

Value Engineering Study Report

SR 54 Widening/Reconstruction

STP-164-1(29) – PI 721440

Fayette and Clayton Counties



Value Management Team



Design Team:



&

R. K. Shah

July 2007



July 26, 2007

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

RE: Submittal of the final Value Engineering Report
Project: STP-164-1(29), P.I. 721440
Fayette and Clayton Counties
PBS&J Project Task Order No. 14

Dear Ms. Myers:

Please find enclosed four (4) hard copies and a CD of our final Value Engineering Report for the SR 54 Fayette and Clayton Counties, as referenced above.

This Value Engineering Study, which was performed during the period July 10 through July 13, 2007, identified **11 Alternative Ideas** which are recommended for implementation. The VE Team also identified **3 Design Suggestion Ideas** which are recommended for the Engineer to consider in his final design. We believe that the **11 Alternative Ideas** recommended may have a significant positive affect on the project.

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

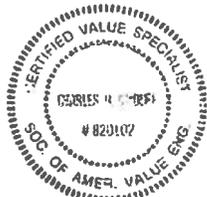
On behalf of our VE Team, we thank you very much for this opportunity to work with you and the hard working staff of the Georgia Department of Transportation.

Yours truly,

PBS&J

A handwritten signature in black ink, appearing to read 'Charles R. McDuff'.

Charles R. McDuff, PE, CVS, CCE
Project Manager -- Certified Value Specialist -- Life
Certification No. 820102



Value Engineering Study Report

*Project –STP-164-1(29)
Fayette/Clayton Counties
P.I. 721440
SR 54*

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Executive Summary

Executive Summary

INTRODUCTION

This report summarizes the analysis and conclusions by the PBS&J Value Engineering workshop team as they performed a VE Study during the period of July 10 through 13, 2007 in Atlanta, Georgia for the Georgia Department of Transportation. The subject of the Value Engineering study was Project STP-164-1(29), P.I. # 721440 in Clayton and Fayette Counties. Also, under this project it is proposed to widen the three existing bridges to accommodate the new 4 lane highway.

The purpose of Project STP-164-1(29) is to widen the existing roadway from two lanes to a four lanes of the 5.3 miles of SR 54 from just north of McDonough Road in Fayette County to US 19/41/SR 3/ Tara Boulevard in Clayton County. There are three bridges along this 5.3 mile roadway section at: Morning Creek; Camp Creek; and the Flint River bridge. All three bridges were built around the year 2000 under replacement project BRP-164-1(18). The existing bridges are in good condition and demonstrate acceptable sufficiency ratings of above 80.

More information about these projects may be found in the tabbed section of this report entitled *Project Descriptions*.

VALUE ENGINEERING PROCESS

The Value Engineering Team followed the Seven Step Value Engineering job plan as promulgated by Georgia Department of Transportation. This Seven Step Job Plan includes the following:

- Investigation
- Analysis
- Speculation
- Evaluation
- Development
- Recommendation
- Presentation

This report is a component of the Presentation Phase. As part of the VE workshop in Atlanta, the team made an informal presentation of their results on the last morning of the workshop. This report is intended to formalize the workshop results and set the stage for a formal implementation meeting in which alternatives and design suggestions will typically be accepted, accepted with modifications, or rejected for cause. The worksheet

that follows, along with the formally developed alternatives and design suggestions can be used as a “score sheet” for the implementation meeting. It is also included in this report to identify, on a summary basis, the results of the workshop. The reader is encouraged to visit the third tabbed section of this report entitled ***Study Results*** for a review of the details of the developed alternatives. The tabbed section ***Project Description*** includes information about the project itself and the tabbed section ***Value Engineering Process*** presents the detail process of the Value Engineering Study.

THE STUDY RESULTS

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

After the evaluation phase was completed, ***11 Alternative Ideas*** and ***3 Design Suggestions*** remained for further consideration. These ***Alternative Ideas*** and ***Design Suggestions*** may be found, in their documented form, in the section of this report entitled ***Study Results***. The following ***Summary of Alternatives and Design Suggestions*** coupled with the documentation of the developed alternatives should provide the reader with the information required to fully evaluate the merits of each of the alternatives.



SUMMARY OF ALTERNATIVES AND DESIGN SUGGESTIONS

Georgia Department of Transportation
 STP-164-1(29) – Fayette/ Clayton Counties
 P.I. No. 721440

Alternative Number	DESCRIPTION OF ALTERNATIVE	Initial Cost Savings	Implemented Cost Savings/Disposition
	(EW) EARTHWORK		
EW-1	Utilize "Bifurcated" profiles	\$198,860	
	(RW) RIGHT-OF-WAY		
RW-1	Reduce right-of-way to required width	\$2,185,126	
RW-5	Reduce shoulder width	\$1,000,166	
RW-6	Use multi-use trail in lieu of bike lanes on roadway	\$1,346,147	
RW-8	Use shared bicycle lanes	\$1,002,275	
	(BP) BASE AND PAVING		
BP-2	Eliminate two foot "buffer" pavement from median	\$525,001	
BP-3	Use eleven foot wide lanes	\$1,184,073	
BP-4	Verify pavement quantities for utilization of existing pavement	Design Suggestion	
BP-5	Review "eyebrow" locations at intersections where U-turns are permitted	Design Suggestion	
	(C) CONCRETE		
C-1	Eliminate concrete slope paving	Design Suggestion	
C-4	Put sidewalk on one side of the roadway only	\$343,858	
	(BR) BRIDGES		
BR-3	Use 8' multi-use trail in lieu of 6' sidewalks and 4' bike lanes on the bridges	\$179,069	
BR-4	Use separate structures for pedestrians and bicyclists in lieu of 6' sidewalks and 4' bike lanes on bridges	\$111,487	
BR-6	Use 5' sidewalks in lieu of 6' sidewalks and reduce median to 14'	\$356,581	

Study Results

Study Results

Introduction

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

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

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

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

Cost Calculations

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

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



SUMMARY OF ALTERNATIVES AND DESIGN SUGGESTIONS

Georgia Department of Transportation
 STP-164-1(29) – Fayette/ Clayton Counties
 P.I. No. 721440

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Value Analysis Design Alternative



PROJECT: GEORGIA DEPARTMENT OF TRANSPORTATION
 Project No. STP-164-1(29) – Fayette/Clayton Counties – P.I. No: 721440

ALTERNATIVE NO.:
EW - 1

DESCRIPTION: UTILIZE “BIFURCATED” PROFILES

SHEET NO.: 1 of 4

Original Design:

The original design calls for a “common profile grade” for both roadways.

