 142000
SR 20 from Rosebud Rd. to Brand Rd.,
Including 1 Way Pair
Gwinnett/Walton Counties**

ALTERNATIVE NO.:
RD-27

DESCRIPTION: **Modify re-alignment on Centerville / Rosebud Road**

SHEET NO.: **4** of **5**

Assume earthwork cost at \$30,000 complete.

Assume roadway length reduced by 900 LF.

Reduced Paving:

$(900 \times 36') = 32,400 \text{ SF} / (9 \text{ SF/SY}) \Rightarrow 3,600 \text{ SY}$

Superpave 12.5mm = $(3,600 \text{ SY} \times 165/\#2000/\text{TN}) \Rightarrow 297 \text{ TN}$

Superpave 19.0mm = $(3,600 \text{ SY} \times 220/\#2000/\text{TN}) \Rightarrow 396 \text{ TN}$

Superpave 25.0mm = $(3,600 \text{ SY} \times 440/\#2000/\text{TN}) \Rightarrow 792 \text{ TN}$

10" GAB = $32,400 \text{ SF} \times 135\#/\text{CF} \times (10''/12'') / (2000\#/\text{TN}) \Rightarrow 1,823 \text{ TN}$

Reduced Right of Way:

Additional R.O.W. varies 180' to 80': assume 100' average

Reduction $(900 \text{ LF} \times 100' \times 43,560 \text{ sf /ac}) = 2.07 \text{ acres}$

Net Cost 2.07 ac x \$20,000.00/ac = \$ 41,400

Scheduling 55% = \$ 22,770

Administrative 60% = \$ 24,840

Inflation 40% = \$ 16,560

Total = \$ 105,570

Earthwork:

Assume the total to be reduced by 2/3 $(\$30,000 \times .667) = \$20,000$



Cost Worksheet

PROJECT:	Georgia Department of Transportation STP00-2584-00(009) – P.I. No. 142000 SR 20 from Rosebud Road to Brand Road, including one way pair Gwinnett/Walton Counties	ALTERNATIVE NO.:	RD- 27
DESCRIPTION:	Modify re-alignment on Centerville / Rosebud Road to the north	SHEET NO.:	5 of 5

CONSTRUCTION ITEM		ORIGINAL ESTIMATE			PROPOSED ESTIMATE		
ITEM	UNITS	NO. OF UNITS	COST/ UNIT	TOTAL	NO. OF UNITS	COST/ UNIT	TOTAL
12.5 mm Superpave	TN	297	\$ 80.00	\$ 23,760	0	\$ 80.00	\$ -
19.0 mm Superpave	TN	396	\$ 80.00	\$ 31,680	0	\$ 80.00	\$ -
25.0 mm Superpave	TN	792	\$ 80.00	\$ 63,360	0	\$ 80.00	\$ -
GAB	TN	1,823	\$ 17.04	\$ 31,064	0	\$ 17.04	\$ -
Right of Way	LS	1	\$ 105,570.00	\$ -	0		\$ -
Earthwork	LS	1	\$ 20,000.00	\$ 20,000	0		\$ -
Sub-total				\$ 169,864			\$ -
Cons't Mark-up 10.00%				\$ 16,986			\$ -
TOTAL				\$ 186,850			\$ -

Estimated Savings: \$186,850

Value Analysis Design Alternative



PROJECT: Georgia Department of Transportation
 STP00-2584-00(009) – P.I. No. 142000
 SR 20 from Rosebud Rd. to Brand Rd.,
 Including 1 Way Pair
 Gwinnett/Walton Counties

ALTERNATIVE NO.:
RD - 28

DESCRIPTION: Revise design to not “take” parcel at Sta. 185+00 and
 additional right-of-way to Sta. 189+75 +/-

SHEET NO.: 1 of 4

Original Design:

The original design at intersection #3, necessitates the taking of the residence at Sta. 185+00 and additional right-of-way up to Sta. 189+75 to accommodate the design.

Alternative:

The alternative would be to revise the design as need be to allow the proposed right-of-way line to coincide with the existing property lines; or to acquire a temporary easement for the construction grading.

Opportunities:

- Significant cost savings
- Reduce project delays for property acquisition
- Eliminate relocation of resident

Risks:

- Minor re-design involved

Technical Discussion:

The current design proposes a 4:1 side slope to create a new surface ditch to route the runoff from the new roadway. It appears reasonable to increase the side slope to 2:1; provide a guard rail and extend the pavement; and move the proposed right-of-way line to coincide with the existing right-of-way lines thereby eliminating the need for a relocation and taking of other private property.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 329,333	\$ 0	\$ 329,333
ALTERNATIVE	\$ 0	\$ 0	\$ 0
SAVINGS	\$ 329,333	\$ 0	\$ 329,333

Illustration



PROJECT: Georgia Department of Transportation
STP00-2584-00(009) – P.I. No. 142000
SR 20 from Rosebud Rd. to Brand Rd.,
Including 1 Way Pair
Gwinnett/Walton Counties

