

Value Engineering Study Report

Georgia Department of Transportation
STP00-00MS-00(005) - P.I. No. 550560
Whitfield Ave./SR 204 Spur
Old Whitfield Avenue to Ferguson Avenue
Chatham County



Value Engineering Team



Design Team



February 12, 2010



February 12, 2010

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
STP00-00MS-00(005) - P.I. No. 550560
Whitfield Ave./SR 204 Spur
Old Whitfield Avenue to Ferguson Avenue
Chatham County

Dear Ms. Myers:

Please find enclosed two (2) hard copies and one (1) CD of our final Value Engineering Report for Whitfield Ave./SR 204 Spur, Old Whitfield Avenue to Ferguson Avenue.

Using the Value Engineering "Job Plan" – Investigation, Analysis (*Function*), Speculation, Evaluation & Development, the VE Team identified and recommends for implementation:

- Nine (9) Alternatives which we believe will improve the project value.

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, Matt, 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

**STP00-00MS-00(005) - P.I. No. 550560
Whitfield Ave./SR 204 Spur
Old Whitfield Avenue to Ferguson Avenue
Chatham County**

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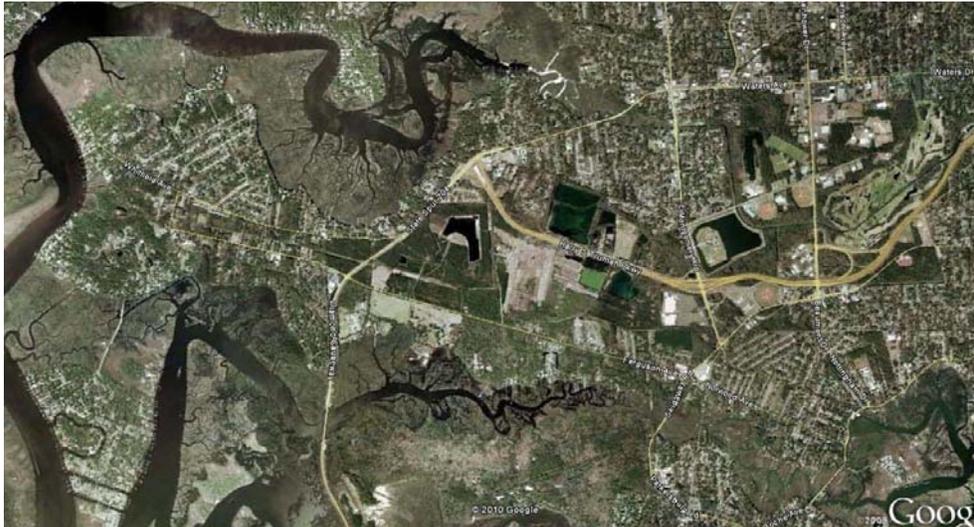
EXECUTIVE SUMMARY

INTRODUCTION

The subject of this Value Engineering study is Georgia Department of Transportation project STP00-00MS-00(005) – P.I. No. 550560. The project proposes the widening of SR 204 SPUR/Whitfield Avenue from Old Whitfield Avenue to Ferguson Avenue in Chatham County.

PROJECT LOCATION:

This project is located in the southeastern portion of Chatham County in Savannah, Georgia. The proposed length of the project is 2.4 miles to include a 0.5 mile exception at Harry S. Truman, Phase IV (P.I. No. 00022921 – NHS-0002-00(921)).



PROJECT DESCRIPTION

The existing roadway consists of two 12-ft. lanes with rural shoulders. The improvements proposed would include four 12-ft. travel lanes separated by a 20 ft. raised median with curb and gutter. However, between Hendry Avenue and Old Montgomery Road the typical section will be revised to change the median width from a 20-ft concrete raised to a 50-ft landscaped median. Four foot wide bike lanes will be added in each direction. This change will result in four additional displacements. In addition, the concept report calls for 5 ft wide sidewalks on both sides of the roadway from the beginning of the project to Mistewood Lane. Two culverts located 2,100 feet north of the intersection of SR204/Whitfield Avenue and Ferguson Avenue will be extended. Additional Right-of-Way will be needed at some locations.

PROJECT CONCERNS AND OBJECTIVES

A key concern of the project is to not “clear cut” for the project, but rather to retain as much green space as possible and to provide native trees for the future. Additionally, the project must provide added capacity to handle the anticipated rapid usage rates in the near future. The project must also maintain current access and usability.

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 level of service”.

This led the team through the “Speculative” phase, wherein possible alternatives were identified. Following this, the VE Team moved to the Evaluation and Development Phases where the ideas were determined to either offer an improvement to the project value, or discarded.

Observations

The VE Team noted the following items of the project documents which should be reviewed to clarify the project:

1. Signalize the school entrance based on Warrant #5 or use of pedestrian operated beacon
2. Use of a 4% cross slope in bike traffic
3. Reduce sizes of closed drainage system
4. Review guardrail detail
5. Sta. 78+50 RT and LF - pipe invert is lower than receiving ditch

Conclusions and Recommendations:

The VE Team concluded that the project should meet the functional requirements of the project as proposed.

The VE Team identified, developed and **recommends Nine (9) Design Alternatives** for implementation to improve the value of the project – see the following "*Summary of Alternatives and Design Suggestions*".

Summary of Alternatives & Design Suggestions



PROJECT:		Georgia Department of Transportation STP00-00MS-00(005) - P.I. No. 550560 Whitfield Ave./SR 204 Spur Old Whitfield Avenue to Ferguson Avenue Chatham County	SHEET NO.: 1 of 1
ALTERNATIVE NUMBER	DESCRIPTION OF ALTERNATIVE	INITIAL COST SAVINGS	
	DRAINAGE (DR)		
DR-1	Modify closed drainage system	\$ 99,242	
	ROADWAY (RD)		
RD-1	Reduce depth of inlay	\$ 385,418	
RD-2	Utilize Type "A" in-lieu of Type "B" left turn lanes	\$ 179,306	
RD-12	Eliminate "U" turn at Sta. 34+75 (School)	\$ 65,461	
RD-14	Reduce length of side roads - Lavon, Crossbrook Place, Old Whitfield	\$ 67,620	
RD-16	Eliminate retaining walls	\$ 29,975	
RD-20	End project @ Sta. 125+50	\$ 104,342	
RD-21	Eliminate rumble strips	\$ 2,200	
RD-22	Use 4' paved shoulder	\$ 89,738	

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**.

Value Analysis Design Alternative



PROJECT:	Georgia Department of Transportation STP00-00MS-00(005) - P.I. No. 550560 Whitfield Ave./SR 204 Spur Old Whitfield Avenue to Ferguson Avenue Chatham County	ALTERNATIVE NO.:	DR-1
DESCRIPTION:	Modify Closed Drainage System	SHEET NO.:	1 of 4

Original Design:

The original design proposes an urban design section throughout the project limits. Drainage is accomplished by retaining existing cross drains and providing side ditches and inlets connected by new closed drainage systems.

Alternative Design:

Various modifications to the Drainage Design are proposed as listed below:

- A.) Connect G-10 to 30" storm drain pipe
- B.) Remove cross drain at Old Whitfield Ave.
- C.) Eliminate the manhole at A-5
- D.) Reroute piping as noted at 15+00, 17+00, 22+50 & 35+40 (See Illustrations on DR-02)
- E.) Use available open ditches to eliminate storm drain pipes at 8+30 Rt, 8+30 Lt, 76+80 Rt, 81+00 Lt, 81+00 Rt, 83+00 Rt, 83+00 Lt, 83+70 Rt & 85+00 Rt. (See Illustrations on DR-02)

Opportunities:

- Reduce the initial construction cost
- Reduce the construction duration

Risks:

- None apparent

Technical Discussion:

Items A, B, C and D are Alternative Design recommendations associated with routing the closed systems to reduce the amount of required storm sewer piping needed within the closed systems. Item D will require additional open-cuts of the existing roadway. However these open-cuts are in close proximity to the locations of required open-cuts proposed in the Original Design and could be accomplished with minimal impacts to the M.O.T.

Item E is an Alternative Design to utilize required side ditches for drainage and eliminate parallel storm drain pipes. In many locations the Original Design requires a side ditch between the roadway and the R.O.W. to intercept runoff coming from offsite. The Original Design also requires closed systems to capture the street runoff. Designing both a side ditch and a storm drain pipe creates a dual drainage system. The storm drain pipe can be eliminated by making the side ditch deeper and discharging the street runoff directly into the side ditch. This is only viable when R.O.W. permits the construction of deeper side ditches.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 158,719	\$ 0	\$ 158,719
ALTERNATIVE	\$ 59,477	\$ 0	\$ 59,477
SAVINGS	\$ 99,242	\$ 0	\$ 99,242

Illustrations



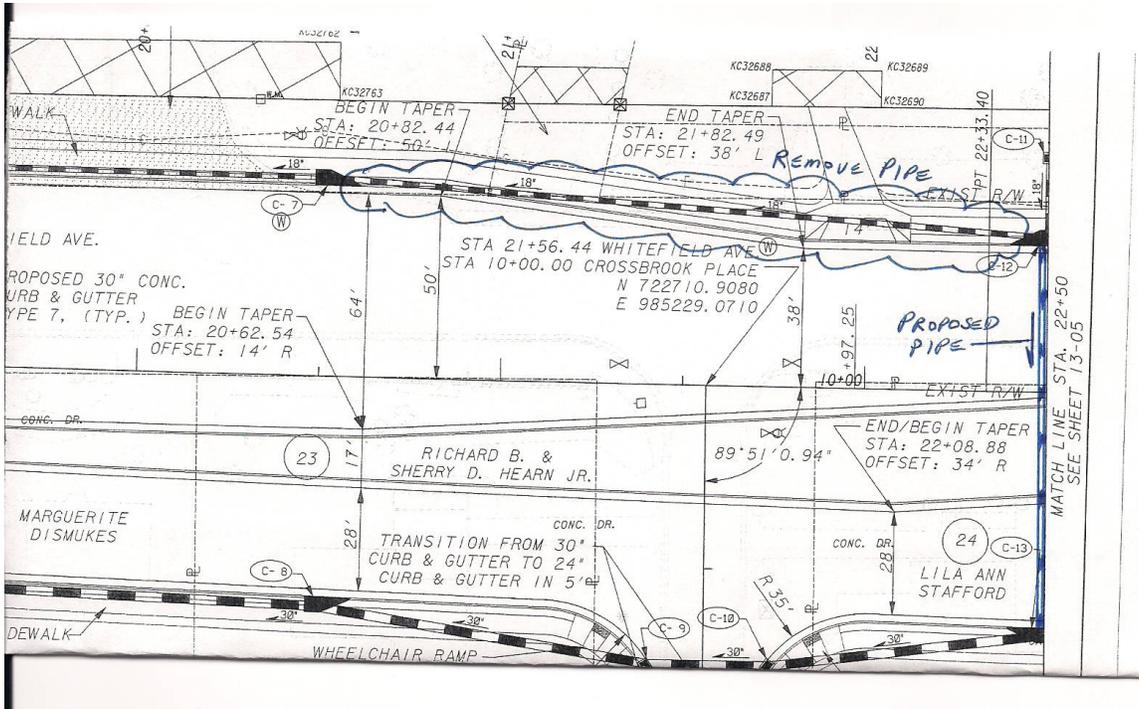
PROJECT: Georgia Department of Transportation
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ALTERNATIVE NO.:
DR-1

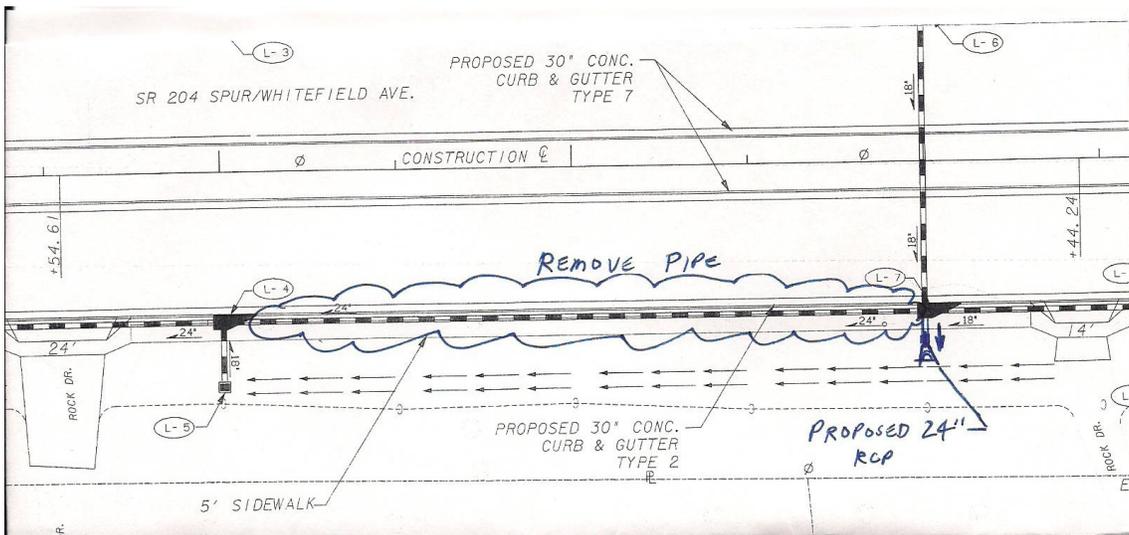
DESCRIPTION: **Modify Closed Drainage System**