Alternative:

The alternative design would utilize a bifurcated profile grade and lower the “new” roadway by ~ 0.5’ throughout the project limits.

Opportunities:

- Reduce required borrow
-

Risks:

- Additional design cost
- Moderate increases in sheet flow to the new roadway. (12’ additional median area)

Technical Discussion:

By using a common profile grade and rehabilitating the existing pavement, the “new” roadway is forced “artificially” high for the majority of the project. The higher profile grading results in a significant amount of required borrow. By constructing the new roadway ~ 0.5’ lower in fills and ~ 0.5’ higher in cuts a significant amount of borrow can be eliminated from the job. A 0.5’ +/- differential should not cause significant issues with either the intersection grades or increased sheet flow.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 1,735,250	\$	\$ 1,735,250
ALTERNATIVE	\$ 1,536,390	\$	\$ 1,536,390
SAVINGS	\$ 198,860	\$	\$ 198,860

Illustrations

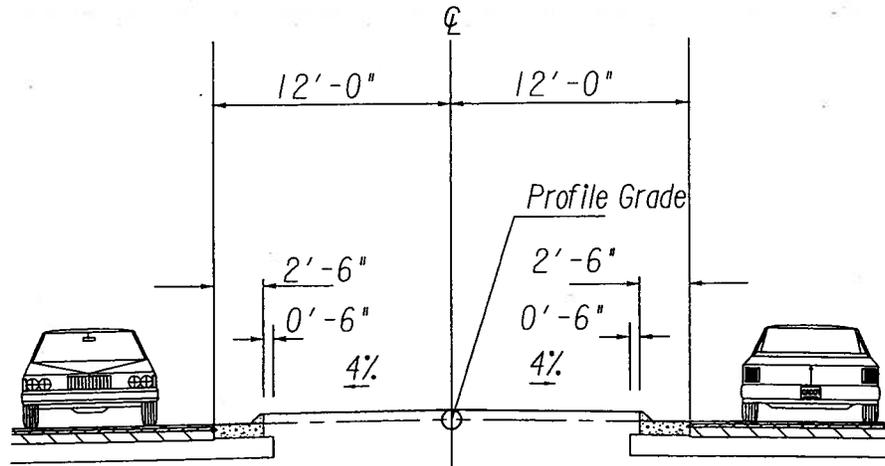


PROJECT: GEORGIA DEPARTMENT OF TRANSPORTATION
Project No. STP-164-1(29) – Fayette/Clayton Counties – P.I. No: 721440

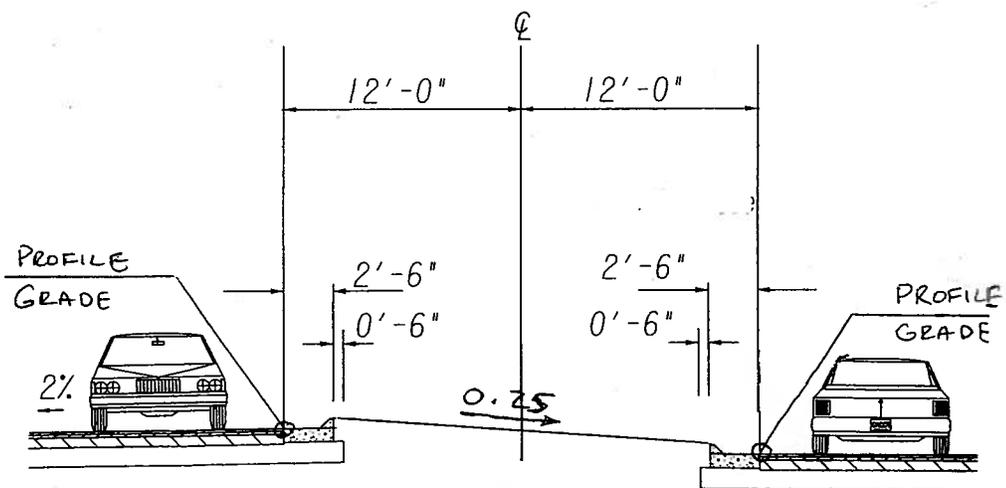
ALTERNATIVE NO.:
EW-1

DESCRIPTION: UTILIZE "BIFURCATED" PROFILES

SHEET NO.: 2 of 4



ORIGINAL DESIGN
N.T.S.



ALTERNATIVE DESIGN
N.T.S.