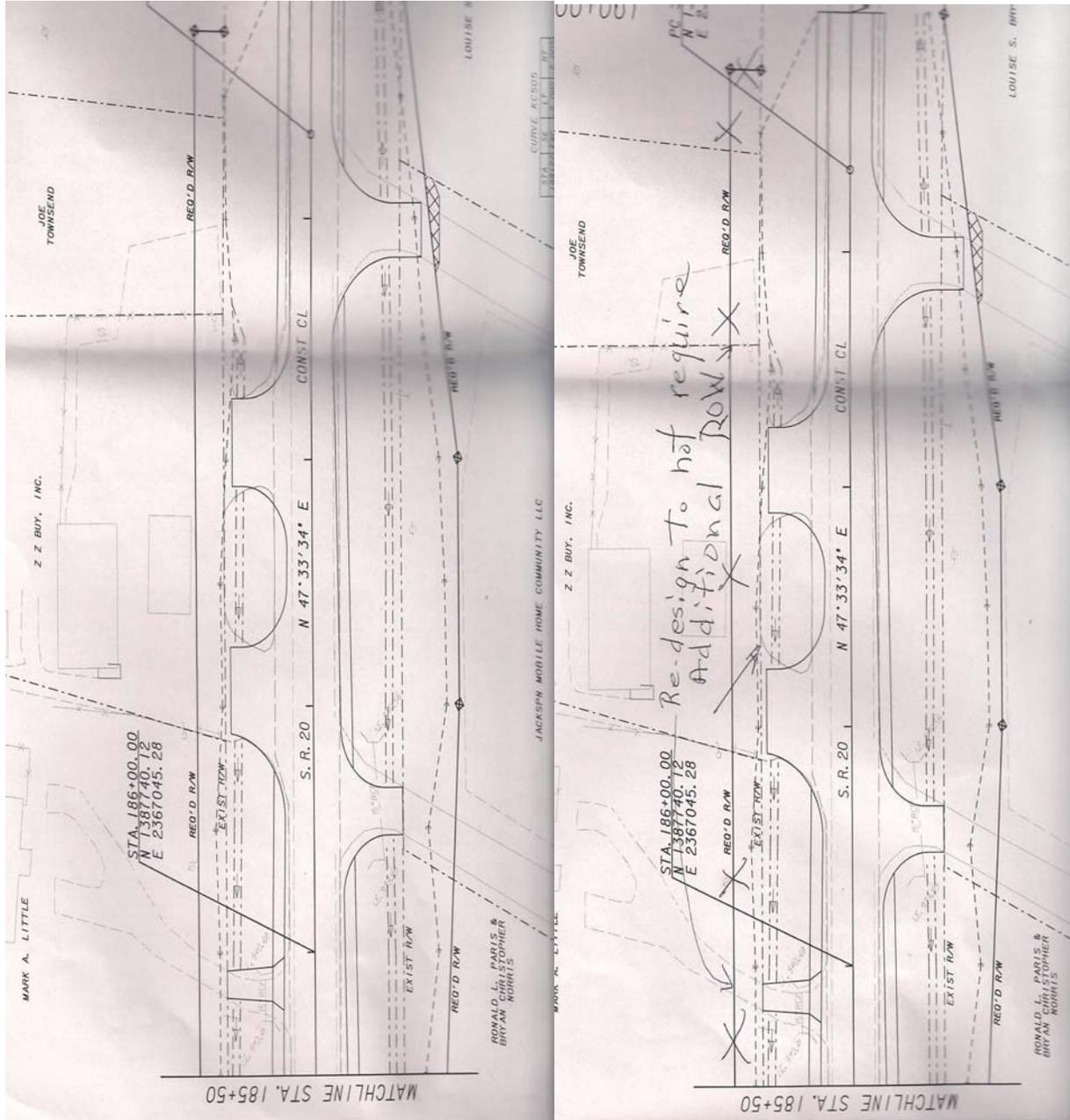
ALTERNATIVE NO.:
RD-28

DESCRIPTION: Revise design to not “take” parcel at Sta. 185+00 and
additional right-of-way to Sta. 189+75 +/-

SHEET NO.: 2 of 4

Current Design takes additional ROW

Alternate Design does not need ROW



Calculations



**PROJECT: Georgia Department of Transportation
STP00-2584-00(009) – P.I. No. 142000
SR 20 from Rosebud Rd. to Brand Rd.,
Including 1 Way Pair
Gwinnett/Walton Counties**

**ALTERNATIVE NO.:
RD-28**

**DESCRIPTION: Revise design to not “take” parcel at Sta. 185+00 and
additional right-of-way to Sta. 189+75 +/-**

SHEET NO.: 3 of 4

The current estimate does not show costs for residential relocations so the following is presented as an indication of magnitude.

	length	width	SF	AC	Residence
ROW	15	550	8,250	0.19	
Improvements				0	\$ 100,000
Relocation					\$ 25,000
Damages			0		0



Cost Worksheet

PROJECT:	Georgia Department of Transportation STP00-2584-00(009) – P.I. No. 142000 SR 20 from Rosebud Rd. to Brand Rd., Including 1 Way Pair Gwinnett/Walton Counties	ALTERNATIVE NO.:	RD-28
DESCRIPTION:	Revise design to not “take” parcel at Sta. 185+00 and additional right-of-way to Sta. 189+75 +/-	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
Right-of-Way							
Land	Ac	0.19	\$ 20,000	\$ 3,788	0	\$ 20,000	\$ -
Improvements	Ea	1	\$ 100,000	\$ 100,000	0	\$ 100,000	\$ -
Relocation	Ea	1	\$ 25,000	\$ 25,000	0	\$ 25,000	\$ -
Damage	Ea	1	\$ -	\$ -	0	\$ -	\$ -
Scheduling Contingency		55%	\$ 128,788	\$ 70,833	55%	\$ -	\$ -
Adm/Court Cost		60%	\$ 199,621	\$ 119,773	60%	\$ -	\$ -
Guard Rail, pavement etc.	LS	0	\$ 20,000	\$ -	1	\$ 20,000	\$ 20,000
Sub-total				\$ 319,394			\$ 20,000
Const Mark-up 10.00%				\$ 31,939			\$ 2,000
TOTAL				\$ 351,333			\$ 22,000
Estimated Savings:							\$329,333

PROJECT DESCRIPTION

INTRODUCTION

The subject of the Value Engineering study is project STP00-2584-00(009) – P.I. No. 142000, widening and reconstruction of SR 20 from Rosebud Road to Brand Road in Walton and Gwinnett counties.

The design for the project has been prepared by Gresham Smith and Partners. At the time of the workshop, the plans had advanced to the preliminary design level.