SHEET NO.: **2 of 4**

Item D Typical



Item E Typical



Calculations



PROJECT: **Georgia Department of Transportation
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Whitfield Ave./SR 204 Spur
Old Whitfield Avenue to Ferguson Avenue
Chatham County**

ALTERNATIVE NO.:
DR-1

DESCRIPTION: **Modify Closed Drainage System**

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

Original Design:

Totals (see breakdown below)

1242' of 18" RCP, 792' of 24" RCP, 85' of 36" RCP, 2-MH, 3-Inlets, 2-24" FES

Alternative Design:

Totals (see breakdown below)

458' of 18" RCP, 240' of 24" RCP, 8' of 36" RCP, 1-Jct Box, 10-18" FES, 3-24" FES, 1-36" FES

Item	Original Design	Station	Original Design Requirements	Alternative Design	Alternative Design Requirements
A	G-10 to G-11	41+30 Rt 10+80	68' of 18" RCP	G-10 to 30" RCP	16' of 18" RCP & Jct Box
B	Cross Drain	O.Whit. Av.	96' of 24" RCP & 2 FES	-	Grading to match existing drainage pattern
C	A-6 to A-3	9+00 Lt	93' of 24" RCP & MH	A-6 to A-3	86' of 24" RCP
D	B-6 to B-4	15+00	150' of 18" RCP	B-6 to B-7	102' of 18" RCP
D	C-1 to B-6	17+00	200' of 18" RCP	C-1 to C-2	106' of 18" RCP
D	C-12 to C-7	22+50	199' of 18" RCP	C-12 to C-13	106' of 18" RCP
D	F-6 to F-8	35+40	160' of 24" RCP	F-6 to F-7	96" of 24" RCP
E	A-3 to A-1	8+35 Lt	85' of 24" RCP	A-3 to Side Dt	8' of 24" RCP, FES & Graded Side Ditch
E	A-4 to A-2	8+35Rt	85' of 36" RCP	A-4 to Side Dt	8' of 36" RCP, FES & Graded Side Ditch
E	K-4 to K-6	76+80 Rt	168' of 18" RCP	K-4 to Side Dt	8' of 18" RCP & FES
E	L-3 to L-1	81+00 Lt	146' of 18" RCP	L-3 to Side Dt	8' of 18" RCP & FES
E	L-5 to L-4 to L-2	81+00 Rt	162' of 24" RCP & Inlet	L-4 to Side Dt & DW pipe	8' of 18" RCP, FES, 50' of 24" RCP & 2 FES
E	L-6 to L-7	83+00 Lt	84' of 18" RCP	L-6 to Side Dt	8' of 18" RCP & FES
E	L-7 to L-4	83+00 Rt	196' of 24" RCP	L-7 to Side Dt	8' of 18" RCP & FES
E	L-9 to L-8 to L-7	83+70 Rt	81' of 18" RCP, Inlet & MH	DW pipe	40' of 18" RCP & 2-FES
E	M-3 to M-2 to L-8	85+00 Rt	146' of 18" RCP & Inlet	M-2 to Side Dt & DW pipe	8' of 18" RCP, FES, 40' of 18" RCP & 2-FES

Value Analysis Design Alternative



PROJECT: **Georgia Department of Transportation
STP00-00MS-00(005) - P.I. No. 550560
Whitfield Ave./SR 204 Spur
Old Whitfield Avenue to Ferguson Avenue
Chatham County**

ALTERNATIVE NO.:
RD-1

DESCRIPTION: **Reduce Depth of Milling and Inlay**

SHEET NO.: **1 of 3**

Original Design:

The original design proposes milling 5 inches of existing paving and inlaying with 5 inches (550#/sy) of 12.50 mm Superpave.

Alternative Design:

Re-evaluate the pavement design to determine if it may be reasonable to reduce the proposed milling and overlay thickness. It would also be recommended to use two different mixes in order to utilize a larger aggregate size in the upper binder layer.

The alternative design proposes reducing the milling to 3 inches and inlaying/overlaying with 165#/sy of 12.5 mm Superpave and 220#/sy of 19 mm Superpave.

Opportunities:

- Reduce the initial construction cost
- Ease construction

Risks:

- None apparent

Technical Discussion:

Milling 5 inches of existing pavement from a roadway showing no significant signs of distress seems overly conservative and potentially unnecessary. Changing the build-up to two different mixes, a 12.5 mm aggregate and a 19.5 mm aggregate will result in a stronger mix that is more resistant to rutting. Using a “thinner” section would also be easier to construct by reducing the drop-off and requiring fewer milling passes.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 990,385	\$ 0	\$ 990,385
ALTERNATIVE	\$ 90,035	\$ 0	\$ 90,035
SAVINGS	\$ 385,418	\$ 0	\$ 385,418

Calculations



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Old Whitfield Avenue to Ferguson Avenue
Chatham County**

ALTERNATIVE NO.:
RD-1

DESCRIPTION: **Reduce Depth of Milling and Inlay**

SHEET NO.: **2** of **3**

Roadway Area:

(Station 2+30 to Station 11+50) x 48' avg .width => 44,160 sf
(Station 11+50 to Station 43+50) x 24' avg. width => 76,800 sf
(Station 68+50 to Station 110+00) x 24' avg .width => 99,600 sf
(Station 110+50 to Station 114+50) x 36' avg .width => 12,600 sf
TOTAL- 233,160 sf

Original Design Paving:

Area of paving: 233,160 sf / 9sf/sy => 25,910 sy
12" GAB- => 25,910 sy
12.5 mm Superpave- (25,910 sy) x (550#/sy) / (2000#/ton) => 7,125 tons

Assume milling requires two passes @ 2.5"

Alternative Design Paving:

Area of paving: 233,160 sf / 9sf/sy => 25,910 sy
12" GAB- => 25,910 sy
12.5 mm Superpave- (25,910 sy) x (165#/sy) / (2000#/ton) => 2,138 tons
19.0 mm Superpave- (25,910 sy) x (220#/sy) / (2000#/ton) => 2,850 tons

Assume milling requires one pass @ 3"

Cost Worksheet



PROJECT:	Georgia Department of Transportation STP00-00MS-00(005) - P.I. No. 550560 Whitfield Ave./SR 204 Spur Old Whitfield Avenue to Ferguson Avenue Chatham County	ALTERNATIVE NO.: RD-1
DESCRIPTION:	Reduce Depth of Milling and Inlay	SHEET NO.: 3 of 3

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	7,125	\$ 90.00	\$ 641,250	2138	\$ 90.00	\$ 192,420
19.0 mm Superpave	TN	0	\$ 80.00	\$ -	2850	\$ 80.00	\$ 228,000
Milling Asphalt Pavement	SY	51,820	\$ 5.00	\$ 259,100	25910	\$ 5.00	\$ 129,550
Sub-total				\$ 900,350			\$ 549,970
Mark-up at 10.00%				\$ 90,035			\$ 54,997
TOTAL				\$ 990,385			\$ 604,967

Estimated Savings:	\$385,418
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Value Analysis Design Alternative



PROJECT: **Georgia Department of Transportation
STP00-00MS-00(005) - P.I. No. 550560
Whitfield Ave./SR 204 Spur
Old Whitfield Avenue to Ferguson Avenue
Chatham County**

ALTERNATIVE NO.:
RD-2

DESCRIPTION: **Use Type "A" in-lieu of Type "B" left turn lanes**

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

Original Design:

The original design proposes using Type "B" median turn lanes at the intersections of SR 204 and Lavon Avenue, Halcyon Drive and Grace Drive.

Alternative Design:

The alternative design proposes using Type "A" median turn lanes at the intersections of SR 204 and Lavon Avenue, Halcyon Drive and Grace Drive.

Opportunities:

- Reduce the initial construction cost
- Provide additional landscaping area
- Provide additional median width to accommodate U-turns

Risks:

- None apparent

Technical Discussion:

The GDOT Standards state that Type "B" median crossovers are the preferred type of median crossover; but that Type "A" median crossovers can be used as the situation may allow. Based on the Traffic Study information, using the Type "A" median crossovers should be acceptable. The roadway has little of no commercial development, flat terrain and relatively low truck traffic volumes (5 %) so sight obstructions at the intersections should be minimal. The intersections at Lavon Avenue and Grace Drive have low traffic volumes, 300 vpd (2033) and 1400 vpd (2033) respectively. The intersection at Halcyon is signalized. Also, using the Type "A" median crossover, the majority of the traffic should be able to make "U" turns without requiring "eyebrows" and accommodate larger vehicles.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 327,965	\$ 0	\$ 327,965
ALTERNATIVE	\$ 148,660	\$ 0	\$ 148,660
SAVINGS	\$ 179,306	\$ 0	\$ 179,306

Illustrations

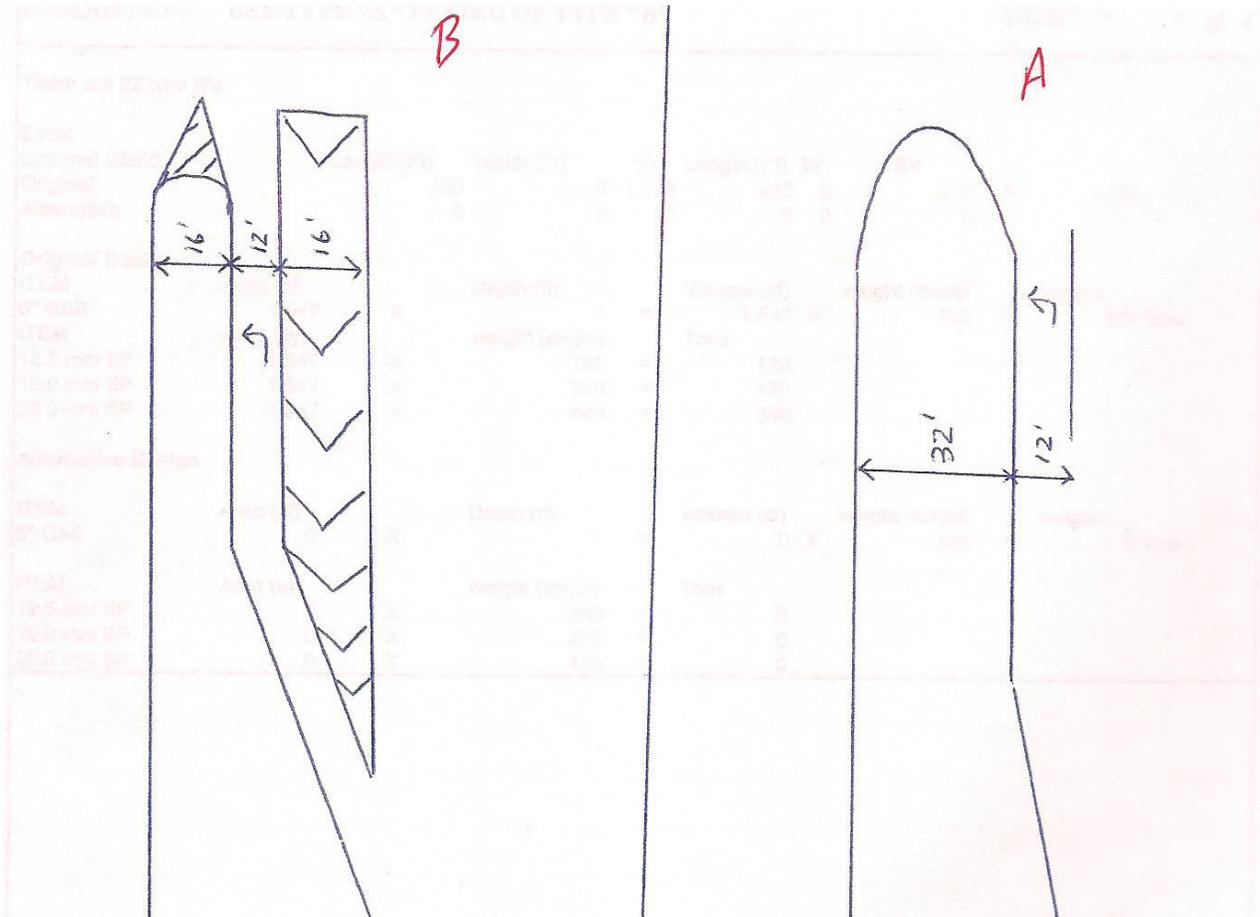


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Old Whitfield Avenue to Ferguson Avenue
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ALTERNATIVE NO.:
RD-2

DESCRIPTION: Use Type "A" in-lieu of Type "B" left turn lanes

SHEET NO.: 2 of 4



Original Design – Width Varies

Alternative Design – Width Varies

Calculations



PROJECT: **Georgia Department of Transportation
STP00-00MS-00(005) - P.I. No. 550560
Whitfield Ave./SR 204 Spur
Old Whitfield Avenue to Ferguson Avenue
Chatham County**