Calculations



PROJECT: GEORGIA DEPARTMENT OF TRANSPORTATION
Project No. STP-164-1(29) – Fayette/Clayton Counties – P.I. No: 721440

ALTERNATIVE NO.:
EW - 1

DESCRIPTION: UTILIZE A "BIFURCATED" PROFILE

SHEET NO.: 3 of 4

Assumptions

0.5 ft in depth, 70 ft in width, and 80% of the project length

Length

$(5.23 \text{ miles}) \times (5280 \text{ LF/ mile}) \times (0.80) = 22,100 \text{ LF}$

Cubic Yards

$[(0.5 \text{ ft}) \times (70 \text{ ft}) \times (22,100 \text{ LF})] / (27 \text{ CF/CY}) = 28,650 \text{ CY}$

Total Required Borrow for the Roadway

$250,000 \text{ CY} - 28,650 \text{ CY} = 221,350 \text{ CY}$

Value Analysis Design Alternative



PROJECT: GEORGIA DEPARTMENT OF TRANSPORTATION
 Project No. STP-164-1(29) – Fayette/Clayton Counties – P.I. No: 721440

ALTERNATIVE NO.:
RW - 1

DESCRIPTION: REDUCE RIGHT OF WAY TO REQUIRED WIDTH

SHEET NO.: 1 of 4

Original Design:

The original design proposes a standard 150 foot right of way with minor variations for areas of wide fills or cuts.

Alternative:

The alternative design would narrow the right of way to more closely conform with the construction limits. There will still remain an area between the right of way and the toe/top of slope for construction.

Opportunities:

- Reduced right of way costs
- Reduced impact to adjacent property owners

Risks:

- More complex right of way acquisition due to variable widths.
- Restricted work area

Technical Discussion:

The distance between construction limits and right of way limits vary from zero feet to as much as twenty feet based on the review of the plans. Since there appears to be no standard offset distance and right of way costs are expensive, closer offsets should be considered.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 22,968,353	\$	\$ 22,968,353
ALTERNATIVE	\$ 20,783,227	\$	\$ 20,783,227
SAVINGS	\$ 2,185,126	\$	\$ 2,185,126

Calculations



PROJECT: GEORGIA DEPARTMENT OF TRANSPORTATION
 Project No. STP-164-1(29) - Fayette/Clayton Counties - P.I. No: 721440

ALTERNATIVE NO.: RW-1

DESCRIPTION: REDUCE RIGHT-OF-WAY TO
 REQUIRED WIDTH

SHEET NO.: 2 of 4

STATION	CONSTRUCTION LIMITS	R/W LIMITS
25+00	130	150
40+00	120	150
70+00	130	160
90+00	150	150
115+00	140	195
135+00	120	150
185+00	140	165
205+00	120	140
230+00	140	150
245+00	130	150
265+00	125	150
285+00	125	150

Ave 130 155

AVERAGE EXCESS R/W WIDTH

$$\frac{155 - 130}{130} = 19.2\%$$

EXISTING R/W AND NEW LOCATION COMPRISE THE FOLLOWING AREAS

- | | |
|----------------------------|----------------|
| 1) STA 95+00 - STA 106+50 | 1150 LF |
| 2) STA 140+50 - STA 177+00 | 3650 LF |
| 3) STA 190+00 - STA 302+00 | 1200 LF |
| | <u>6000 LF</u> |

PERCENTAGE OF PROJECT ON ALL NEW OR PARTIAL EXISTING NOT TO BE CHANGED

Calculations



PROJECT: GEORGIA DEPARTMENT OF TRANSPORTATION

Project No. STP-164-1(29) - Fayette/Clayton Counties - P.I. No: 721440

ALTERNATIVE NO.:

DESCRIPTION:

SHEET NO.: 3 of 4

TOTAL PROJECT LENGTH

STA 20+00 - STA 302+50 28250 LF

$$\frac{6000}{28250} = 21.2\% \quad \text{PERCENTAGE OF PROJECT TO REMAIN UNCHANGED}$$

POSSIBLE REDUCTION IN RIGHT-OF-WAY

$$(100\% - 21.2\%) \times 19.2\% = \boxed{15.1\%}$$

ASSUME A 50% REDUCTION OF EXCESS RIGHT-OF-WAY

$$50\% \times 15.1\% = 7.5\%$$

$$7.5\% \times \$22,468,353 = \$1,685,126$$

Value Analysis Design Alternative



PROJECT: GEORGIA DEPARTMENT OF TRANSPORTATION
 Project No. STP-164-1(29) – Fayette/Clayton Counties – P.I. No: 721440

ALTERNATIVE NO.:
RW - 5

DESCRIPTION: REDUCE SHOULDER WIDTH

SHEET NO.: 1 of 2

Original Design:

The original design calls for a 16 foot shoulder area, consisting of a two foot six inch curb and gutter, six foot buffer, five foot sidewalk, and two feet six inches behind the sidewalk.

Alternative:

The alternative calls for reducing the shoulder to 12 feet. The revised shoulder would consist of a two foot gutter, a two foot buffer, a six foot sidewalk, and two feet behind the sidewalk.

Opportunities:

- Reduced earthwork
- Reduced right of way

Risks:

- Increased sidewalk cost
-

Technical Discussion:

Typically reduction in the shoulder would only be considered in a more developed area; however, because of the imbalance in the earthwork a shoulder reduction can produce significant savings.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 26,688,998	\$	\$ 26,688,998
ALTERNATIVE	\$ 25,688,832	\$	\$ 25,688,832
SAVINGS	\$ 1,000,166	\$	\$ 1,000,166

Value Analysis Design Alternative



PROJECT: GEORGIA DEPARTMENT OF TRANSPORTATION
 Project No. STP-164-1(29) – Fayette/Clayton Counties – P.I. No: 721440

ALTERNATIVE NO.:
RW - 6

DESCRIPTION: USE MULTI-USE TRAIL IN LIEU OF BIKE LANES ON
 ROADWAY

SHEET NO.: 1 of 5

Original Design:

The original design provides a four foot bikes lane in the roadway pavement and a five foot sidewalk on the 16 foot wide shoulder on each side of the road (See the attached sketch).

Alternative:

The alternative design would remove the 2 four foot bike lanes from the pavement section. The five foot sidewalk would be relocated closer to the back of the curb and a parallel five foot bike lane would be constructed on the 16 foot shoulder. Relocation of the bike lanes would narrow the right of way by eight feet.