PROJECT DESCRIPTION

The function of the improvements is to improve safety and operation of SR 20. The length of the project is 6.3 miles. SR 20 is a major north-south connector road that goes through the west side of Walton County and connects with Gwinnett County to the north and Newton County to the south. The existing roadway will be widened from a two lane roadway to a five lane roadway beginning south of Sharon Church Road and then transitioning from the five-lane section to a one-way pair north of Overlook Drive. The one-way pair will utilize existing SR 20/Main Street as the two northbound travel lanes and C.S. Floyd Road as the two southbound travel lanes. The one way pair will continue through downtown Loganville and end at SR 20/SR 81. This will improve portions of SR 20 from a rural major collector to an urban section with curb and gutter. Intersection improvements will be made at Moon Road, Center Hill Church Road, Centerville-Rosebud Road and McCullers Road. Several intersections will be realigned.

The design speed is 45 mph. Traffic will be maintained onsite during construction. At the three intersection improvements, traffic will be maintained as the roadway is widened to accommodate turn lanes. Access to residential and commercial properties will be maintained.

Proposed design plans call for two displacements. In addition, addition right-of-way and easements will be required along the entire project. Proposed right-of-way width varies from 60' to 130'.

Environmental impacts include wetlands/open water, a historic district in downtown Loganville, several churches and cemeteries.

There is one major utility known to be within the project limits is a sanitary sewer line being constructed along SR 20.

The estimated construction cost for the project is \$20,817,475. In addition, Right-of-Way costs are anticipated to be \$5,895,015 with reimbursable utilities cost estimated to be \$866,670. The projected total cost for the project is \$27,579,160.

REPRESENTATIVE DOCUMENTS

- Georgia Department of Transportation
 - Construction Cost Estimates
 - Preliminary Right-of-Way Cost Estimate
 - Concept Reports
 - Project Location Maps
 - Typical Road Section

The VE Team utilized the GDOT supplied project materials noted above plus the preliminary plans provided by Gresham Smith and Partners

Estimate Report for file "142000 STP-2584(9) WALTON COUNTY"

Section Grading and Earthwork					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
210-0100	1	LS	600000.00	GRADING COMPLETE - STP-2584(9)	600000.00
Section Sub Total:					\$600,000.00

Section Drainage					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
550-1240	24000	LF	41.79	STORM DRAIN PIPE, 24 IN, H 1-10	1002960.00
550-4118	75	EA	379.53	FLARED END SECTION 18 IN, SIDE DRAIN	28464.75
668-1100	120	EA	2429.74	CATCH BASIN, GP 1	291568.80
668-2100	32	EA	2360.78	DROP INLET, GP 1	75544.96
Section Sub Total:					\$1,398,538.51

Section Major Structures					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
500-3107	100	CY	397.45	CLASS A CONCRETE, RETAINING WALL	39745.00
500-3800	275	CY	653.93	CLASS A CONCRETE, INCL REINF STEEL - BOX CULVERT	179830.75
Section Sub Total:					\$219,575.75

Section Miscellaneous					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
000-0000	1	Lump Sum	400000.00	Landscape / Streetscape - Local money	400000.00
000-0001	1	Lump Sum	800000.00	Erosion Control Lump Sum	800000.00
000-0002	1	Lump Sum	350000.00	Signing and Marking Lump Sum	350000.00
000-0003	1	Lump Sum	100000.00	Highway Lighting Lump Sum - Local money	100000.00
150-1000	1	LS	300000.00	TRAFFIC CONTROL - STP-2584(9)	300000.00
153-1300	3	EA	73914.48	FIELD ENGINEERS OFFICE TP 3	221743.44
163-0232	28	AC	283.37	TEMPORARY GRASSING	7934.36
201-1500	1	LS	400000.00	CLEARING & GRUBBING -	400000.00
700-6910	56	AC	674.07	PERMANENT GRASSING	37747.92
Section Sub Total:					\$2,617,425.72

Section Base and Paving					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
310-1101	125000	TN	17.04	GR AGGR BASE CRS, INCL MATL	2130000.00
402-1811	2500	TN	80.00	RECYCLED ASPH CONC LEVELING, INCL BITUM MATL	200000.00
402-3121	47000	TN	80.00	RECYCLED ASPH CONC 25 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME	3760000.00
402-3130	18000	TN	80.00	RECYCLED ASPH CONC 12.5 MM SUPERPAVE, GP 2 ONLY, INCL BITUM MATL & H LIME	1440000.00
402-3190	23500	TN	80.00	RECYCLED ASPH CONC 19 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME	1880000.00
413-1000	18000	GL	2.00	BITUM TACK COAT	36000.00
432-5010	14500	SY	1.16	MILL ASPH CONC PVMT, VARIABLE DEPTH	16820.00
441-0104	80000	SY	30.72	CONC SIDEWALK, 4 IN	2457600.00
441-0748	6500	SY	55.09	CONCRETE MEDIAN, 6 IN	358085.00
441-5002	600	LF	12.57	CONCRETE HEADER CURB, 6 IN, TP 2	7542.00
441-6222	48000	LF	14.96	CONC CURB & GUTTER, 8 IN X 30 IN, TP 2	718080.00
441-6740	13000	LF	13.20	CONC CURB & GUTTER, 8 IN X 30 IN, TP 7	171600.00
446-1100	3000	LF	4.57	PVMT REINF FABRIC STRIPS, TP 2, 18 INCH WIDTH	13710.00
Section Sub Total:					\$13,189,437.00

Section Traffic Signals					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
647-1000	9	LS	100000.00	TRAFFIC SIGNAL INSTALLATION NO -	900000.00
Section Sub Total:					\$900,000.00

Total Estimated Cost: \$18,924,976.98

Subtotal Construction Cost	\$18,924,976.98
E&C Rate 10.0 %	\$1,892,497.70
Inflation Rate 0.0 % @ 0 Years	\$0.00

Total Construction Cost	\$20,817,474.68
Right Of Way	\$5,895,015.00
ReImb. Utilities	\$866,670.00