ALTERNATIVE NO.:
RD-2

DESCRIPTION: **Use Type "A" in-lieu of Type "B" left turn lanes**

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

Original Design Paving:

Lavon Avenue-

Southbound $(317 \text{ lf} \times (0' + 18') / 2) + (283 \text{ lf} \times (18' + 20') / 2) \Rightarrow 8,230 \text{ sf}$

Northbound $(360 \text{ lf} \times (0' + 24') / 2) + (212 \text{ lf} \times (23' + 24') / 2) \Rightarrow 9,302 \text{ sf}$

Halcyon Drive-

Southbound $(470 \text{ lf} \times (0' + 38') / 2) \Rightarrow 7,733 \text{ sf}$

Northbound $(506 \text{ lf} \times (0' + 37') / 2) \Rightarrow 9,361 \text{ sf}$

Grace Drive-

Southbound $317 \text{ lf} \times (0' + 27') / 2 + (92 \text{ lf} \times 27') \Rightarrow 6,764 \text{ sf}$

Northbound $250 \text{ lf} \times (0' + 18') / 2 + (290 \text{ lf} \times 18') \Rightarrow 7,470 \text{ sf}$

TOTAL: $48,860 \text{ sf} / (9\text{sf/sy}) = 5,429 \text{ sy}$

12" GAB- $\Rightarrow 5,429 \text{ sy}$

12.5 mm Superpave- $(5,429 \text{ sy}) \times (165\#/sy) / (2000\#/ton) \Rightarrow 448 \text{ tons}$

19.0 mm Superpave- $(5,429 \text{ sy}) \times (220\#/sy) / (2000\#/ton) \Rightarrow 597 \text{ tons}$

25.0 mm Superpave- $(5,429 \text{ sy}) \times (440\#/sy) / (2000\#/ton) \Rightarrow 1,194 \text{ tons}$

Alternative Design Paving:

Lavon Avenue-

Southbound $(180 \text{ lf} \times (0' + 12') / 2) + (300 \text{ lf} \times 12') \Rightarrow 4,680 \text{ sf}$

Northbound $(180 \text{ lf} \times (0' + 12') / 2) + (250 \text{ lf} \times 12') \Rightarrow 4,080 \text{ sf}$

Halcyon Drive-

Southbound $(180 \text{ lf} \times (0' + 12') / 2) + (300 \text{ lf} \times 12') \Rightarrow 4,680 \text{ sf}$

Northbound $(180 \text{ lf} \times (0' + 12') / 2) + (250 \text{ lf} \times 12') \Rightarrow 4,080 \text{ sf}$

Grace Drive-

Southbound $(180 \text{ lf} \times (0' + 12') / 2) + (150 \text{ lf} \times 12') \Rightarrow 2,880 \text{ sf}$

Northbound $(180 \text{ lf} \times (0' + 12') / 2) + (150 \text{ lf} \times 12') \Rightarrow 2,880 \text{ sf}$

TOTAL: $23,280 \text{ sf} / (9\text{sf/sy}) = 2,587 \text{ sy}$

12" GAB- $\Rightarrow 2,587 \text{ sy}$

12.5 mm Superpave- $(2,587 \text{ sy}) \times (165\#/sy) / (2000\#/ton) \Rightarrow 136 \text{ tons}$

19.0 mm Superpave- $(2,587 \text{ sy}) \times (220\#/sy) / (2000\#/ton) \Rightarrow 285 \text{ tons}$

25.0 mm Superpave- $(2,587 \text{ sy}) \times (440\#/sy) / (2000\#/ton) \Rightarrow 569 \text{ tons}$

Cost Worksheet



PROJECT: Georgia Department of Transportation ALTERNATIVE NO.:
 STP00-00MS-00(005) - P.I. No. 550560 RD-2
 Whitfield Ave./SR 204 Spur
 Old Whitfield Avenue to Ferguson Avenue
 Chatham County

DESCRIPTION: Use Type "A" in-lieu of Type "B" left turn lanes 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" GAB	SY	5,429	\$ 20.00	\$ 108,580	2587	\$ 20.00	\$ 51,740
12.5 mm Superpave	TN	448	\$ 90.00	\$ 40,320	136	\$ 90.00	\$ 12,240
19.0 mm Superpave	TN	597	\$ 80.00	\$ 47,760	285	\$ 80.00	\$ 22,800
25.0 mm Superpave	TN	1,194	\$ 85.00	\$ 101,490	569	\$ 85.00	\$ 48,365
Sub-total				\$ 298,150			\$ 135,145
Mark-up at 10.00%				\$ 29,815			\$ 13,515
TOTAL				\$ 327,965			\$ 148,660
Estimated Savings:							\$179,306

Value Analysis Design Alternative



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ALTERNATIVE NO.:
RD-12

DESCRIPTION: **Eliminate U-turn at Station 34+75 +/-**

SHEET NO.: **1 of 4**

Original Design:

The original design proposes construction of a U-turn bay at Station 34+75 +/-.

Alternative Design:

The alternative design proposes eliminating the U-turn at Station 34+75 +/-.

Opportunities:

- Reduce the initial construction cost
- Provide additional area for landscaping
- Reduce conflicts with school traffic
- Discourage “wrong way” movements at the school’s exit only driveway.

Risks:

- None apparent

Technical Discussion:

The U-turn at Station 34+75 +/- appears to serve solely Saint Luke’s United Methodist Church. Installation of this U-turn will introduce potential conflicts with School traffic and may encourage motorist to attempt to enter the school’s exit only driveway. Traffic wanting to U-turn for Saint Luke’s United Methodist Church could utilize the median opening and left turn bay for Old Montgomery Drive.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 65,461	\$ 0	\$ 65,461
ALTERNATIVE	\$ 0	\$ 0	\$ 0
SAVINGS	\$ 65,461	\$ 0	\$ 65,461

Illustrations

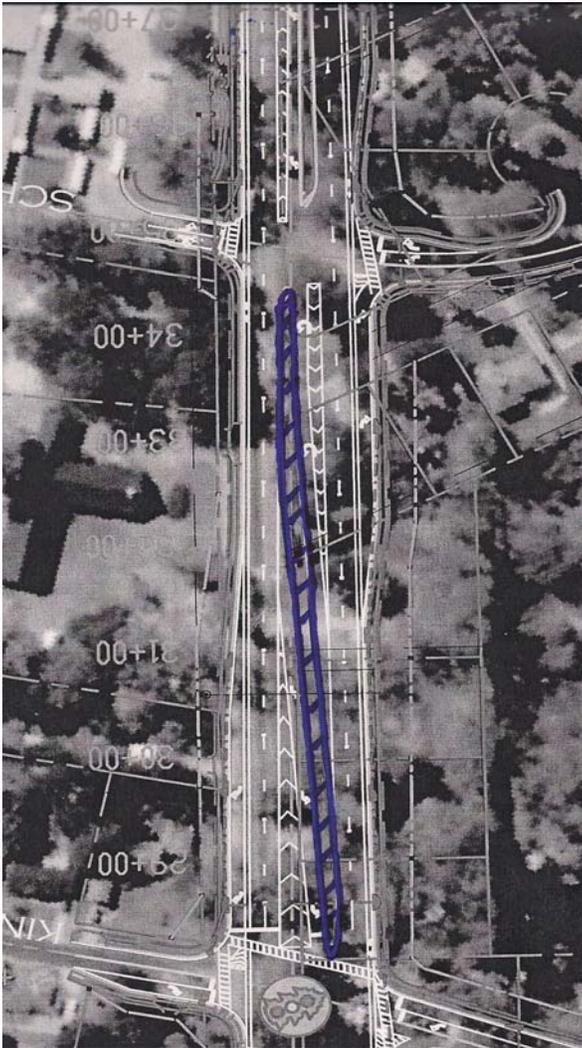


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Chatham County**

ALTERNATIVE NO.:
RD-12

DESCRIPTION: **Eliminate U-turn at Station 34+75 +/-**

SHEET NO.: **2 of 4**



Original Design



Alternative Design

Calculations



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Whitfield Ave./SR 204 Spur
Old Whitfield Avenue to Ferguson Avenue
Chatham County**

ALTERNATIVE NO.:
RD-12

DESCRIPTION: **Eliminate U-turn at Station 34+75 +/-**

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

Paving to be eliminated:

Station 28+99 to Station 33+46 $(447 \text{ lf} \times (0' + 33.6') / 2) \Rightarrow 7,510 \text{ sf}$

Station 33+46 to Station 34+14 $(68 \text{ lf} \times 33.6') \Rightarrow 2,285 \text{ sf}$

TOTAL: $9,795 \text{ sf} / (9 \text{ sf/sy}) = 1083 \text{ sy}$

Original Design Paving:

12" GAB- $\Rightarrow 1083 \text{ sy}$

12.5 mm Superpave- $(1083 \text{ sy}) \times (165\#/\text{sy}) / (2000\#/\text{ton}) \Rightarrow 90 \text{ tons}$

19.0 mm Superpave- $(1083 \text{ sy}) \times (220\#/\text{sy}) / (2000\#/\text{ton}) \Rightarrow 119 \text{ tons}$

25.0 mm Superpave- $(1083 \text{ sy}) \times (440\#/\text{sy}) / (2000\#/\text{ton}) \Rightarrow 238 \text{ tons}$

Alternative Design Paving:

None

Cost Worksheet



PROJECT:	Georgia Department of Transportation STP00-00MS-00(005) - P.I. No. 550560 Whitfield Ave./SR 204 Spur Old Whitfield Avenue to Ferguson Avenue Chatham County	ALTERNATIVE NO.: RD-12
DESCRIPTION:	Eliminate U-turn at Station 34+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
				\$ -			\$ -
12" GAB	SY	1,083	\$ 20.00	\$ 21,660	0	\$ 20.00	\$ -
12.5 mm Superpave	TN	90	\$ 90.00	\$ 8,100	0	\$ 90.00	\$ -
19.0 mm Superpave	TN	119	\$ 80.00	\$ 9,520	0	\$ 80.00	\$ -
25.0 mm Superpave	TN	238	\$ 85.00	\$ 20,230	0	\$ 85.00	\$ -
Sub-total				\$ 59,510			\$ -
Mark-up at 10.00%				\$ 5,951			\$ -
TOTAL				\$ 65,461			\$ -

Estimated Savings: \$65,461

Value Analysis Design Alternative



PROJECT: **Georgia Department of Transportation
STP00-00MS-00(005) - P.I. No. 550560
Whitfield Ave./SR 204 Spur
Old Whitfield Avenue to Ferguson Avenue
Chatham County**

ALTERNATIVE NO.:
RD-14

DESCRIPTION: **Reduce length of side road improvements (Lavon Ave.,
Crossbrook Pl., Old Whitfield Ave.)**

SHEET NO.: **1 of 3**

Original Design:

The original design proposes to adjust the existing side roads to connect to the proposed improvements on SR 204 Spur as shown in the plan and profile views.

Alternative Design:

The alternative design would use a slightly steeper design profile to tie in to the existing side roads closer to SR 204 Spur. Doing this will reduce the lengths of improvements along the side roads.

Opportunities:

- Reduce the initial construction cost
- Reduce the construction duration
- Reduce the impacts to users during construction

Risks:

- None apparent

Technical Discussion:

Side roads at Lavon Ave. and Crossbrook Pl. are being reconstructed to tie to improvements on SR 204 Spur. This reconstruction requires a profile adjustment but no horizontal realignment. As such, there is no benefit or need associated with the original design length of improvement for the side roads. The alternative design will function the same as the original design, but will require a minor profile adjustment. The AASHTO Green Book allows urban street profiles up to 15%.

Old Whitfield Ave. does require minor realignment and additional lanes. The alternative design will function the same as the original design, but requires a minor profile adjustment. The tie to the existing Old Whitfield Ave. will be beyond where the required tapers to the additional lanes have been made.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 67,620	\$ 0	\$ 67,620
ALTERNATIVE	\$ 0	\$ 0	\$ 0
SAVINGS	\$ 67,620	\$ 0	\$ 67,620

Calculations



**PROJECT: Georgia Department of Transportation
STP00-00MS-00(005) - P.I. No. 550560
Whitfield Ave./SR 204 Spur
Old Whitfield Avenue to Ferguson Avenue
Chatham County**

**ALTERNATIVE NO.:
RD-14**

**DESCRIPTION: Reduce length of Side Roads improvements (Lavon Ave.,
Crossbrook Pl., Old Whitfield Ave.)**

SHEET NO.: 2 of 3

Original Design:

Length of improvements for:

- Lavon Ave. = 212'
- Crossbrook Pl. = 316'
- Old Whitfield Ave. = 417'

Alternative Design:

Amount of side road improvement reductions:

- Lavon Ave. = 60'
- Crossbrook Pl. = 100'
- Old Whitfield Ave. = 150'
- Total length = 310'

Reduced pavement area = 310'(length) x 24'(width) = 7440 sq. ft. = 827 sq. yd.