Opportunities:

- Reduced construction costs
- Reduced right of way costs
- Reduced construction time

Risks:

- Moderate redesign costs
- Bike lane on shoulder adjacent to sidewalk

Technical Discussion:

This route is not included in the state bike path program therefore relocation may be considered. To eliminate potential conflict with pedestrians, the trail would be constructed of asphalt parallel and adjacent to the sidewalk. Pavement markings would be transferred from original design to the alternative design. The right-of-way cost savings results from being able to reduce the right-of-way width by eight (8) feet.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 32,766,249	\$	\$ 32,766,249
ALTERNATIVE	\$ 31,420,102	\$	\$ 31,420,102
SAVINGS	\$ 1,346,147	\$	\$ 1,346,147

Illustrations

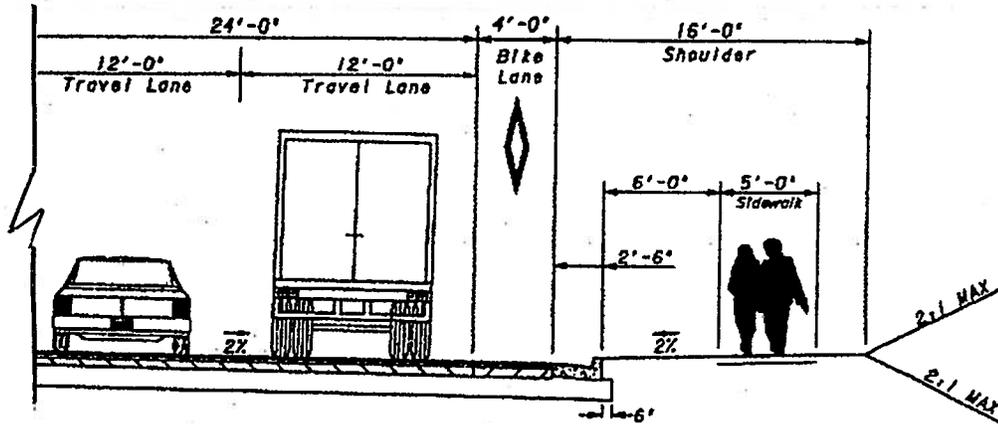


PROJECT: GEORGIA DEPARTMENT OF TRANSPORTATION
Project No. STP-164-1(29) – Fayette/Clayton Counties – P.I. No: 721440

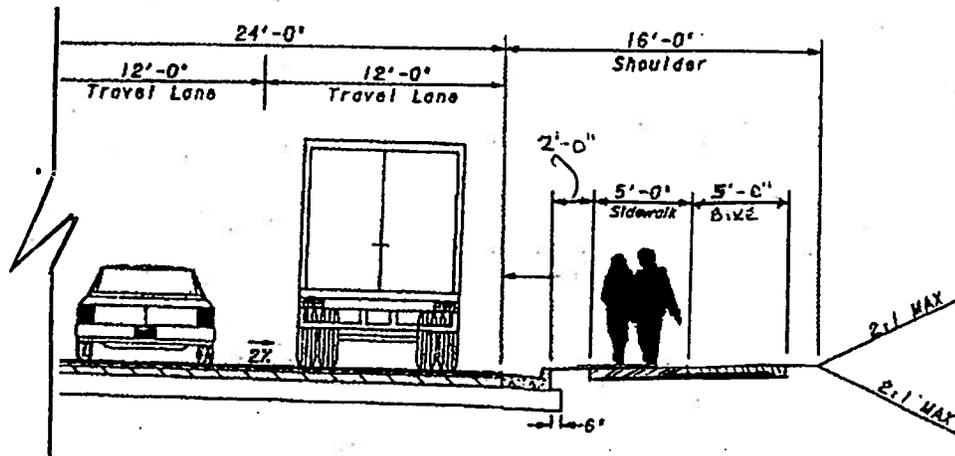
ALTERNATIVE NO.: RW 6

DESCRIPTION: USE MULTI-USE TRAIL IN LIEU
OF BIKE LANES ON ROADWAY

SHEET NO.: 2 of 5



ORIGINAL BIKE LANE
& SHOULDER TYPICAL
SECTION



ALTERNATIVE BIKE LANE
& SHOULDER TYPICAL
SECTION

Calculations



PROJECT: GEORGIA DEPARTMENT OF TRANSPORTATION
Project No. STP-164-1(29) - Fayette/Clayton Counties - P.I. No: 721440

ALTERNATIVE NO.: RW 6

DESCRIPTION: USE MULTI-USE TRAIL IN LIEU
OF BIKE LANES ON ROADWAY

SHEET NO.: 3 of 5

PROJECT LENGTH

STA 20+00 - STA 302+50 28250 LF

REDUCTION IN PAVEMENT QUANTITIES DUE
TO RELOCATION OF BIKE LANES

AREA OF ELIMINATED PAVEMENT (2-4 FOOT BIKE LANES)

$$28250 \text{ LF} \times 8 \text{ LF} = 226000 \text{ SF} = 2511154$$

1 1/2" - 12.5 mm SUPERPAVE

$$165 \# / \text{yd}^2 \times 251114 \text{ yd}^2 \div 2000 = \underline{2071 \text{ TN}}$$

2" - 19 mm SUPERPAVE

$$220 \# / \text{yd}^2 \times 251114 \text{ yd}^2 \div 2000 = \underline{2762 \text{ TN}}$$

5" - 25 mm SUPERPAVE

$$550 \# / \text{yd}^2 \times 251114 \text{ yd}^2 \div 2000 = \underline{6905 \text{ TN}}$$

12" GAB

$$145 \# / \text{ft}^3 \times 226000 \text{ Ft} \times 1 \text{ Ft} \div 2000 = \underline{16385 \text{ TN}}$$