Grand Total Project Cost \$27,579,159.68

**Georgia Department of Transportation
Office of Consultant Design**

CONCEPT VALIDATION REPORT

January 30, 2008

Project No. STP-2584(9) Walton County
P.I. No. 142000

Prepared by

Gresham, Smith and Partners
2325 Lakeview Parkway, Suite 400
Alpharetta, Georgia 30004
770-754-0755



GS&P Project No. 24306.00

1.0 PROJECT CONSTRUCTABILITY

SR 20 is a major north-south connector road that travels through the west side of Walton County and connects with Gwinnett County to the north and Newton County to the south. The approved concept for project STP-2584(9) is to improve safety and operation of SR 20 between Rosebud/Miller Bottom Road and SR 20/SR81 (Loganville Hwy) by implementing intersection improvements at Moon Road, Center Hill Church Road, Centerville-Rosebud Road and McCullers Road. In addition, the existing roadway will be widened from a two lane roadway to a five lane roadway beginning south of Sharon Church Road and then transitioning from the five-lane section to a one-way pair north of Overlook Drive. The one-way pair will utilize existing SR 20/Main Street as the two northbound travel lanes and C.S. Floyd Road as the two southbound travel lanes. The one-way pair will continue through downtown Loganville and end at SR20/SR 81. The project will improve portions of SR 20 from a rural major collector to an urban section with curb and gutter. The project begins at the intersection of SR 20 at Rosebud/Miller Bottom Road and ends at the intersection of Brand Road and SR20 in Gwinnett County for a total project length of 6.30 miles.

The initial concept for SR 20 was prepared by the Georgia Department of Transportation (GDOT) for the purpose of estimating construction costs. The concept layout has been maintained as closely as possible, but details have been changed as noted in the description below.

The alignment for the intersection improvements and the four-lane section has been laid out with considerations for widening the entire length of SR 20 through this corridor to 4 lanes with a depressed or raised median in the future. The alignment was also set to aid in the maintenance of traffic during construction of the intersections as well as the future 4-lane section. The project begins at Rosebud/Miller Bottom Road and immediately shifts to the west side of the existing roadway to avoid a church and cemetery between Moon Road and Center Hill Church Road. The connection for Moon Road has been relocated behind the church and cemetery to tie into Center Hill Church Road rather than into SR 20. Moon Road was moved from the original concept location on the south side of the church because of a baseball field being constructed in that parcel. The alignment stays to the west for approximately 3000 feet to avoid a potential historic resource before transitioning to the east near the Loganville/Rosebud Road intersection. This intersection remains as laid out in the concept report with slight changes to meet the speed design of the roads. The SR 20 alignment is set up for symmetrical widening from this point going north for approximately 2 miles. This section includes the intersection with McCullers Road. McCullers Road currently meets SR 20 at an offset intersection and both sides were realigned as part of the concept plan to form a 4-way intersection. This location has been retained in the revised concept and care has been taken to avoid the two gas stations located at this intersection. Continuing north, the future alignment has been set up to minimize the impacts between the Creekwood and Logans Bluff subdivisions while improving the current design to meet the speed design (45 mph). Beyond the subdivision

Project Concept Validation Report
STP-2584(9)
Walton County
P.I. No. 142000

limits, SR 20 will shift to the west to aid in maintaining traffic during construction by using the current roadway alignment for the northbound lanes.

2.0 MAINTENANCE OF TRAFFIC / SEQUENCE OF CONSTRUCTION

- Traffic will be maintained onsite during construction of this project. All access to residential and commercial driveways will be maintained during project construction. All drainage will be maintained while the project is under construction.
- At the three intersection improvements, traffic will be maintained as the roadway is widened to accommodate turn lanes.
- On the five-lane section prior to the one-way pair, the road will be widened to the southwest side while traffic is maintained at the site.
- On the one-way pair, roadway improvements will be constructed under traffic.

3.0 CONFIRMATION OF TRAFFIC SIGNAL LOCATIONS

Please refer to the attached traffic engineering report for locations of existing and proposed traffic signals.

4.0 CONSTRUCTION AND RIGHT OF WAY COST ESTIMATES

The construction and right of way cost estimates as shown in the Approved Concept Report are:

Construction cost (including inflation and E&C)	\$10,438,824
Utility Reimbursements	\$825,400
Right of way	\$5,614,300

During concept validation substantial differences were found in the concept plan and it was determined that the concept cost estimate was prepared in 2002. Therefore the concept cost estimates need to be revised to reflect the current cost structures.

The revised construction and right of way cost estimates as shown in the Revised Concept Report are:

Construction cost	\$28,267,811.12
Utility Reimbursements	\$866,670.00
Right of way	<u>\$5,895,015.00</u>
Total	\$35,029,496.12

Project Concept Validation Report
STP-2584(9)
Walton County
P.I. No. 142000

Because the total cost of the project exceeds \$25 million, GS&P recommends a Value Engineering Study be conducted for the project.

5.0 IMPACTS TO COMMUNITY

The construction of this project will possibly require 2 displacements. In addition to the possible displacements, additional right-of-way and easements will be required along the entire length of the project. The proposed right of way width varies from 60 feet to 130 feet in width. The existing right of way is generally 60 to 100 feet wide.

The location of this project presents many environmental design challenges in addition to traffic-related issues. The following items are constraints within the project area that have been given careful consideration and coordination throughout the concept validation phase:

- **Wetlands/Open Waters:** Wetlands and streams will be impacted by the project. Wetlands and streams will be shown on the plans and impacts will be coordinated with GDOT.
- **Historic Districts/Property:** A historic district in downtown Loganville will be impacted by the project.
- **Church/Cemetery:** Several Churches with cemeteries are located on SR 20. These include Center Hill Baptist Church and Cemetery located at SR 20 and Center Hill Church Road, Methodist Cemetery located at the intersection of C.S. Floyd and U.S. Hwy 78, Loganville Christian Church, Loganville First United Methodist Church, and Loganville Baptist, all located in or near the downtown Loganville area. Moon Road will be realigned to intersect with Center Hill Church Road behind Center Hill Baptist Church and Cemetery, and the existing Moon Road pavement will be obliterated. All other church and cemetery sites will be minimally impacted.