Reduced sidewalk area (Lavon & Crossbrook) = 60' + 100'(length) x 5'(width) x 2 (Left & Right side)
= 1600 sq ft = 178 sq yd

Reduced curb & gutter (Lavon & Crossbrook) = 60' + 100' (length) x 2 (Lt & Rt side) = 320 lf

Reduced pavement for Side Roads		Paved Area - SY	lbs/sy	Tons
12.5 mm Superpave	TN	827	165	68
19.0 mm Superpave	TN	827	220	91
25.0 mm Superpave	TN	827	440	182
GAB	SY	827		

Value Analysis Design Alternative



PROJECT: **Georgia Department of Transportation
STP00-00MS-00(005) - P.I. No. 550560
Whitfield Ave./SR 204 Spur
Old Whitfield Avenue to Ferguson Avenue
Chatham County**

ALTERNATIVE NO.:
RD-16

DESCRIPTION: **Eliminate the retaining walls**

SHEET NO.: **1 of 4**

Original Design:

The original design requires retaining walls from 5+00 to 7+25 left and 6+00 to 7+25 right.

Alternative Design:

The alternative design would eliminate the retaining walls and provide guardrail with 2:1 front slopes.

Opportunities:

- Remove obstacle from clear zone
- Reduce the construction costs
- Reduce the construction duration

Risks:

- None

Technical Discussion:

In the Original Design, it appears the retaining walls are within the clear zone as defined by the Roadside Design Guide. As such the retaining walls must be moved, protected or eliminated. It appears moving the retaining wall outside of the clear zone puts the work area into the wetland area. Leaving them located as presently shown would require protection. The obvious method to protect the retaining walls is to extend the guardrail from the bridge approaches. Providing guardrail, allows for 2:1 front slopes, which appears to avoid wetland encroachments. The Alternative Design proposes to provide guardrail with 2:1 front slopes (to stay out of the wetland area) and eliminate the retaining walls.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 42,075	\$ 0	\$ 42,075
ALTERNATIVE	\$ 12,100	\$ 0	\$ 12,100
SAVINGS	\$ 29,975	\$ 0	\$ 29,975

Illustrations

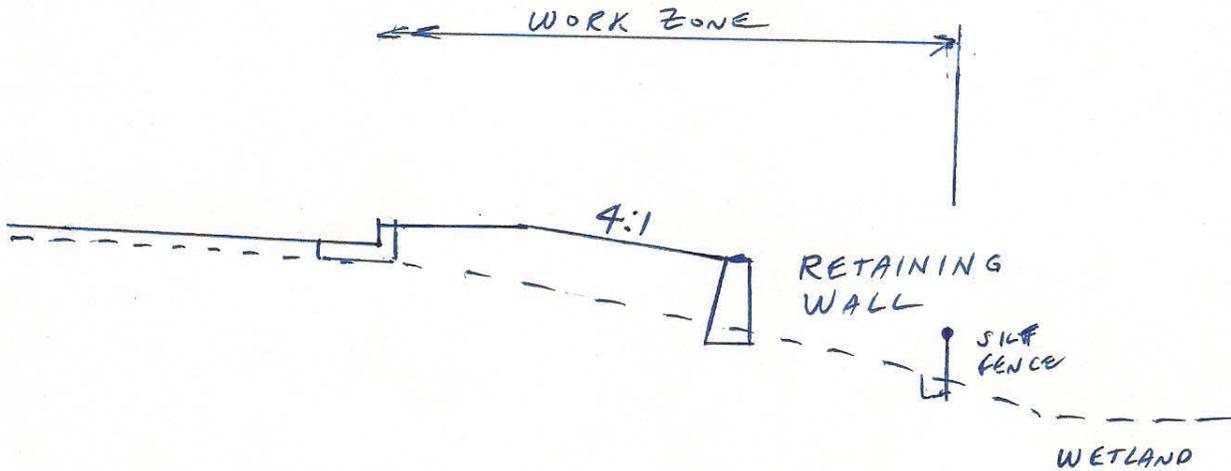


PROJECT: Georgia Department of Transportation
STP00-00MS-00(005) - P.I. No. 550560
Whitfield Ave./SR 204 Spur
Old Whitfield Avenue to Ferguson Avenue
Chatham County

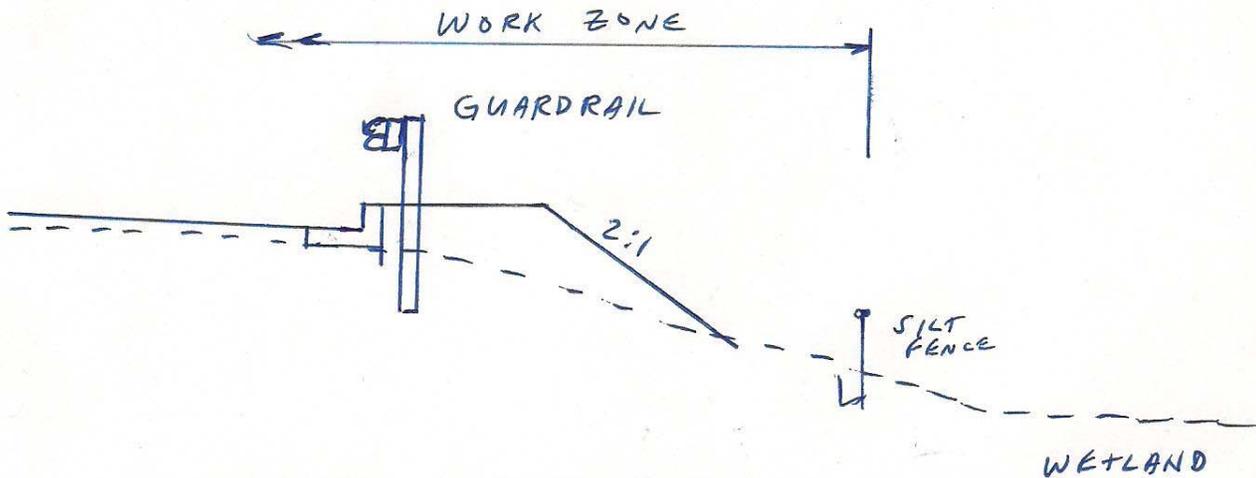
ALTERNATIVE NO.:
RD-16

DESCRIPTION: Eliminate retaining walls

SHEET NO.: 2 of 4



ORIGINAL DESIGN



DESIGN ALTERNATIVE

Calculations



PROJECT: **Georgia Department of Transportation
STP00-00MS-00(005) - P.I. No. 550560
Whitfield Ave./SR 204 Spur
Old Whitfield Avenue to Ferguson Avenue
Chatham County**

ALTERNATIVE NO.:
RD-16

DESCRIPTION: **Eliminate the retaining walls**

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

Original Design:

Retaining wall #1 from 5+00 to 7+25 Right, average height = 3'

Retaining wall #2 from 6+00 to 7+25 Left, average height = 2.5'

Retaining wall #1 (gravity type wall):

$$\text{Avg. area} = (0.67 \times 3) + (3 \times 3/2) / 2 = 4.25 \text{ SF}$$

$$\text{Concrete Vol. RW \#1} = 4.25 \times 225' = 956 \text{ CF} = 36 \text{ CY}$$

Retaining wall #2 (gravity type wall):

$$\text{Avg. area} = (0.67 \times 2.5) + (2.5 \times 2.5/2) / 2 = 3.24 \text{ SF}$$

$$\text{Concrete Vol. RW \#2} = 3.24 \times 125' = 405 \text{ CF} = 15 \text{ CY}$$

$$\text{Total retaining wall concrete} = 36 + 15 = 51 \text{ CY}$$

Alternative Design:

Provide guardrail and eliminate the retaining walls.

Guardrail (from 5+00 to 7+25 Right) = 225 LF; plus GR Anchorage

Guardrail (from 6+00 to 7+25 Left) = 125 LF; plus GR Anchorage

Total Guardrail = 350 LF & 2-guardrail anchorage

Value Analysis Design Alternative



PROJECT: Georgia Department of Transportation
STP00-00MS-00(005) - P.I. No. 550560
 Whitfield Ave./SR 204 Spur
 Old Whitfield Avenue to Ferguson Avenue
 Chatham County

ALTERNATIVE NO.:
RD-20

DESCRIPTION: End Project at Sta. 125+50

SHEET NO.: 1 of 3

Original Design:

The original design proposes to end the project at Sta. 133+00.

Alternative Design:

The alternative design would propose to end the project at Sta. 125+50.

Opportunities:

- Reduce the initial construction cost
- Reduce the construction duration
- Reduce the impacts to users during construction

Risks:

- None apparent

Technical Discussion:

The original design extends to Sta. 133+00. There are no vertical or horizontal realignments required from about 125+50 to the end of the project. The widening tapers for the 4-lane to 2-lane transition ends at about 125+00. There does not appear to be a functional requirement for this extension. Additionally, any future improvements to 4-lane the existing 2-lane roadway farther south will require modifications and removals to this section. Since the alternative design will function the same as the original design, revising the end of the project limits is recommended.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 104,342	\$ 0	\$ 104,342
ALTERNATIVE	\$ 0	\$ 0	\$ 0
SAVINGS	\$ 104,342	\$ 0	\$ 104,342

Calculations



**PROJECT: Georgia Department of Transportation
STP00-00MS-00(005) - P.I. No. 550560
Whitfield Ave./SR 204 Spur
Old Whitfield Avenue to Ferguson Avenue
Chatham County**

**ALTERNATIVE NO.:
RD-20**

DESCRIPTION: End Project at Sta. 125+50

SHEET NO.: 2 of 3

Original Design:

End Project = 133+00

Alternative Design:

End Project = 125+50

Amount of S.R. 204 Spur improvement reductions:

$$13300 - 12550 = 750'$$

$$\text{Reduced pavement overlay area (5" mill \& fill)} = 750'(\text{length}) \times 24'(\text{width}) = 18,000 \text{ SF} = 2,000 \text{ SY}$$

$$\text{Reduced shoulder area} = 750'(\text{length}) \times 6.5'(\text{width}) \times 2 (\text{Left \& Right side}) = 9,750 \text{ SF} = 1,083 \text{ SY}$$

Reduced Pavement Overlay (mill & fill) area		Paved Area - SY	lbs/sy	Tons
12.5 mm Superpave	TN	2000	550	550
Mill Asph Conc Pavt	SY	2000		

Reduced Shoulder Pavement area		Paved Area - SY	lbs/sy	Tons
12.5 mm Superpave	TN	1083	165	89
19 mm Superpave	TN	1083	220	119
GAB	SY	1083		

Value Analysis Design Alternative



PROJECT: **Georgia Department of Transportation
STP00-00MS-00(005) - P.I. No. 550560
Whitfield Ave./SR 204 Spur
Old Whitfield Avenue to Ferguson Avenue
Chatham County**

ALTERNATIVE NO.:
RD-21

DESCRIPTION: **Eliminate rumble strips**

SHEET NO.: **1 of 4**

Original Design:

The original design proposes the use of indentation rumble strips in the section of roadway with “rural” outside shoulders.

Alternative Design:

The alternative design proposes eliminating the indentation rumble strips in the section of roadway with “rural” outside shoulders.

Opportunities:

- Reduce the initial construction cost
- Reduce impact to bike traffic
- Reduce maintenance cost

Risks:

- None apparent

Technical Discussion:

This section of roadway has a design speed of 45 mph and is signed for 45 mph. FHWA Technical Advisory T 5040.35 recommends against using rumble strips in suburban areas on any non-freeway facility where the prevailing speed is less than 50 mph, unless there are a significant number of run -off –road (ROR) crashes and an “engineering safety study or crash analysis suggests that the number of these crashes would likely be reduced by the presence of rumble strips”. In addition it also recommends periodic sweeping of shoulders with rumble strips due to the fact that they collect debris which can pose a safety issue for bicyclists.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 2,200	\$ 0	\$ 2,200
ALTERNATIVE	\$ 0	\$ 0	\$ 0
SAVINGS	\$ 2,200	\$ 0	\$ 2,200