ADDITION OF PAVEMENT QUANTITIES DUE TO
ADDITION OF ASPHALT BIKE LANE ON SHOULDER
AREA OF ADDED PAVEMENT (2-5 FOOT BIKE LANES)

$$28250 \text{ LF} \times 10 \text{ LF} = 282500 \text{ SF} = 3138854$$

1 1/2" - 12.5 mm SUPERPAVE

$$165 \# / \text{yd}^2 \times 313884 \text{ yd}^2 \div 2000 = \underline{2589 \text{ TN}}$$

6" GAB

$$145 \# / \text{ft}^3 \times 282500 \text{ ft}^3 \times 0.5 \text{ Ft (depth)} \div 2000 = \underline{10200 \text{ TN}}$$

Calculations



PROJECT: GEORGIA DEPARTMENT OF TRANSPORTATION
Project No. STP-164-1(29) - Fayette/Clayton Counties - P.I. No: 721440

ALTERNATIVE NO.: RW-6

DESCRIPTION: USE MULTI-USE TRAIL IN LINED
OF BIKE LANES ON ROADWAY

SHEET NO.: 4 of 5

INCREASE / DECREASE OF PAVEMENT QUANTITY
12.5 mm SUPERPAVE

INCREASE 518 TN

19 mm SUPERPAVE

DECREASE 2762 TN

25 mm SUPERPAVE

DECREASE 6905 TN

GAB

DECREASE 6145 TN

RIGHT-OF-WAY

PROPOSED 150 FOOT WIDTH. ELIMINATION
OF 2-4 FOOT BIKE LANES REDUCES R/W
BY 5.3%

PROPOSED R/W COSTS \$ 22 462 353

ALTERNATIVE R/W COSTS \$ 21 277 531

COST WORKSHEET

PROJECT:	GEORGIA DEPARTMENT OF TRANSPORTATION	ALTERNATIVE NO.:					
STP-164-1(29) - SR 54 - Fayette/Clayton Counties - P.I. No. 721440		RW-6					
DESCRIPTION:	<i>Use multi-lane trail in lieu of bike lanes on roadway</i>	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
310-1101 - Graded Aggregate Base Course	TN	145200	\$ 17.17	\$2,493,084	139055	\$ 17.17	\$2,387,574
402-3121 - Recycled Asphalt Conc 25 mm	TN	50000	\$ 61.84	\$3,092,000	43095	\$ 61.84	\$2,664,995
402-3130 - Recycled Asphalt Conc 12.5 mm	TN	26000	\$ 58.94	\$1,532,440	26518	\$ 58.94	\$1,562,971
402-3190 - Recycled Asphalt Conc 19 mm	TN	35000	\$ 64.12	\$2,244,200	32238	\$ 64.12	\$2,067,101
Subtotals =				\$9,361,724			\$8,682,641
Right-of-Way Exclud 10% MU	LS	1	\$22,468,353	\$22,468,353	1	\$ 21,869,197	\$21,869,197
Note -- cost savings based on saving 4' of right-of-way for the full length of the project.							
				\$10,297,896			\$9,550,905
RW + Marked Up Regular Cost Savings =				\$32,766,249			\$31,420,102
Sub-total				\$9,361,724			\$8,682,641
Mark-up at 10.00%				\$936,172			\$868,264
TOTAL				\$10,297,896			\$9,550,905

Value Analysis Design Alternative



PROJECT: GEORGIA DEPARTMENT OF TRANSPORTATION
 Project No. STP-164-1(29) – Fayette/Clayton Counties – P.I. No: 721440

ALTERNATIVE NO.:
RW-8

DESCRIPTION: **USE SHARED BICYCLE LANES**

SHEET NO.: 1 of 4

Original Design:

The original design calls for a 4' – 0" bike lane adjacent to the outside vehicle travel lane on each side of the road. This bicycle lane is dedicated to the cyclists and is marked appropriately.

Note – see attached sketch

Alternative:

The outside vehicle travel lane and the bicycle lane on each side of the roadway are combined into one 14' – 0" shared lane. They are marked with the "Sharrow" emblem to indicate that the vehicles and bicycles will share this outside lane on either side of the roadway.

Note – see attached sketch and article on the enclosed Calculation Sheet.

Opportunities:

- Initial cost savings
- Will reduce impact on local land owners

Risks:

- Some redesign required
- The use of shared lanes marked by Sharrows is not a widely accepted practice

Technical Discussion:

The Sharrow approach is a relatively new thing. It helps to reduce right-of-way and pavement widths – resulting in cost savings. However, the use of the chevron symbol has not been accepted by the committee overseeing the revisions and additions to the MUTCD rejected this as an addition to their manual. In the instance of the project setting, the Sharrow may be acceptable since the design speed is 45 mph. It can be anticipated that bicycle interests will not be warm to this approach. There are pros and cons that must be analyzed before this idea should be adopted. It is recommended that the recent article in the Christian Science Monitor be read in its entirety if this idea is to be carried forward. This article is available on line under "Sharrow"

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ALTERNATIVE	\$ 21,970,095	\$	\$ 21,970,095
SAVINGS	\$ 1,002,275	\$	\$ 1,002,275