6.0 UTILITY CONFLICTS

One major utility known to be within the project limits at this time is a sanitary sewer line being constructed along SR 20. A SUE investigation of all existing utilities is being performed with the project.

7.0 STEPS TO MINIMIZE ENVIRONMENTAL IMPACTS

The design team is working closely with GDOT on environmental impacts and will minimize impacts throughout the project.

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Project Concept Validation Report
STP-2584(9)
Walton County
P.I. No. 142000

8.0 STEPS TO MINIMIZE UNEXPECTED DESIGN AND RIGHT OF WAY PROBLEMS

Throughout the concept validation process the design team has diligently analyzed potential design challenges and has developed alternative solutions to minimize unexpected design and right-of-way problems. We anticipate this process to continue through the design process.

ATTACHMENTS

1. Approved Concept Report dated June 5, 2002
2. Revised Concept Report
3. Traffic Engineering Report
4. Half size Concept Validation Plans
5. Roll Plots of the Project

REVISED PROJECT CONCEPT REPORT

STP-2584 (9) Walton

P.I. No. 142000

Need and Purpose: The purpose of project is to improve safety and operation of SR 20 between Rosebud/Miller Bottom Road and SR 20 (Loganville Highway) by implementing intersection improvements and widening the existing roadway from two lanes to a five lane roadway (two travel lanes in each direction with a center turn lane), between Sharon Church Road and SR 20 (Loganville Highway). The project will improve portions of SR 20 from a rural major collector to an urban section with curb and gutter. The project begins just north of the intersection of SR 20 at Rosebud/Miller Bottom Road and ends at SR 20/SR 81 in Loganville for a total project length of 5.50 miles.

The existing 1999 traffic along this section of SR 20 ranges between 7,559 and 12,625 VPD and 10.5% is truck traffic. Future design traffic is expected to range between 17,600 AADT in 2005 and 35,020 in year 2025. The current level of service along this section of SR 20 is LOS E, which is unacceptable. With no improvements, the LOS for this section of SR 20 will be LOS F in year 2005. With improvements, this section of SR 20 can expect to operate at a LOS B and C in year 2025, a level considered acceptable.

The 1995, 1996, and 1997 accident rates along this section of roadway were below the statewide average for a road of this type (rural major collector, non-NHS). "No passing sight distance" (NPSD) greatly limits passing opportunities along this section of SR 20. The majority of the accidents that occurred along this section of roadway were "angle intersecting" and "rear end" which typically reflect turning movement incidents. The implementation of intersection improvements will separate turns from through movements, increasing safety and mobility along this route.

The existing land use within the project area is a combination of residential and agricultural with some light commercial. It is not anticipated that the land use will change.

This section of SR 20 does not provide optimal passing opportunities, which causes vehicles to platoon. Presently, there are limited passing opportunities due to the existing horizontal and vertical geometry, which does not provide adequate sight distance for passing. The proposed project will improve capacity to an acceptable level, will reduce vehicle delays and will improve safety.

The southern terminus of this project will tie into the existing two-lane section of SR 20. At this point, the traffic drops from 7,559 to 5,854 VPD. The northern terminus of this project will tie into the existing two-lane section of SR 20. At this point, the traffic decreases from 12,265 to 6,023 VPD.

Project location: This project is located on S.R. 20 in Walton County. S.R. 20 is also known as Loganville Highway. The total project length on S.R. 20 is 5.5 miles.

Description of the approved concept: This project is located in eastern Walton County, beginning just north of the intersection of SR 20 with Rosebud Road/Miller Bottom Road and ending at SR 20 and SR 81 in Loganville. The project includes intersection improvements along SR 20 at Moon Road, Center Hill Church Road, Centerville-Rosebud Road, and McCullers Road. The existing 2-lane roadway will be widened to a five-lane roadway beginning south of Sharon Church Road and transition from the five-lane section to a one-way pair north of Overlook Drive. The one-way pair will utilize existing SR 20/Main Street as the two northbound travel lanes and C.S. Floyd Road as the two southbound travel lanes. The one-way pair will continue through downtown Loganville and end at SR 20/SR 81.

PDP Classification:

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

Functional Classification: Rural Major Collector

U. S. Route Number(s): N/A

State Route Number(s): 20/81

Traffic (AADT) as shown in the approved concept:

Current Year: 17,600 (2005)

Design Year: 35,020 (2025)

Proposed features to be revised: The typical section and the project termini have been revised. The alignment, access control and controlling criteria have not changed.

Describe the revised feature(s) to be approved: The project termini have been extended approximately 0.8 miles from the intersection of State Roads 20 and 81 to the intersection of Brand Road and SR 20. The typical section for this extended portion will include four 12 ft. lanes with a 20 ft. raised median, curb and gutter with 5' sidewalks on each side. This project will match the typical section of a project to widen SR 20 in Gwinnett County, project MSL-0004-00(644), and will be coordinated for accurate tie-ins.

Updated traffic data (AADT):

Downtown:

Current Year: 21,300 (2007)

Open Year: 25,010 (2012)

Design Year: 46,230 (2032)

Rural:

Current Year: 13,700 (2007)

Open Year: 14,930 (2012)

Design Year: 27,020 (2032)

Programmed/Schedule:

P.E. 1999

R/W: LR

Construction: LR

Revised cost estimates:

1. Construction cost,
2. Right-of-way, and
3. Utilities

\$28,267,811.12

\$5,895,015.00

\$866,670.00

Is the project located in a Non-attainment area? Yes No
The proposed project conforms to the model plans' description.