Illustrations

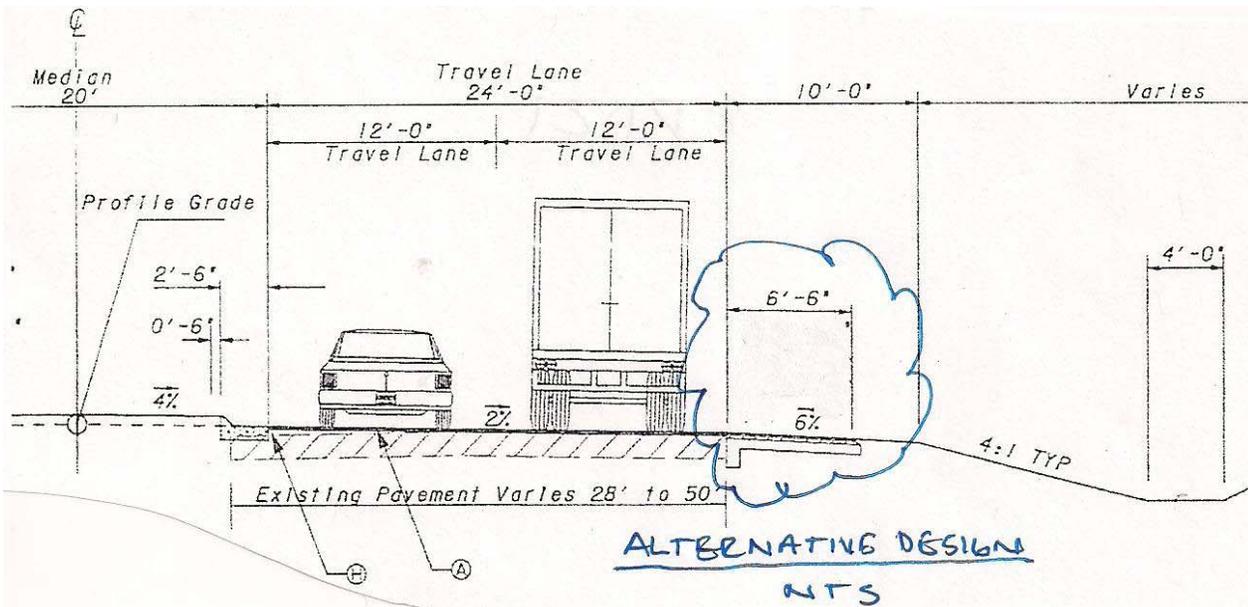
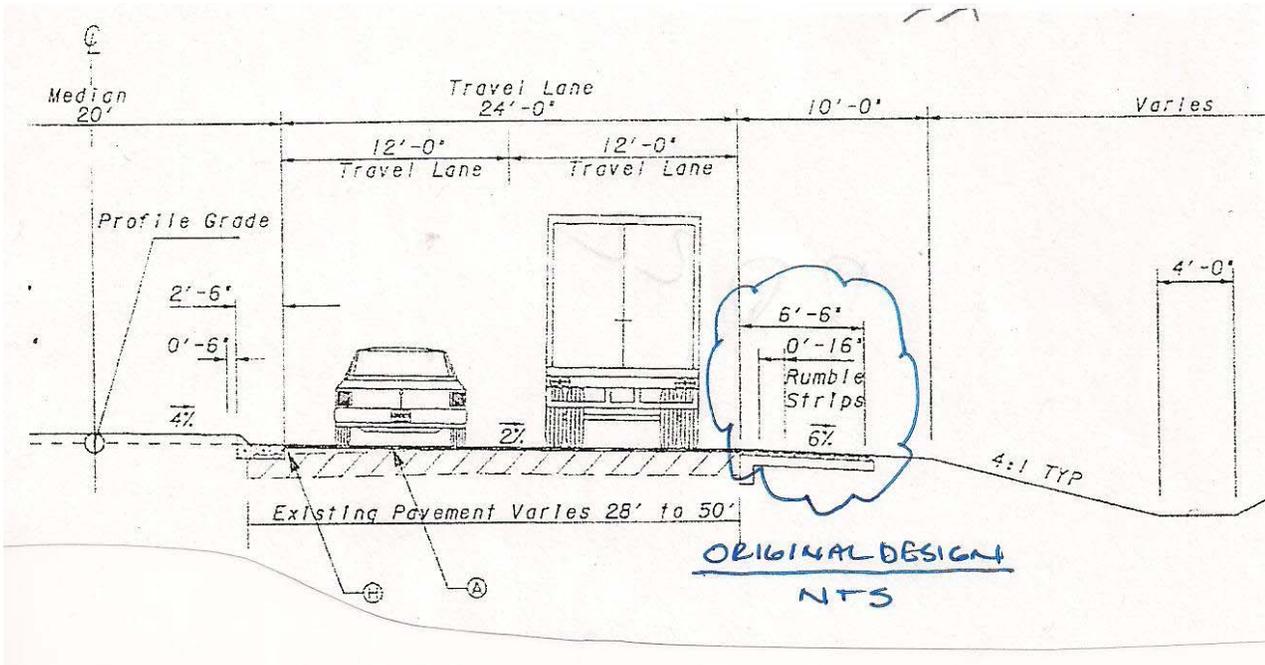


PROJECT: Georgia Department of Transportation
STP00-00MS-00(005) - P.I. No. 550560
Whitfield Ave./SR 204 Spur
Old Whitfield Avenue to Ferguson Avenue
Chatham County

ALTERNATIVE NO.:
RD-21

DESCRIPTION: **Eliminate rumble strips**

SHEET NO.: 2 of 4



Calculations



PROJECT: **Georgia Department of Transportation
STP00-00MS-00(005) - P.I. No. 550560
Whitfield Ave./SR 204 Spur
Old Whitfield Avenue to Ferguson Avenue
Chatham County**

ALTERNATIVE NO.:
RD-21

DESCRIPTION: **Eliminate rumble strips**

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

Length of rumble strips: Station 92+00 to 132+50 2 sides = 8,100 lf => 2 GLM

Cost Worksheet



PROJECT: **Georgia Department of Transportation** ALTERNATIVE NO.:
STP00-00MS-00(005) - P.I. No. 550560 **RD-21**
Whitfield Ave./SR 204 Spur
Old Whitfield Avenue to Ferguson Avenue
Chatham County

DESCRIPTION: **Eliminate rumble strips** 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
Indentation rumble strips	GLM	2	\$ 1,000.00	\$ 2,000	0	\$ 1,000.00	\$ -
Sub-total				\$ 2,000			\$ -
Mark-up at 10.00%				\$ 200			\$ -
TOTAL				\$ 2,200			\$ -

Estimated Savings: \$2,200

Value Analysis Design Alternative



PROJECT: **Georgia Department of Transportation
STP00-00MS-00(005) - P.I. No. 550560
Whitfield Ave./SR 204 Spur
Old Whitfield Avenue to Ferguson Avenue
Chatham County**

ALTERNATIVE NO.:
RD-22

DESCRIPTION: **Use 4.0' paved shoulder**

SHEET NO.: **1 of 4**

Original Design:

The original design proposes the use of a 6'-6" paved shoulder with indentation rumble strips in the section of roadway with "rural" outside shoulders.

Alternative Design:

The alternative design proposes eliminating the indentation rumble strips and using a 4'-0" shoulder in the section of roadway with "rural" outside shoulders.

Opportunities:

- Reduce the initial construction cost
- Reduce impact to bike traffic
- Reduce maintenance cost

Risks:

- None apparent

Technical Discussion:

This section of roadway has a design speed of 45 mph and is signed for 45 mph. FHWA Technical Advisory T 5040.35 recommends against using rumble strips on any non-freeway facility where the prevailing speed is less than 50 mph or unless there are a significant number of run-off-road (ROR) crashes and an "engineering safety study or crash analysis suggests that the number of these crashes would likely be reduced by the presence of rumble strips".

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 233,189	\$ 0	\$ 233,189
ALTERNATIVE	\$ 143,451	\$ 0	\$ 143,451
SAVINGS	\$ 89,738	\$ 0	\$ 89,738

Illustrations

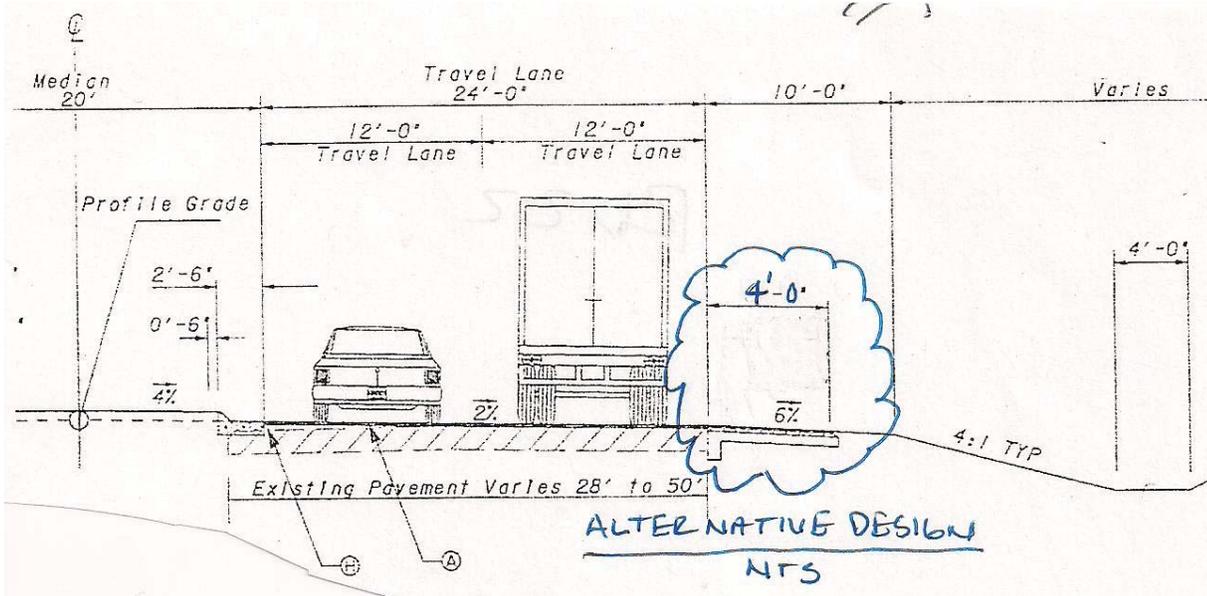
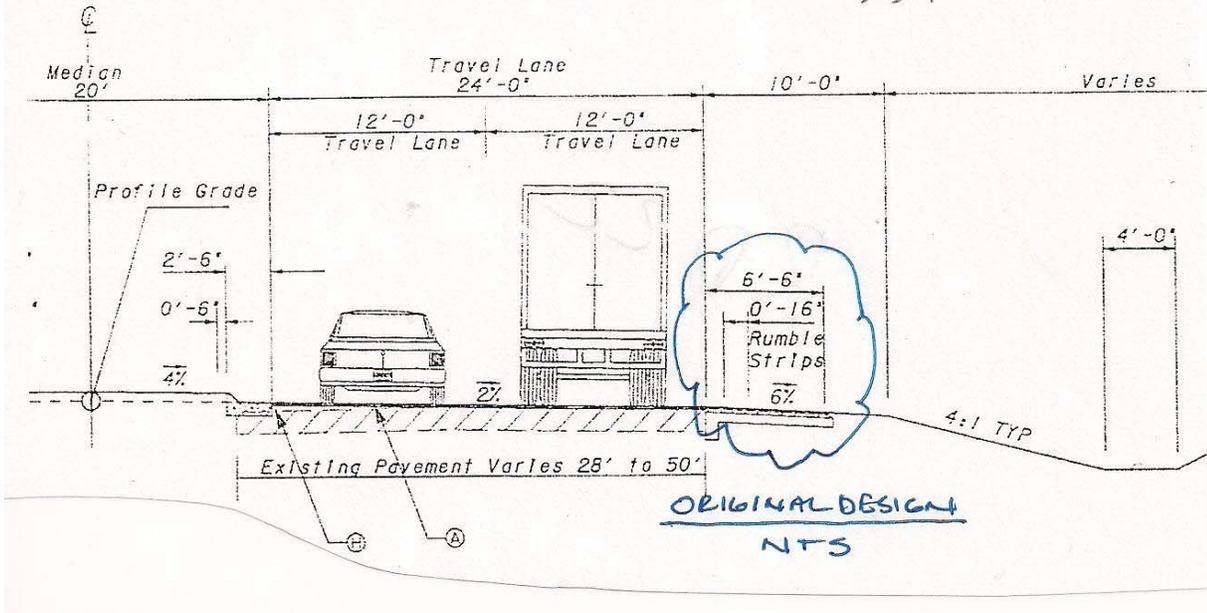


PROJECT: Georgia Department of Transportation
STP00-00MS-00(005) - P.I. No. 550560
Whitfield Ave./SR 204 Spur
Old Whitfield Avenue to Ferguson Avenue
Chatham County

ALTERNATIVE NO.:
RD-22

DESCRIPTION: Use 4.0' paved shoulder

SHEET NO.: 2 of 4



Calculations



PROJECT: **Georgia Department of Transportation
STP00-00MS-00(005) - P.I. No. 550560
Whitfield Ave./SR 204 Spur
Old Whitfield Avenue to Ferguson Avenue
Chatham County**

ALTERNATIVE NO.:
RD-22

DESCRIPTION: **Use 4.0' paved shoulder**

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

Roadway Length:

Station 92+00 to Station 132+50 x 2 shoulders => 8,100 lf

Original Design Paving:

Area of paving: 8,100 lf x 6.5 ft = 52,650 sf / 9sf/sy => 5,850 sy
12" GAB- => 5,850 sy
12.5 mm Superpave- (5,850 sy) x (165#/sy) / (2000#/ton) => 483 tons
19.0 mm Superpave- (5,850 sy) x (220#/sy) / (2000#/ton) => 644 tons

Alternative Design Paving:

Area of paving: 8,100 lf x 4.0 ft = 32,400 sf / 9sf/sy => 3,600 sy
12" GAB- => 3,600 sy
12.5 mm Superpave- (3,600 sy) x (165#/sy) / (2000#/ton) => 297 tons
19.0 mm Superpave- (3,600 sy) x (220#/sy) / (2000#/ton) => 396 tons

Cost Worksheet



PROJECT: Georgia Department of Transportation ALTERNATIVE NO.:
 STP00-00MS-00(005) - P.I. No. 550560 RD-22
 Whitfield Ave./SR 204 Spur
 Old Whitfield Avenue to Ferguson Avenue
 Chatham County

DESCRIPTION: Use 4.0' paved shoulder 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" GAB	SY	5,850	\$ 20.00	\$ 117,000	3600	\$ 20.00	\$ 72,000
12.5 mm Superpave	TN	483	\$ 90.00	\$ 43,470	297	\$ 90.00	\$ 26,730
19.0 mm Superpave	TN	644	\$ 80.00	\$ 51,520	396	\$ 80.00	\$ 31,680
Sub-total				\$ 211,990			\$ 130,410
Mark-up at 10.00%				\$ 21,199			\$ 13,041
TOTAL				\$ 233,189			\$ 143,451

Estimated Savings: \$89,738

PROJECT DESCRIPTION

INTRODUCTION

The subject of this Value Engineering study is Georgia Department of Transportation project STP00-00MS-00(005) – P.I. No. 550560. The project proposes the widening of SR 204 SPUR/Whitfield Avenue from Old Whitfield Avenue to Ferguson Avenue in Chatham County.