Illustrations



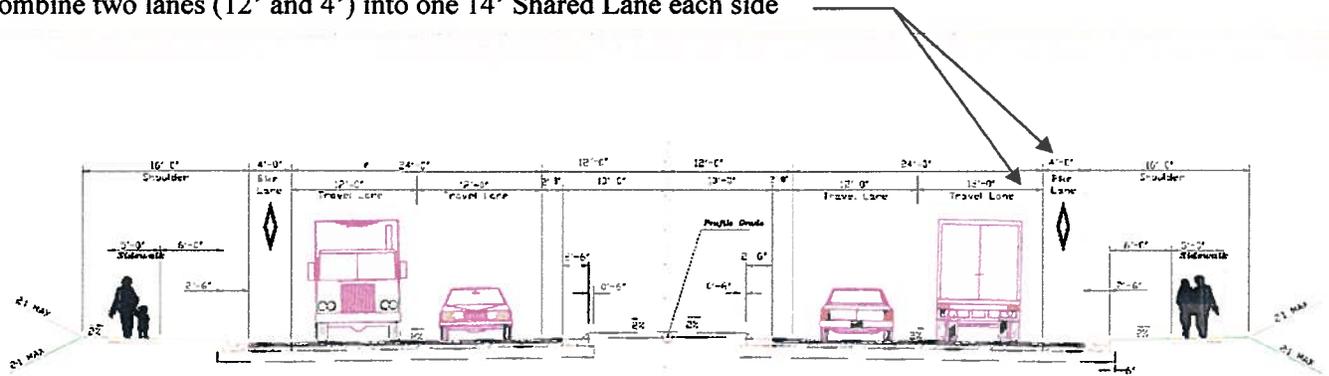
PROJECT: GEORGIA DEPARTMENT OF TRANSPORTATION
Project No. STP-164-1(29) – Fayette/Clayton Counties – P.I. No: 721440

ALTERNATIVE NO.:
RW-8

DESCRIPTION: **USE SHARED BICYCLE LANES**

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

Combine two lanes (12' and 4') into one 14' Shared Lane each side



4 Lanes Divided with a 24' Median
NORMAL DRAWING

The shared lane would be marked with the Sharrow emblem:



PROJECT: **GEORGIA DEPARTMENT OF TRANSPORTATION**
Project No. STP-164-1(29) – Fayette/Clayton Counties – P.I. No: 721440

ALTERNATIVE NO.:
RW-8

DESCRIPTION: **USE SHARED BICYCLE LANES**

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

Sharrows: Moving Towards a Bicycle-Safe, Platinum Portland

Roland Chlapowski



Get Ready Portland! - Soon, you are going to see new markings on our roads - something called "sharrows."

These innovative new pavement markings are part of a pilot program being rolled out by the City of Portland's Department of Transportation to study their effectiveness in our city. But if the experience of other cities that have been starting to adopt these road markings is any clue, sharrows will prove to be a great step forward for bicycle safety in Portland.

(Update: Portland is now getting national attention for our bike-friendliness in general, as well as our new sharrow pilot program in particular. Check out this [Christian Science Monitor](#) article on Portland's sharrow program.) Sharrows are a cousin of bike lanes, only they aren't exclusively for bicycles. They are put down to clearly indicate where bicycles and cars have to share the road. The concept is simple - in areas where it is impossible to have bike lanes, for whatever reason, sharrows provide a clear bicycle pathway on the road - indicating that the lane is one that bicycles and cars have to share with one another. (Get it? "Shared-road arrows," "Share-rows," "Sharrows"...)



COST WORKSHEET



PROJECT:	GEORGIA DEPARTMENT OF TRANSPORTATION	ALTERNATIVE NO.:	RW-8				
<i>STP-164-1(29) - SR 54 - Fayette/Clayton Counties - P.I. No. 721440</i>							
DESCRIPTION:		<i>Use Shared Bicycle and Traffic Lanes</i>	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
206-002 - Borrow Excavation, Including Material	CY	250000	\$ 6.31	\$1,577,500	254185	\$ 6.31	\$1,603,907
310-1101 - Graded Aggregate Base Course	TN	145200	\$ 17.17	\$2,493,084	137008	\$ 17.17	\$2,352,427
402-3121 - Recycled Asphalt Conc 25 mm	TN	50000	\$ 61.84	\$3,092,000	46548	\$ 61.84	\$2,878,528
402-3130 - Recycled Asphalt Conc 12.5 mm	TN	26000	\$ 58.94	\$1,532,440	24965	\$ 58.94	\$1,471,437
402-3190 - Recycled Asphalt Conc 19 mm	TN	35000	\$ 64.12	\$2,244,200	33619	\$ 64.12	\$2,155,650
Subtotals =				\$10,939,224			\$10,461,950
Right-of-Way Exclud 10% MU	LS	1	\$ 22,468,353	\$22,468,353	1	\$21,869,197	\$21,869,197
Note -- cost savings based on saving 4' of right-of-way for the full length of the project.							
				\$12,033,146			\$11,508,145
R/W + Marked Up Regular Cost Savings =				\$22,972,370			\$21,970,095
Sub-total				\$10,939,224			\$10,461,950
Mark-up at 10.00%				\$1,093,922			\$1,046,195
TOTAL				\$12,033,146			\$11,508,145

Value Analysis Design Alternative



PROJECT: GEORGIA DEPARTMENT OF TRANSPORTATION
 Project No. STP-164-1(29) – Fayette/Clayton Counties – P.I. No: 721440

ALTERNATIVE NO.:
BP - 2

DESCRIPTION: ELIMINATE TWO FT “BUFFER” PAVEMENT FROM
 MEDIAN

SHEET NO.: 1 of 5

Original Design:

The original design provides a 20 foot wide median from edge of pavement to edge of pavement, plus a two foot wide “buffer” for each direction of travel.

Alternative:

The alternative design would increase the median width to a 24 foot width from edge of pavement to edge of pavement and eliminate the two foot wide “buffer” pavement from each direction.