Recommendation: Recommend that the proposed revision to the concept be approved for implementation.

Attachments:

1. Sketch Map
2. Cost Estimate

Concur: _____
Director of Preconstruction

Approve: _____
Chief Engineer

VALUE ENGINEERING PROCESS

This report summarizes the analysis and conclusions by the PBS&J Value Engineering team as they performed a VE Study during the period of September 8 through September 11, 2009 in Atlanta, Georgia, for the Georgia Department of Transportation.

INTRODUCTION

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

Les M. Thomas, PE, CVS-Life	Team Leader
Luke Clarke, PE, AVS	Senior Highway Design Engineer
Kevin Martin, Esq., AVS	Highway Construction Specialist
Randy S. Thomas, CVS	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) staff and Parsons Engineering. This briefing included discussions of the design intent behind the project, the cost concerns, and 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 supposed to do?”, and “How is it supposed 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. A FAST diagram was prepared highlighting the projects required functions.

- The important functions of the project were identified as follows:
 - **Project Objective/Goals**
 - **Improve operational conditions**
 - **Improve safety**
 - **Maintain historical properties**
 - **Increase capacity**
 - **Project Basic Functions**
 - **Reduce accidents**
 - **Improve traffic access**
 - **Meet standards**
- **Speculation Phase** - The VE team performed a brainstorming session to identify ideas that might help meet the project objectives:
 - **Eliminate non-functional work**
 - **Improve intersections**
 - **Minimize environmental impacts**
 - **Maintain traffic access**

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
- Improve value
- Maintainability
- Ability to implement the idea
- General acceptability of the alternatives

- Constructability
- Scheduling delays

Based on these criteria, 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 whose rating was “4” or “5” because of time constraints. If time permitted, the team will develop additional recommendations. 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.

VALUE ENGINEERING STUDY AGENDA

for

Georgia Department of Transportation

Project No. STP00-2548-00(009)

P.I. No. 142000

SR 20 from Rosebud Road to Brand Road

Including One Way Pair

Gwinnett/Walton Counties

September 8-11, 2009

Pre-Workshop Activities

VE Team Leader organizes study, coordinates with the Owner and Designer the project objectives and materials necessary. The VE Team receives and reviews all project documents. The team develops a Pareto Chart and/or Cost Model for the project.

Day One

9:00-10:30 Design Team Presentation (Information Phase)

- Introduction of participants, owner, designer, and VE team members
- Presentation of the project by the design engineer including:
 - History and background
 - Design Criteria and Constraints
 - Special "U" turn requirements
 - Special needs (schools, businesses, etc.)
 - Sidewalks, bicycle lanes, and or multi-use trails
 - Historical Property protection
 - Current Construction Completion Schedule
 - Project Cost Estimate and Budget Constraints
- Owner Presentation – special requirements, definition of life cycle period and interest rate for life cycle costs
- Review VE Pareto Chart/Cost Model
- Discussion, questions and answers
- Overview of the VE Process and Agenda – Workshop goals & project goals

10:30-12:00 VE Team reviews project (Information Phase)

- Review design team's presentation
- Review agenda and goals of the study
- Visit project site if time permits

1:00-2:30 Function Analysis Phase

- Analyze Cost Model – Pareto
- Identify basic and secondary functions
- Complete Function Matrix/FAST Diagram

2:30-5:00 Creative Phase

- Brainstorming of alternative ideas

Day Two

8:00-10:00 Evaluation Phase

- Establish criteria for evaluation
- Rank ideas
- Identify “best” ideas for development
- Identify those ideas that will become Design Suggestions
- Develop a cost/worth analysis
- Identify a “champion” for each idea to be developed

10:00-5:00 Development Phase

- Develop alternative ideas design suggestions with assessment of original design and write up new alternatives including:
 - Opportunities & risks
 - Illustrations
 - Calculations
 - Cost worksheets
 - Life cycle cost analysis

Day Three

8:00-5:00 Development Phase

- Continue developing Alternative Ideas
- Continue developing Design Suggestions
- Prepare for presentation to Owners and Designers