PROJECT LOCATION:

This project is located in the southeastern portion of Chatham County in Savannah, Georgia. The proposed length of the project is 2.4 miles to include a 0.5 mile exception at Harry S. Truman, Phase IV (P.I. No. 00022921 – NHS-0002-00(921)).

PROJECT DESCRIPTION

The existing roadway consists of two 12-ft. lanes with rural shoulders. The improvements proposed would include four 12-ft. travel lanes separated by a 20 ft. raised median with curb and gutter. However, between Hendry Avenue and Old Montgomery Road the typical section will be revised to change the median width from a 20-ft concrete raised to a 50-ft landscaped median. Four foot wide bike lanes will be added in each direction. This change will result in four additional displacements. In addition, the concept report calls for 5 ft wide sidewalks on both sides of the roadway from the beginning of the project to Mistewood Lane. Two culverts located 2,100 feet north of the intersection of SR204/Whitfield Avenue and Ferguson Avenue will be extended. Additional Right-of-Way will be needed at some locations.

SR 204 Spur is classified as an urban minor arterial. Average Daily Traffic (ADT) for 2013 is shown as 16,000 and 29,000 in 2033. Twenty four hour truck traffic is 3%. The proposed design speed will be 45 mph.

NEED AND PURPOSE

The project provides improved access and capacity for residents and businesses along SR 204 SPUR/Whitfield Avenue and serves as a connection to Montgomery Island, Skidaway Island, and Burnside Island. Recent residential development in the area includes several subdivisions. As development continues in this area, traffic volumes are expected to increase.

The estimated construction cost for the project is projected at \$11,747,857. In addition, Right-of-Way costs are projected at \$7,300,000 The projected total cost for the project is \$19,047,857

The design for the project has been prepared by **Thomas & Hutton Engineering Company**.

REPRESENTATIVE DOCUMENTS

- Georgia Department of Transportation
 - Construction Cost Estimate
 - Right-of-Way estimate
 - Concept Report
 - Project Location Map
 - Traffic Analysis
 - Typical Road Section
 - Pavement Design Annalysis

The VE Team utilized the GDOT supplied project materials noted above plus the preliminary plans provided by Thomas & Hutton Engineering Company.

REVISED PROJECT CONCEPT REPORT

Need and Purpose: SR204 SPUR/ Whitfield Avenue is located in the southeastern portion of Chatham County in coastal Georgia. The project provides improved access and capacity for residents and businesses along SR204 SPUR/ Whitfield Avenue and serves as a connection to Montgomery Island, Skidaway Island, and Burnside Island. Recent development in the area includes several subdivisions along SR204 SPUR/ Whitfield Avenue. In addition, development has been occurring on Skidaway and Burnside Islands. As residential development continues in these areas, it will continue to generate increasing traffic volumes on SR204 SPUR/ Whitfield Avenue.

The proposed widening of SR 204 SPUR/ Whitfield Avenue was included in the list of selected road improvements in a one percent local sales tax option passed in 1993 to pay for road improvements in Chatham County. The proposed improvement has also been identified as a transportation need in the Chatham Urban Transportation Study (CUTS) Year 2030 Long Range Transportation Plan. Furthermore, the project is programmed in the Fiscal Year (FY) 2006-2008 Transportation Improvement Program (TIP). The project is also included in the Georgia Department of Transportation's six-year Construction Work Program, with construction scheduled to begin in 2007.

The proposed project has been identified in the Chatham-Savannah Bikeway Plan as a high priority bikeway corridor. The current TIP has bike lanes planned along the shoulders of the roadway.

Further discussion of Need and Purpose is included in the *Environmental Assessment and Programmatic Section 4(f) Evaluation for SR 204 SPUR/ Whitfield Avenue (Federal-Aid Project # STP-00MS (5), Chatham County, P.I. Number 550560* (approved February 13, 2004).

Project location: This project is located in the southeastern portion of Chatham County in Savannah, Georgia. The proposed length of the project is 2.4 miles along SR204 SPUR/ Whitfield Avenue from the intersection of Old Whitfield Avenue (Station 4+50) to Ferguson Avenue (Station 132+30), to include a 0.5 mile exception at Harry S. Truman, Phase IV (P.I. No. 0002921, NHS-0002-00(921).

Description of the approved concept: Project STP-00MS(5) proposes to widen and reconstruct SR204 SPUR/ Whitfield Avenue from Old Whitfield Avenue to Ferguson Avenue for a total distance of 2.4 miles. The existing roadway consists of two 12-ft lanes with rural shoulders. The improvements include four 12-ft travel lanes separated by a 20-ft raised median with curb and gutter. In addition, a 4-ft wide bike lane is proposed in each direction between Old Montgomery Road and Ferguson Avenue. The project would also include sidewalks on both sides of the roadway from the beginning of the project to Mistewood Lane. The sidewalks would tie into the existing sidewalks south of the bridge crossing Haneys Creek. The two culverts approximately 2,100 feet north of the intersection of SR204 SPUR/ Whitfield Avenue and Ferguson Avenue would be extended. The widening of SR204 SPUR/ Whitfield Avenue would occur within the existing right-of-way or in areas immediately adjacent to the roadway. The existing right-of-way

STP-00MS (5), Chatham County
SR204 SPUR/ Whitfield Avenue
P.I. No.550560
August 21, 2007

varies throughout the project length from 35 to 200 feet in width. Therefore, additional right-of-way would be required at some locations. The design speed for this project is 45mph.

PDP Classification: Major X Minor _____

Federal Oversight: Full Oversight (), Exempt (X), State Funded (), or Other ()

Functional Classification: Urban Minor Arterial

U. S. Route Number(s): N/A **State Route Number(s):** SR204 SPUR

Traffic (AADT) as shown in the approved concept:

Current Year: 12,000 (2000) Design Year: 21,500 (2020)

Proposed features to be revised: Typical Section - This Revised Concept Report addresses changes to the typical section of SR204 SPUR/ Whitfield Avenue between Hendry Avenue (Station 9+40) and Old Montgomery Road (Station 44+10).

Describe the revised feature(s) to be approved: Typical Section – The proposed new typical section along SR204 SPUR/ Whitfield Avenue between Hendry Avenue (Station 9+40) and Old Montgomery Road (Station 44+10) revises the median width from a 20-ft concrete raised to 50-ft landscaped median. The typical section will also be revised to show 4-ft bike lanes in each direction. The purpose of this proposed wider median is to plant canopy trees which are to be removed along the shoulder due to the widening through this section of the project. The wider median will also result in a net increase of four additional displacements. Bike lanes will also be added along both sides of the roadway between Hendry Avenue and Old Montgomery Road. The purpose of extending the bike lanes is to provide connectivity from where the bike route terminated at Old Montgomery Road to the neighborhoods around Hendry Avenue. There are no other changes to the typical section or project termini which may affect the analyses of historic resources, endangered species, air quality, or noise studies.

Median breaks are to be located at Hendry Avenue, Lavon Avenue/ Commercial Drive, Halcyon Drive/ Kings Way, Grace Drive, Old Montgomery Road, HST SB Ramp, HST NB Ramp, Mistwoode Lane, Old Whitfield Avenue, and Ferguson Avenue.

It is recommended that the proposed 50-ft landscaped median and the addition of 4-ft bike lanes along SR204 SPUR/ Whitfield Avenue between Hendry Avenue and Old Montgomery Road be approved.

STP-00MS (5), Chatham County
SR204 SPUR/ Whitfield Avenue
P.I. No.550560
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Updated traffic data (AADT):

Traffic (AADT) as shown in the revised concept:

Current Year: 17,500 vpd (2005)

Design Year: 26,000 vpd (2025)

Programmed/Schedule:

P.E.: 02/10/93

R/W: 2008

Construction: 2009

Revised cost estimates:

1. Construction cost – \$ 10,300,620

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

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

JBB:ASW:T&H *ASW*

Attachments:

1. Cost Estimate
2. Typical section

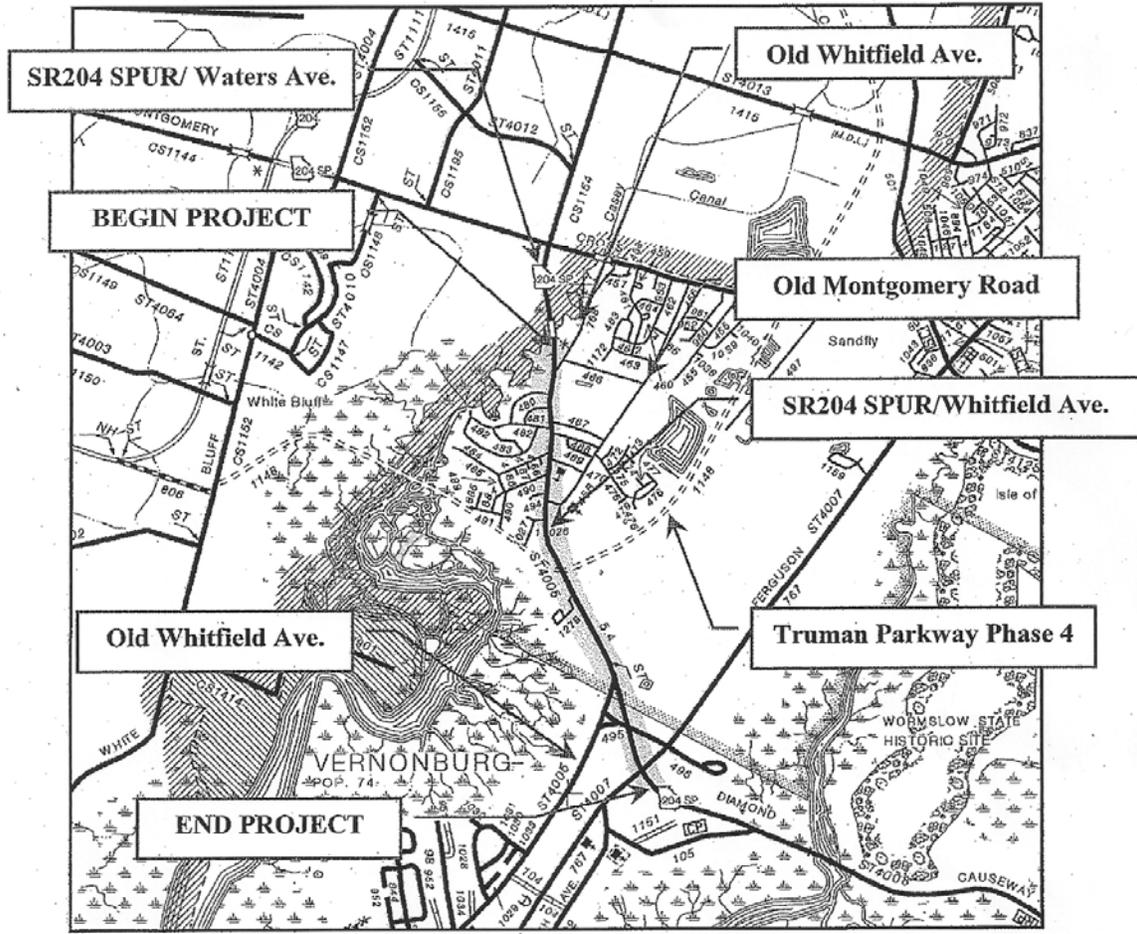
Concur: _____

[Signature]
Director of Preconstruction

Approve: _____

[Signature]
Chief Engineer

STP-00MS (5), Chatham County
SR204 SPUR/ Whitfield Avenue
P.I. No.550560
August 21, 2007



Estimate Report for file "550560"