Opportunities:

- Reduced construction costs
- Improved offset in turn lanes

Risks:

- Minor redesign costs
- Elimination of “buffer”

Technical Discussion:

The design manuals do not indicate the requirement of the two foot buffer pavement adjacent to the median. Elimination of the two foot width will improve the offset at the left turn lanes.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 12,033,146	\$	\$ 12,033,146
ALTERNATIVE	\$ 11,508,145	\$	\$ 11,508,145
SAVINGS	\$ 525,001	\$	\$ 525,001

Illustrations

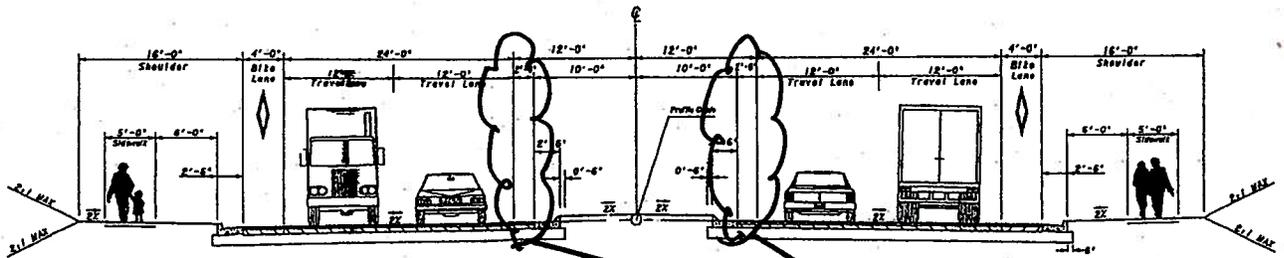


PROJECT: GEORGIA DEPARTMENT OF TRANSPORTATION
Project No. STP-164-1(29) – Fayette/Clayton Counties – P.I. No: 721440

ALTERNATIVE NO.: **BP-2**

DESCRIPTION: **ELIMINATE TWO-FOOT BUFFER FROM MEDIAN**

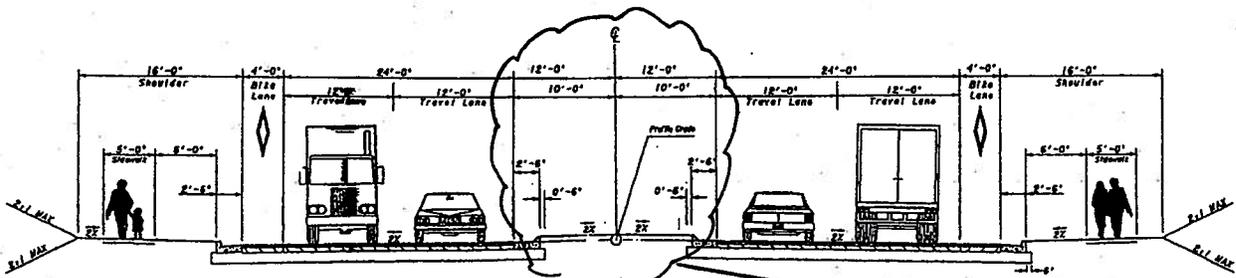
SHEET NO.: **2 of 5**



4 Lanes Divided with a 24' Median
NORMAL CROWN

ORIGINAL DESIGN

**DELETE PAVEMENT
ADD WIDTH TO MEDIAN**



4 Lanes Divided with a 24' Median
NORMAL CROWN

**INCREASED
RAISED MEDIAN**

ALTERNATE DESIGN

Illustrations

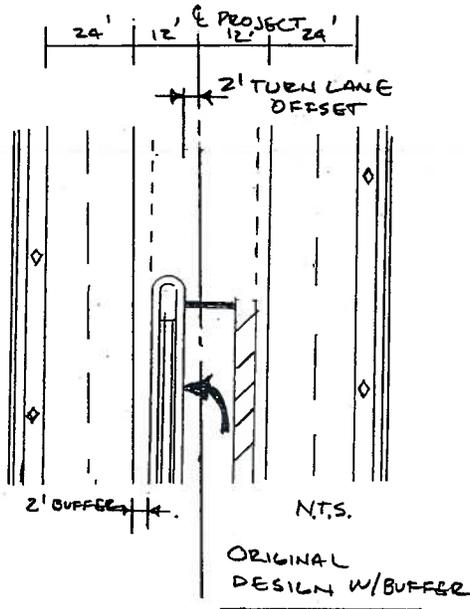


PROJECT: GEORGIA DEPARTMENT OF TRANSPORTATION
Project No. STP-164-1(29) - Fayette/Clayton Counties - P.I. No: 721440

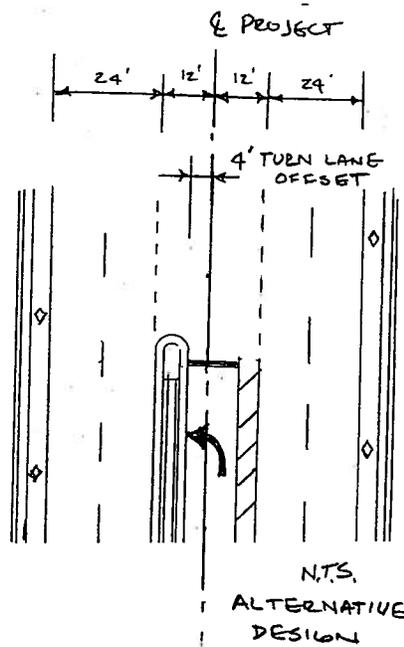
ALTERNATIVE NO.: BP-2

DESCRIPTION: ELIMINATE 2 FOOT BUFFER
PAVEMENT FROM MEDIAN

SHEET NO.: 3 of 5



THE ILLUSTRATION INDICATES THE IMPROVED OFFSET DUE TO THE ELIMINATION OF THE 2 FOOT BUFFER



Calculations



PROJECT: GEORGIA DEPARTMENT OF TRANSPORTATION

Project No. STP-164-1(29) - Fayette/Clayton Counties - P.I. No: 721440

ALTERNATIVE NO.: BP-2

DESCRIPTION: ELIMINATE 2 FOOT BUFFER
PAVEMENT FROM MEDIAN

SHEET NO.: 4 of 5

PROJECT LENGTH

STA 20+00 - STA 302+50 28250 LF

AREA OF ELIMINATED PAVEMENT

$$28250 \text{ LF} \times 4 \text{ F} = 113000 \text{ SF} = 12555 \text{ SY}$$

PAVEMENT QUANTITY CALCULATION

1 1/2" - 125 mm SUPERPAVE

$$165 \# / \text{yd}^2 \times 12555 \text{ yd}^2 \div 2000 = \underline{1035 \text{ T}}$$