Day Four

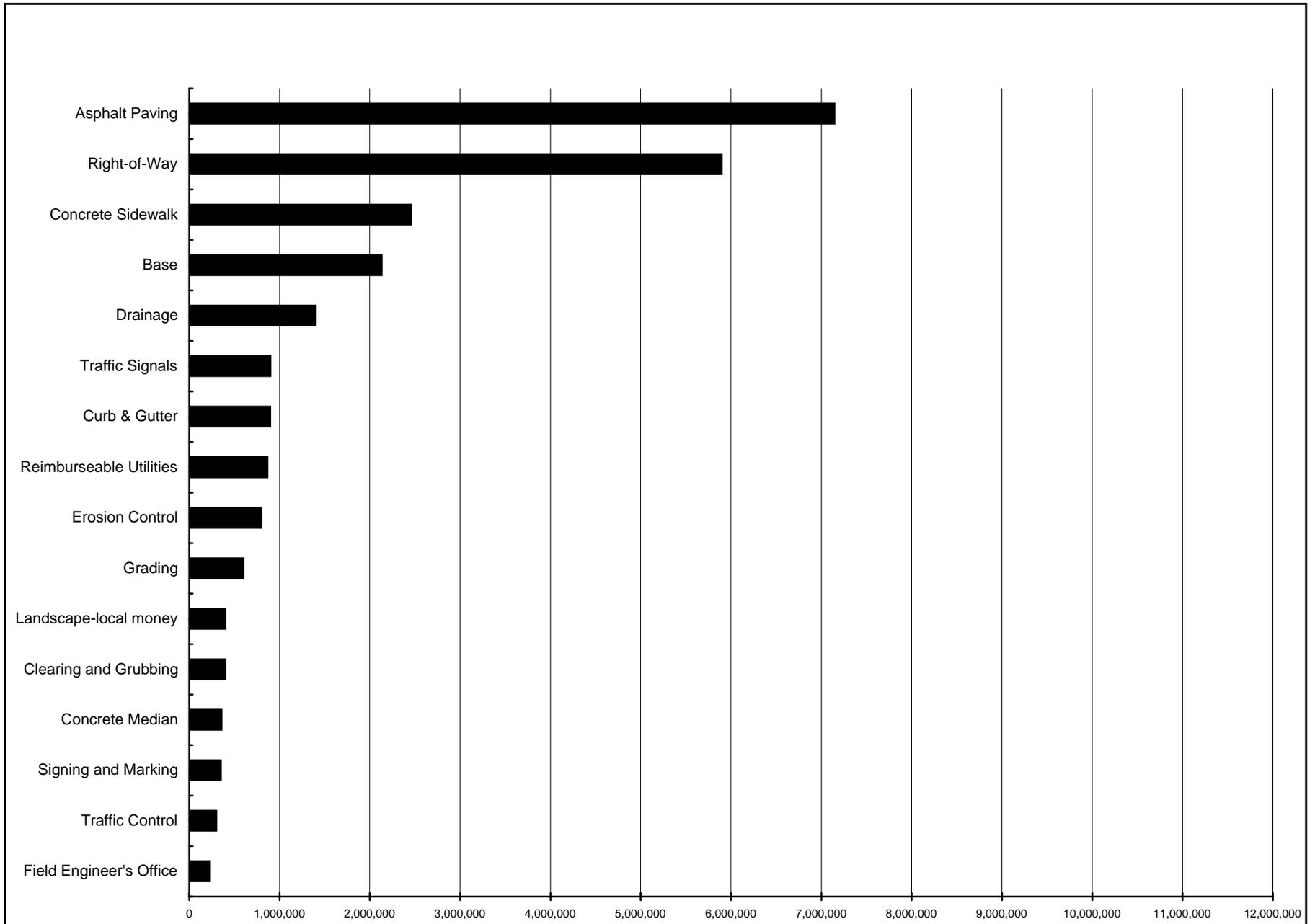
8:00-9:00 Prepare Presentation

9:00-10:00 VE Team Presentation

PARETO CHART - COST HISTOGRAM



PROJECT: Georgia Department of Transportation			
STP00-2584-00(009) - P.I. No. 142000			
SR 20 from Rosebud Rd. to Brand Rd; Including 1 Way Pair			
Gwinnett/Walton Counties			
PROJECT ELEMENT	COST	PERCENT	CUM. PERCENT
Asphalt Paving	7,146,530	27.82%	27.82%
Right-of-Way	5,895,015	22.95%	50.77%
Concrete Sidewalk	2,457,600	9.57%	60.34%
Base	2,130,000	8.29%	68.63%
Drainage	1,398,539	5.44%	74.08%
Traffic Signals	900,000	3.50%	77.58%
Curb & Gutter	897,222	3.49%	81.07%
Reimbursable Utilities	866,670	3.37%	84.45%
Erosion Control	800,000	3.11%	87.56%
Grading	600,000	2.34%	89.90%
Landscape-local money	400,000	1.56%	91.45%
Clearing and Grubbing	400,000	1.56%	93.01%
Concrete Median	358,085	1.39%	94.41%
Signing and Marking	350,000	1.36%	95.77%
Traffic Control	300,000	1.17%	96.94%
Field Engineer's Office	221,743	0.86%	97.80%
Major Structures	219,576	0.85%	98.65%
Asphalt Leveling	200,000	0.78%	99.43%
Lighting	100,000	0.39%	99.82%
Grassing	45,682	0.18%	100.00%
Construction Cost including ROW & Utilites	\$ 25,686,662		
Construction Cost less ROW & Utilites	\$ 18,924,977		
E & C Rate @10%	\$ 1,892,498		
Total Construction Costs	\$ 20,817,475		
Right-of-Way	\$ 5,895,015		
Utilities Reimbursement	\$ 866,670		
TOTAL	\$ 27,579,160		



CUSTOMER FUNCTION/TASK DIAGRAM

Project No.STP00-2584-00(009)