Section Roadway					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
150-1000	1	LS	750000.0	TRAFFIC CONTROL - STP00-00MS-00(005)	750000.0
153-1300	1	EA	80000.0	FIELD ENGINEERS OFFICE TP 3	80000.0
210-0100	1	LS	1000000.0	GRADING COMPLETE - STP00-00MS-00(005)	1000000.0
231-1200	50	EA	225.0	MISCELLANEOUS CONSTRUCTION, ROADS, STREETS AND DRIVEWAYS	11250.0
310-5120	90000	SY	22.0	GR AGGR BASE CRS, 12 INCH, INCL MATL	1980000.0
400-3605	9900	TN	80.0	ASPH CONC 19MM SUPERPAVE, GP 1 OR 2, INCL POLYMER MODIFIED BITUM MATL & H LIME	792000.0
402-3113	8200	TN	90.0	RECYCLED ASPH CONC 12.5 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME	738000.0
402-3121	19800	TN	85.0	RECYCLED ASPH CONC 25 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME	1683000.0
413-1000	145000	GL	2.5	BITUM TACK COAT	362500.0
432-5010	11200	SY	2.0	MILL ASPH CONC PVMT, VARIABLE DEPTH	22400.0
441-0016	500	SY	50.0	DRIVEWAY CONCRETE, 6 IN TK	25000.0
441-0104	7000	SY	45.0	CONC SIDEWALK, 4 IN	315000.0
441-0600	50	CY	1000.0	CONC HEADWALLS	50000.0
441-0740	200	SY	40.0	CONCRETE MEDIAN, 4 IN	8000.0
441-4030	500	SY	60.0	CONC VALLEY GUTTER, 8 IN	30000.0
441-6222	15520	LF	20.0	CONC CURB & GUTTER, 8 IN X 30 IN, TP 2	310400.0
441-6740	15825	LF	20.0	CONC CURB & GUTTER, 8 IN X 30 IN, TP 7	316500.0
456-2012	1	GLM	1000.0	INDENTATION RUMBLE STRIPS - GROUND-IN-PLACE (CONTINUOUS)	1000.0
550-1180	3400	LF	60.0	STORM DRAIN PIPE, 18 IN, H 1-10	204000.0
550-1240	2205	LF	60.0	STORM DRAIN PIPE, 24 IN, H 1-10	132300.0
550-1300	2430	LF	65.0	STORM DRAIN PIPE, 30 IN, H 1-10	157950.0
550-1360	920	LF	90.0	STORM DRAIN PIPE, 36 IN, H 1-10	82800.0
550-1480	455	LF	140.0	STORM DRAIN PIPE, 48 IN, H 1-10	63700.0
550-1540	190	LF	170.0	STORM DRAIN PIPE, 54 IN, H 1-10	32300.0
550-1720	140	LF	265.0	STORM DRAIN PIPE, 72 IN, H 1-10	37100.0
550-4218	11	EA	700.0	FLARED END SECTION 18 IN, STORM DRAIN	7700.0
550-4224	2	EA	900.0	FLARED END SECTION 24 IN, STORM DRAIN	1800.0
610-2700	6000	SY	4.5	REM CONCRETE	27000.0
610-5715	20	EA	570.0	REM CATCH BASIN, DROP INLET OR JCT BOX	11400.0
611-4001	10	EA	2000.0	RECONSTR MINOR DRAINAGE STR	20000.0
611-4003	10	EA	2200.0	RECONSTRUCT MISC DRAINAGE STRUCTURE	22000.0
611-4890	1000	LF	8.0	RESET FENCE - STP00-00MS-00(005)	8000.0
611-5480	25	EA	3200.0	RESET LIGHTING STANDARD	80000.0
611-5551	10	EA	820.0	RESET SIGN	8200.0
611-8000	10	EA	1700.0	ADJUST CATCH BASIN TO GRADE	17000.0
643-1132	2000	LF	10.0	CH LK FENCE, ZC COAT, 4 FT, 9 GA	20000.0
668-1100	70	EA	2700.0	CATCH BASIN, GP 1	189000.0
668-2100	23	EA	2600.0	DROP INLET, GP 1	59800.0
668-4300	8	EA	2500.0	STORM SEWER MANHOLE, TP 1	20000.0
999-9999	1	Lump Sum	50000.0	MEDIAN LANDSCAPING	50000.0
Section Sub Total:					\$9,727,100.00

Section Signing & Marking					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
647-9999	1	Lump Sum	200000.0	PERMANENT SIGNS	200000.0
653-0120	55	EA	80.0	THERMOPLASTIC PVMT MARKING, ARROW, TP 2	4400.0
653-0130	4	EA	110.0	THERMOPLASTIC PVMT MARKING, ARROW, TP 3	440.0
653-0170	2	EA	90.0	THERMOPLASTIC PVMT MARKING, ARROW, TP 7	180.0
653-1501	25000	LF	1.0	THERMOPLASTIC SOLID TRAF STRIPE, 5 IN, WHITE	25000.0
653-1502	20000	LF	1.0	THERMOPLASTIC SOLID TRAF STRIPE, 5 IN, YELLOW	20000.0
653-3501	17050	GLF	1.0	THERMOPLASTIC SKIP TRAF STRIPE, 5 IN, WHITE	17050.0
653-6006	800	SY	4.0	THERMOPLASTIC TRAF STRIPING, YELLOW	3200.0
654-1001	100	EA	5.0	RAISED PVMT MARKERS TP 1	500.0
654-1003	400	EA	5.0	RAISED PVMT MARKERS TP 3	2000.0
Section Sub Total:					\$272,770.00

Section Erosion Control - Permanent					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
603-1024	450	SY	90.0	STN PLAIN RIP RAP, 24 IN	40500.0

603-7000	450	SY	5.0	PLASTIC FILTER FABRIC	2250.0
700-6910	35	AC	1000.0	PERMANENT GRASSING	35000.0
700-7000	10	TN	70.0	AGRICULTURAL LIME	700.0
700-8000	10	TN	350.0	FERTILIZER MIXED GRADE	3500.0
702-9020	2000	SY	3.5	MULCH	7000.0
Section Sub Total:					\$88,950.00

Section Erosion Control - Temporary

Item Number	Quantity	Units	Unit Price	Item Description	Cost
163-0232	35	AC	570.0	TEMPORARY GRASSING	19950.0
163-0300	5	EA	3000.0	CONSTRUCTION EXIT	15000.0
163-0530	2000	LF	5.0	CONSTRUCT AND REMOVE BALED STRAW EROSION CHECK	10000.0
163-0531	1	EA	8500.0	CONSTRUCT AND REMOVE SEDIMENT BASIN, TP 1, STA NO - 107+00	8500.0
163-0531	1	EA	8500.0	CONSTRUCT AND REMOVE SEDIMENT BASIN, TP 1, STA NO - 124+00	8500.0
163-0550	50	EA	300.0	CONSTRUCT AND REMOVE INLET SEDIMENT TRAP	15000.0
165-0010	10000	LF	2.0	MAINTENANCE OF TEMPORARY SILT FENCE, TP A	20000.0
165-0060	10	EA	1300.0	MAINTENANCE OF TEMPORARY SEDIMENT BASIN, STA NO -	13000.0
165-0070	2000	LF	4.0	MAINTENANCE OF BALED STRAW EROSION CHECK	8000.0
165-0105	50	EA	150.0	MAINTENANCE OF INLET SEDIMENT TRAP	7500.0
171-0010	10000	LF	3.0	TEMPORARY SILT FENCE, TYPE A	30000.0
Section Sub Total:					\$155,450.00

Section Signalization

Item Number	Quantity	Units	Unit Price	Item Description	Cost
639-3014	16	EA	10000.0	STEEL STRAIN POLE, TP IV, INCL LUMINAIRE ARM	160000.0
647-1000	4	LS	60000.0	TRAFFIC SIGNAL INSTALLATION NO -	240000.0
647-5230	2	EA	7000.0	SIGNAL ASSEMBLY, FLASHING SCHOOL, COMPLETE	14000.0
647-6090	24	EA	900.0	LOOP DETECTOR -	21600.0
Section Sub Total:					\$435,600.00

Total Estimated Cost: \$10,679,870.00

CONCEPT REPORT RIGHT OF WAY**COST ESTIMATE**

(6-08 UPDATED ESTIMATE)

Date:	June 18, 2008	P.I. Number:	550560
Project:	STPOO-OOMS-OO(OO5)	No. Parcels:	80
Existing/Required R/W:	± 70' / ± 180'		
Project Termini:	North side of Hendry Avenue to just past south side of Ferguson Avenue		
Project Description:	Widening of Whitfield Avenue including raised landscaped median with intersection improvements at side streets.		

Land:

(Residential-Lots): \$2.50/SF

(Residential-Smaller Ac.): \$2.00/SF

(Residential-Larger Ac.): \$1.00/SF

(Residential-Water): \$4.00/SF

(Multi-family): \$3.00/SF

(Commercial): \$15.00/SF

(Note: area & specific unit value calculations are on the attached spreadsheet)

Right of Way:	\$1,274,436	
Easement:	<u>\$ 125,836</u>	
TOTAL:		\$1,400,272

Improvements:

Buildings: \$1,151,000

Minor site improvements (paving, signs, etc.): \$ 41,500

TOTAL:		\$1,192,500
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Relocation:

Residential- 13 Parcels \$ 195,000

TOTAL: \$ 195,000

Damages:

Proximity- 9 Parcels \$ 270,000
Consequential-10 Parcels \$ 54,000

TOTAL: \$ 324,000

Net Cost: \$2,936,272
Plus Scheduling Contingency (55%): \$1,814,950
Plus Admin./Court Cost (60% of 2 lines above): \$2,730,733
\$7,281,955

TOTAL COST: \$7,300,000 (R)

Notes: There are 13 apparent residential displacees with estimated costs of \$15,000 each based on the plans furnished to the appraiser. Of the 13 acquired housing units, two are mobile homes that may be owner-occupied. There are no commercial displacees. The \$15,000 per displacee figure consists of estimated relocation benefits and moving costs.

55% adjustment for scheduling contingencies between date of estimate and project implementation. There are additional adjustments for unforeseen management and condemnation costs. Per current GDOT practice, no "3rd layer" multiplier for inflation is applied to the calculations.

Note that there are 11 numbered parcels on the attached spreadsheet that are already owned by Chatham County or GDOT. These properties are not included in the overall parcel count and are not valued in the land cost or improvements/damages-costs sections of the report. The FMV payments already made on these parcels as early acquisitions come to \$1,362,035. This figure would need to be added to the \$7,300,000 total cost above to derive a true total cost as the early acquisitions are to be reimbursed by the DOT. None of the contingency, administrative/court costs or inflation factors are appropriate for these parcels since they are already acquired.

The notes for the various parcels on the spreadsheet outline cases where the Tax Assessor has combined parcels, additional improvements have been added, utility relocations are likely, etc.

Prepared by: J. G. Simbunan, Moreland Altobelli Associates

Approved by: [Signature], GDOT RW

FLEXIBLE PAVEMENT DESIGN ANALYSIS

Project: STP00-00MS-00(005) County: Chatham
P.I. no.: 550560
Description: Whitefield Avenue / SR 204 Spur

Traffic Data (NOTE: AADTs are one-way)
24-hour Truck Percentage: 3.00%
AADT initial year of design period: 16,000 vpd (2013)
AADT final year of design period: 29,000 vpd (2033)
Mean AADT (one-way): 22,500 vpd

Design Loading
Mean AADT LDF Trucks 18-K ESAL Total Daily Loads
22,500 * 0.70 * 0.030 * 1.06 = 502

Total predicted design period loading = 502 * 20 * 365 = 3,664,600

Design Data
Terminal Serviceability Index: 2.50
Soil Support: 4.00
Regional Factor: 1.70

PROPOSED FLEXIBLE PAVEMENT STRUCTURE

Material	Thickness mm	(in.)	Structural Coefficient	Structural Value
*** OVERLAY ***				
12.5 mm Superpave	64	(2.50)	0.0173	1.10
12.5 mm Superpave	51	(1.99)	0.0173	0.87
	13	(0.51)	0.0118	0.15
*** EXISTING PAVEMENT ***				
Asphaltic Concrete	214	(8.43)	0.0118	2.53
Graded Aggregate Base	12	(0.47)	0.0063	0.08

Required SN = 4.59 Proposed SN = 4.73

>>> Proposed pavement is 3.1% Overdesign <<<

Remarks:

Prepared by YT February 23, 2009
Date

Recommended _____
State Road Design Engineer Date

Approved _____
Chief Engineer Date

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 January 25 through January 29, 2010 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
Jeff Strickland, PE	Highway Construction Specialist

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 its consultant. 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**
 - **Accommodate growth**
 - **Improve bicycle/pedestrian accommodations**
 - **Preserve environment by providing trees in the median**
 - **Project Basic Functions**
 - **Increase capacity**
 - **Control Access**
 - **Satisfy User**
- **Speculation Phase** - The VE team performed a brainstorming session to identify ideas that might help meet the project objectives.

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

STP00-00MS-00(005) - P.I. No. 550560
Whitfield Ave./SR 204 Spur
Old Whitfield Avenue to Ferguson Avenue
Chatham County

January 25-29, 2010

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

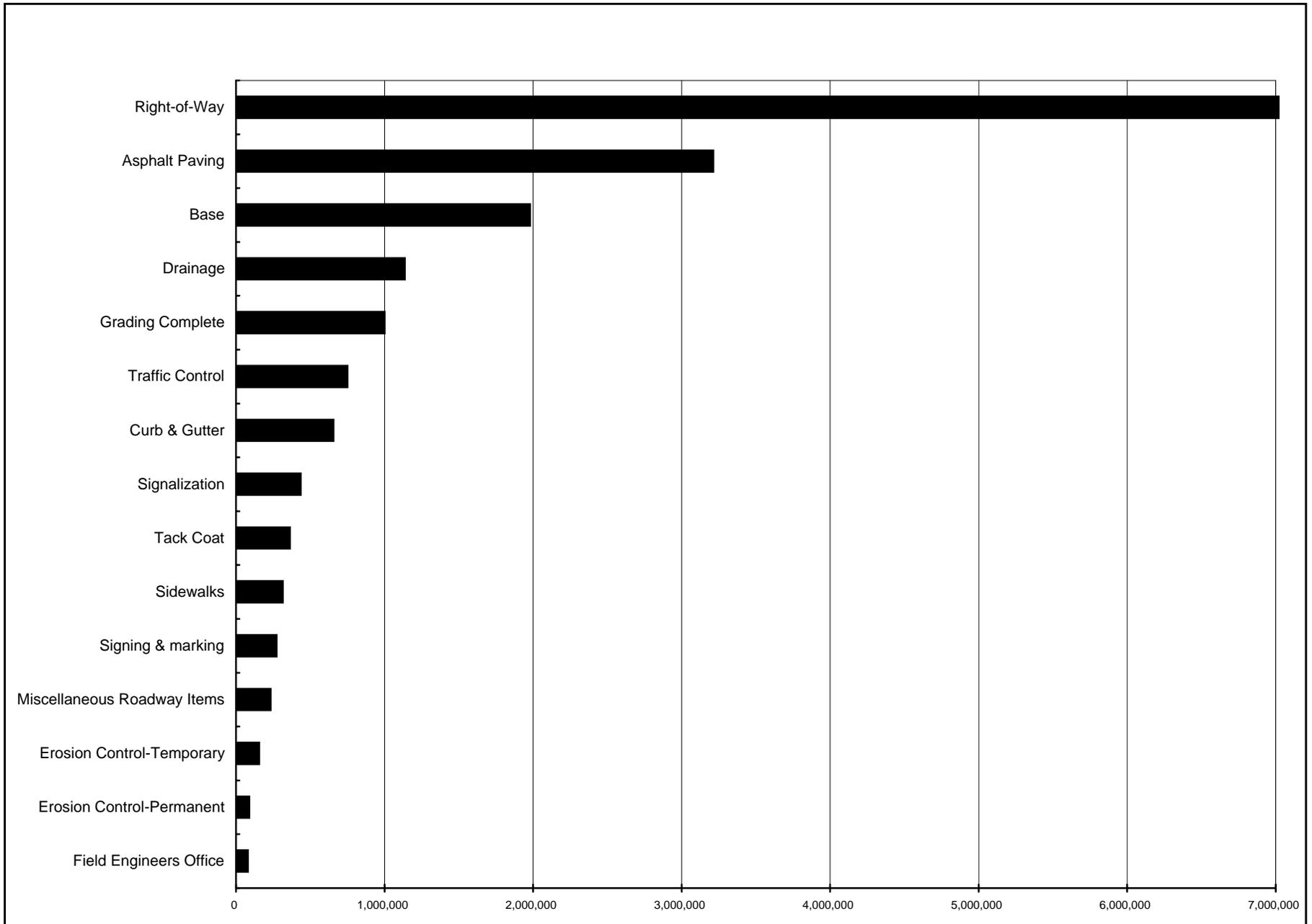
9:00-10:00 VE Team Presentation

PARETO CHART - COST HISTOGRAM



PROJECT: Georgia Department of Transportation
 STP00-00MS-00(005) - P.I. No. 550560
 Whitfield Ave./SR 204 Spur
 Old Whitfield Avenue to Ferguson Avenue
 Chatham County

PROJECT ELEMENT	COST	PERCENT	CUM. PERCENT
Right-of-Way	7,300,000	40.60%	40.60%
Asphalt Paving	3,213,000	17.87%	58.47%
Base	1,980,000	11.01%	69.48%
Drainage	1,135,850	6.32%	75.80%
Grading Complete	1,000,000	5.56%	81.36%
Traffic Control	750,000	4.17%	85.53%
Curb & Gutter	656,900	3.65%	89.19%
Signalization	435,600	2.42%	91.61%
Tack Coat	362,500	2.02%	93.63%
Sidewalks	315,000	1.75%	95.38%
Signing & marking	272,770	1.52%	96.90%
Miscellaneous Roadway Items	233,850	1.30%	98.20%
Erosion Control-Temporary	155,450	0.86%	99.06%
Erosion Control-Permanent	88,950	0.49%	99.56%
Field Engineers Office	80,000	0.44%	100.00%
Construction Cost including ROW & Utilites	\$ 17,979,870		
Construction Cost less ROW & Utilites	\$ 10,679,870		
E & C Rate @10%	\$ 1,067,987		
Total Construction Costs	\$ 11,747,857		
Right-of-Way	\$ 7,300,000		
Utilities Reimbursement	\$ -		
TOTAL	\$ 19,047,857		



CUSTOMER FUNCTION/TASK DIAGRAM

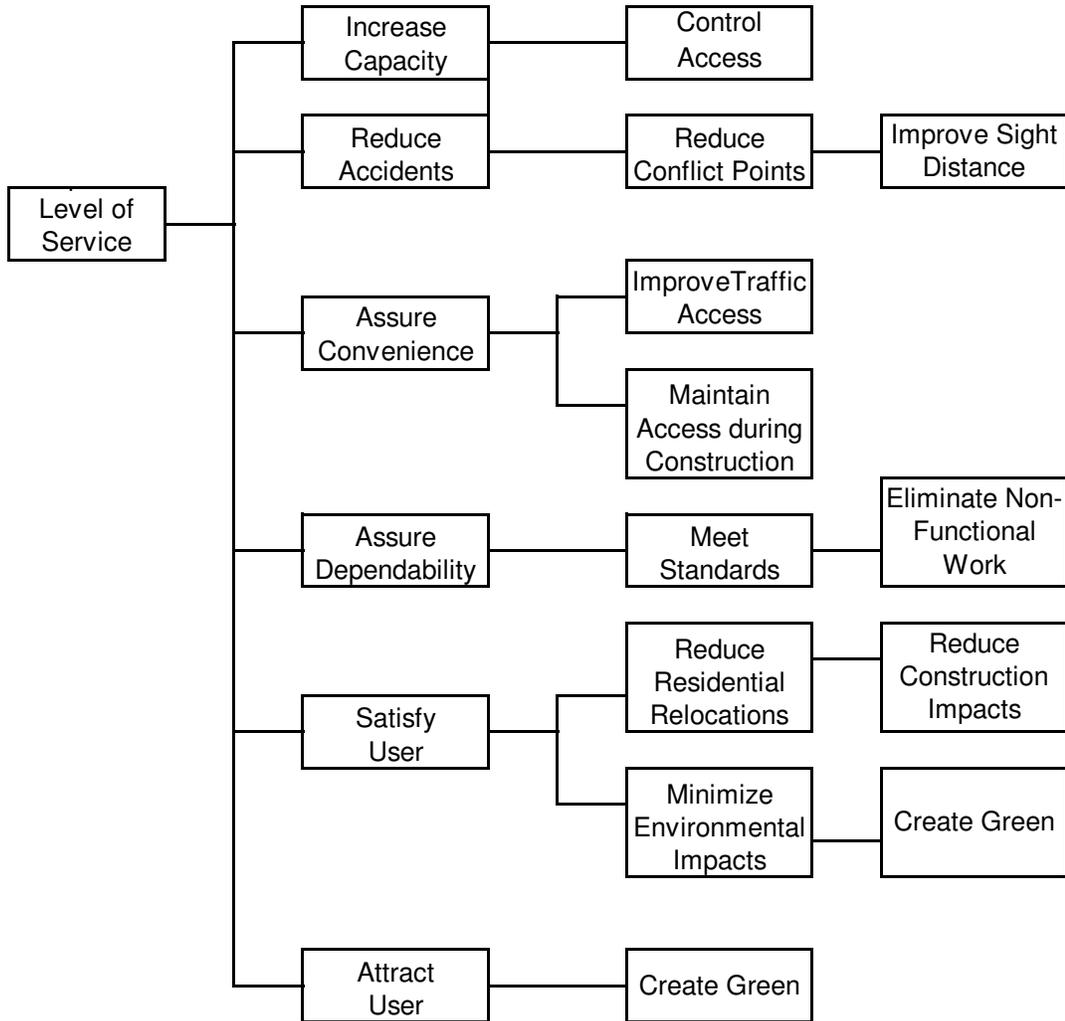
Project No. STP00-00MS-00(005)

P.I. No. 550560

Chatham County

Whitfield Ave./SR 204 Spur

Old Whitfield Avenue to Ferguson Avenue



DESIGNER PRESENTATION



MEETING PARTICIPANTS

Geogia Department of Transportation		January 26, 2010	
STP00-00MS-00(005) - P.I. 550560			
Chatham County			
NAME	ORGANIZATION & TITLE	E-MAIL	PHONE
Lisa Myers	 GDOT - Engineering Services	lmyers@dot.ga.gov	404-631-1770
Matt Sanders	 GDOT-Engineering Services	msanders@dot.ga.gov	404-631-1752
Ken Werho	 GDOT-Traffic Operations	kwerho@dot.ga.gov	404-635-8144
Les Thomas, PE, CVS	 PBS&J	lmthomas@pbsi.com	678-677-6420
Luke Clarke, PE, AVS	 PBS&J	lwclarke@pbsi.com	205-746-4615
Jeff Strickland, PE	 PBS&J	jpstrickland@pbsi.com	205-969-3776
Doyle Kelley	 Thomas & Hutton Engineering Co.	kelley.d@thomas-hutton.com	912-721-4160
Albert Welch	 GDOT-PM	awelch@dot.ga.gov	404-631-1690
Marcela Coll	 GDOT-Roadway	mcoll@DOT.GA.GOV	404-631-1691
Sonya Sykes	 GDOT-Roadway	ssykes@dot.ga.gov	404-631-1698
Larry Bowman	 GDOT-Office of Environment	lbowman@dot.ga.gov	404-631-1362
Russell McMurry	 GDOT-Roadway	rmcmurr@dot.ga.gov	404-631-1700
Darrell Richardsen	 GDOT-Roadway	drichardsen@dot.ga.gov	404-631-1705
Troy Pittman	 GDOT-Area 5 Savannah	tpittman@dot.ga.gov	912-651-2144

VE TEAM PRESENTATION



MEETING PARTICIPANTS

Geogia Department of Transportation		January 29, 2010	
STP00-00MS-00(005) - P.I. 550560			
Chatham County			
NAME	ORGANIZATION & TITLE	E-MAIL	PHONE
Matt Sanders	 GDOT-Engineering Services	msanders@dot.ga.gov	404-631-1752
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Luke Clarke, PE, AVS	 PBS&J	lwclarke@pbsj.com	205-746-4615
Jeff Strickland, PE	 PBS&J	jpstrickland@pbsj.com	205-969-3776
Doyle Kelley	 Thomas & Hutton Engineering Co.	kelley.d@thomas-hutton.com	912-721-4160
Albert Welch	 GDOT-PM	awelch@dot.ga.gov	404-631-1690
Marcela Coll	 GDOT-Roadway	mcoll@DOT.GA.GOV	404-631-1691
Larry Bowman	 GDOT-Office of Environment	lbowman@dot.ga.gov	404-631-1362
Russell McMurry	 GDOT-Roadway	rmcmurry@dot.ga.gov	404-631-1700
Darrell Richardsen	 GDOT-Roadway	drichardsen@dot.ga.gov	404-631-1705

CREATIVE IDEA LISTING



**PROJECT: Georgia Department of Transportation
STP00-00MS-00(005) - P.I. No. 550560
Whitfield Ave./SR 204 Spur
Old Whitfield Avenue to Ferguson Avenue
Chatham County**

SHEET NO.: 1 of 2

NO.	IDEA DESCRIPTION	RATING
ROADWAY (RD)		
RD-1	Reduce depth of inlay	3
RD-2	Utilize Type A in-lieu of Type B left turn lanes	4
RD-3	Use 4% cross slope in Bike traffic	OBS
RD-4	Signalize school entrance	OBS
RD-5	Use depressed vs. raised median	2
RD-6	Do not resurface from Sta. 45 to Sta. 66	2
RD-7	Use modular block walls in-lieu of poured-in-place	2
RD-8	Reduce sizes of closed drainage system	OBS
RD-9	Use open vs. closed drainage system	see DR-1-F
RD-10	Use depressed vs. raised median Sta. 12-44	2
RD-11	Correct guard rail detail	OBS
RD-12	Eliminate "U" turn at Sta. 34+75 - School	4
RD-13	Provide "eye brow" at Sta. 34+75	2
RD-14	Reduce length of side roads - Lavon, Crossbrook Place, Old Whitfield	4
RD-15	Leave Becham as is	2
RD-16	Eliminate retaining walls	4
RD-17	Use landscape "Islands" in-lieu of 50' median	2
RD-18	Eliminate left turn onto Lavon	2
RD-19	Use round-a-bouts for trees	2
RD-20	End project @ Sta. 125+50	4
RD-21	Eliminate Rumble Strips	4
RD-22	Use 4' paved shoulder	4

**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; OBS= Observation**