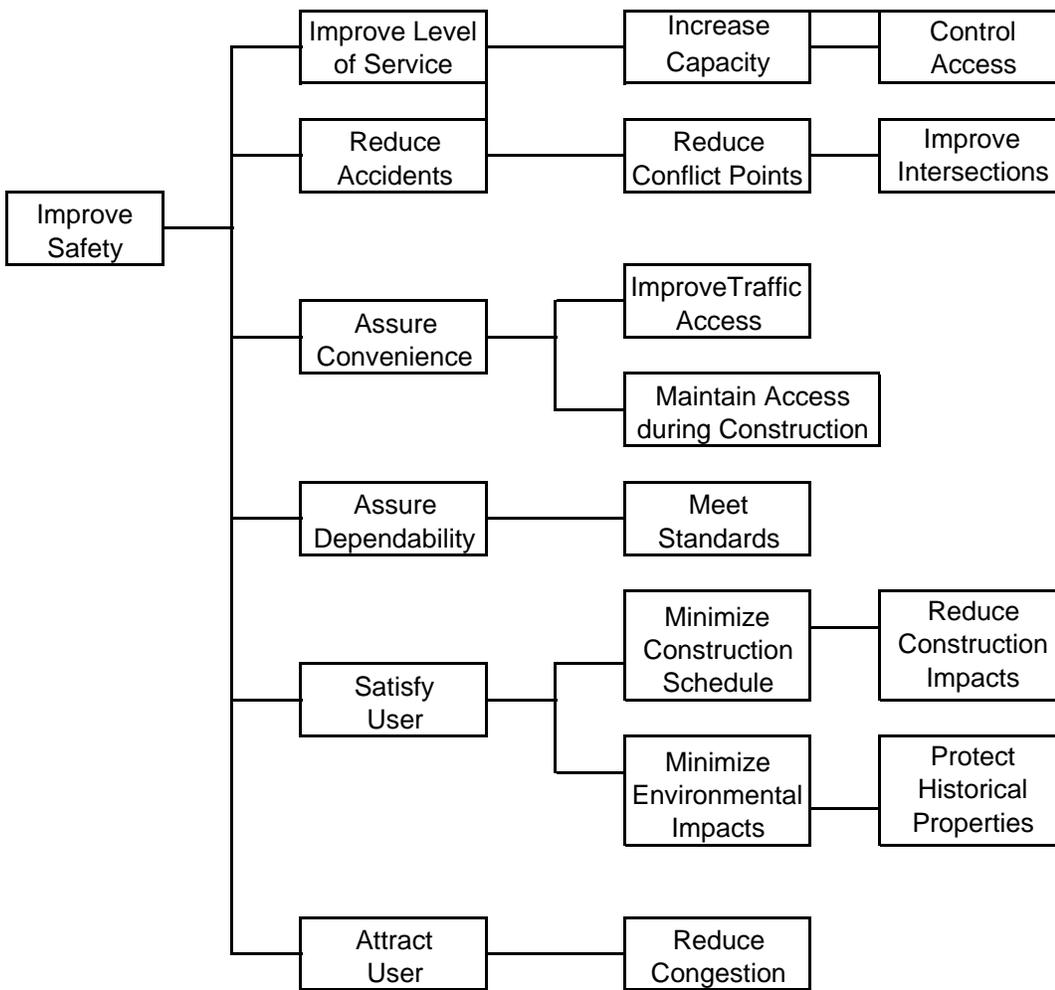
P.I. No. 142000

Gwinnett/Walton Counties

SR 20 from Rosebud Rd. to Brand Rd. including One Way Pair

HOW →

← WHY



DESIGNER PRESENTATION



MEETING PARTICIPANTS

Geogia Department of Transportation		September 8, 2009		
STP00-2584-00(009) - P.I. No. 142000				
Gwinnett/Walton Counties				
NAME	ORGANIZATION & TITLE		E-MAIL	PHONE
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James K. Magnus		GDOT-Construction	jmagnus@dot.ga.gov	404-631-1971
Matt Sanders		GDOT-Engineering Services	msanders@dot.ga.gov	404-631-1752
Les Thomas, PE, CVS		PBS&J	lmthomas@pbsj.com	678-677-6420
Luke Clarke, PE, AVS		PBS&J	lwclarke@pbsj.com	205-746-4615
Kevin Martin, Esq., AVS		PBS&J	klmartin@pbsj.com	205-969-3776
Kim Coley		GDOT-District Environmental	kcoley@dot.ga.gov	770-532-5582
Neil Kantner		GDOT-District 1- Design Engineer	nkantner@dot.ga.gov	770-532-5522
Jody Braswell		Gresham Smith & Partners	jody_braswell@gspnet.com	678-518-3655
Brian O'Connor		Gresham Smith & Partners	brian_oconnor@gspnet.com	678-518-3659

VE TEAM PRESENTATION



MEETING PARTICIPANTS

Georgia Department of Transportation		September 11, 2009		
Project STP00-2584-00(009) - P.I. No. 142000				
Gwinnett/Walton Counties				
NAME	ORGANIZATION & TITLE		E-MAIL	PHONE
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Matt Sanders		GDOT-Engineering Services	msanders@dot.ga.gov	404-631-1752
Les Thomas, PE, CVS		PBS&J	lmthomas@pbsj.com	678-677-6420
Luke Clarke, PE, AVS		PBS&J	lwclarke@pbsj.com	205-746-4615
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Neil Kantner		GDOT-District 1- Design Engineer	nkantner@dot.ga.gov	770-532-5522
Jody Braswell		Gresham Smith & Partners	jody_braswell@gspnet.com	678-518-3655
Brian O'Connor		Gresham Smith & Partners	brian_oconnor@gspnet.com	678-518-3659

CREATIVE IDEA LISTING



**PROJECT: Georgia Department of Transportation
STP00-2584-00(009) – P.I. No. 142000
SR 20 from Rosebud Rd. to Brand Rd., Including 1 Way Pair
Gwinnett/Walton Counties**

SHEET NO.: 1 of 2

NO.	IDEA DESCRIPTION	RATING
	ROADWAY (RD)	
RD-1	Do not reconstruct Publix Drive	4
RD-2	Cul-de-sac the south end of Publix Drive	1
RD-3	Move one pair connection east to Walton Street	1
RD-4	Build a four lane section on Line Street	2
RD-5	Delete Tuck Road and Sharon Church Road relocations	2
RD-6	Delete Sharon Church Road “U” turn	3
RD-7	Realign Tuck Road to Sharon Church Road	4
RD-8	Delete Tuck Road relocation	4
RD-9	Use a 12’ shoulder in-lieu of a 16’ urban shoulder	4
RD-10	Use a grass median in-lieu of concrete median	2
RD-11	Reduce shoulder width on rural sections	2
RD-12	Reduce width on side streets	2
RD-13	Reduce paved shoulder width on all rural and side street alignments	4
RD-14	Reduce paved shoulder on side streets	See RD-13
RD-15	Build a four lane urban section in-lieu of five lane on SR 20/ SR 81	3
RD-16	Leave Moon Road as a right-in/right-out	2
RD-17	Use 12’ outside lanes; 11’ inside lanes	2
RD-18	Use 4’ wide sidewalks	2
RD-19	Eliminate storm sewer in selected areas	2
RD-20	Revise design to not “take” parcel at Sta. 302+00	5
RD-21	Lower profile grade to reduce required Right-of-Way	3

**Rating: 1→2 = Not to be Developed; 3 = Varying Degrees of Development Potential;
4→5 = Most likely to be Developed; DS = Design Suggestion; ABD = Already Being Done; OB= Observation**