2" - 19 mm SUPERPAVE

$$220 \# / \text{yd}^2 \times 12555 \text{ yd}^2 \div 2000 = \underline{1381 \text{ T}}$$

5" - 25 mm SUPERPAVE

$$550 \# / \text{yd}^2 \times 12555 \text{ yd}^2 \div 2000 = \underline{3452 \text{ T}}$$

12" - GAB

$$145 \# / \text{ft}^3 \times 113000 \text{ SF} \times 1 \text{ FT} \div 2000 = \underline{8192 \text{ T}}$$

ADDITIONAL BORROW FOR EXTRA MEDIAN
WIDTH

$$28250 \text{ LF} \times 4 \text{ FT (WIDTH)} \times 1 \text{ FT (DEPTH)} \div 27 \\ = \underline{4185 \text{ CY}}$$

COST WORKSHEET



PROJECT:	GEORGIA DEPARTMENT OF TRANSPORTATION	ALTERNATIVE NO.:	BP-2				
STP-164-1(29) - SR 54 - Fayette/Clayton Counties - P.I. No. 721440							
DESCRIPTION:	<i>Eliminate 2 foot buffer pavement from median</i>	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
206-002 - Borrow Excavation, Including Material	CY	250,000	\$ 6.31	\$1,577,500	254,185	\$ 6.31	\$1,603,907
310-1101 - Graded Aggregate Base Course	TN	145,200	\$ 17.17	\$2,493,084	137,008	\$ 17.17	\$2,352,427
402-3121 - Recycled Asphalt Conc 25 mm	TN	50,000	\$ 61.84	\$3,092,000	46,548	\$ 61.84	\$2,878,528
402-3130 - Recycled Asphalt Conc 12.5 mm	TN	26,000	\$ 58.94	\$1,532,440	24,965	\$ 58.94	\$1,471,437
402-3190 - Recycled Asphalt Conc 19 mm	TN	35,000	\$ 64.12	\$2,244,200	33,619	\$ 64.12	\$2,155,650
Sub-total				\$10,939,224			\$10,461,950
Mark-up at 10.00%				\$1,093,922			\$1,046,195
TOTAL				\$12,033,146			\$11,508,145

Value Analysis Design Alternative



PROJECT: GEORGIA DEPARTMENT OF TRANSPORTATION
 Project No. STP-164-1(29) – Fayette/Clayton Counties – P.I. No: 721440

ALTERNATIVE NO.:
BP - 3

DESCRIPTION: USE ELEVEN FT WIDE LANES

SHEET NO.: 1 of 3

Original Design:

The original design provides for the use of twelve foot lanes.

Alternative:

The alternative design would reduce all through lanes to eleven feet in width.

Opportunities:

- Reduced paving cost
- Reduced right of way
- Shorter pedestrian crossing times

Risks:

- Less maneuvering room for large vehicles
- Less width for u-turns
- Violates GDOT “policy”

Technical Discussion:

GDOT policy (Table 6.3) provides for the use of twelve foot lanes on all urban arterials; however, the discussion of lane widths for urban arterials (page 472) in the AASHTO 2004 “Greenbook” states not only that ten to twelve foot lanes are permissible, but that under low speed/interrupted flow conditions, narrower lanes actually have some advantages including, reduced cost, reduced right of way, and shorter pedestrian crossing times. The guidelines also specifically state that eleven foot lanes are “adequate for through lanes, continuous two-way left turn lanes, and lanes adjacent to a painted median.”

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 36,748,335	\$	\$ 36,748,335
ALTERNATIVE	\$ 35,564,262	\$	\$ 35,564,262
SAVINGS	\$ 1,184,073	\$	\$ 1,184,073

Calculations



PROJECT: GEORGIA DEPARTMENT OF TRANSPORTATION
Project No. STP-164-1(29) – Fayette/Clayton Counties – P.I. No: 721440

ALTERNATIVE NO.:

BP - 3

DESCRIPTION: USE ELEVEN FT WIDE LANES

SHEET NO.:

2 of 3

Project Length

$$\text{Sta. 20+00} - \text{Sta. 302+50} = 28,250 \text{ LF}$$

Area of Eliminated Pavement

$$28250 \text{ LF} \times 4 \text{ FT} = 113,000 \text{ SF} = 12,555 \text{ SY}$$

Pavement Quantity Calculation

$$\frac{1 \frac{1}{2}'' - 12.5\text{mm Superpave}}{[165\#/yd^2 \times 12,555 \text{ yd}^2] / 2000} = 1035\text{T}$$

$$\frac{2'' - 19\text{mm Superpave}}{[220\#/yd^2 \times 12,555 \text{ yd}^2] / 2000} = 1381\text{T}$$

$$\frac{5'' - 25\text{mm Superpave}}{[550\#/yd^2 \times 12,555 \text{ yd}^2] / 2000} = 3452\text{T}$$

$$\frac{12'' - \text{GAB}}{[145\#/ft^3 \times 113,000 \text{ ft}^2 \times 1 \text{ ft}] / 2000} = 8192\text{T}$$

Additional Borrow for Extra Roadbed Width

$$[28,250 \text{ LF} \times 4 \text{ FT (width)} \times 1\text{FT (depth)}] / 27 = 4185 \text{ CY}$$

COST WORKSHEET

PROJECT:	GEORGIA DEPARTMENT OF TRANSPORTATION	ALTERNATIVE NO.:	BP-3				
<i>STP-164-1(29) - SR 54 - Fayette/Clayton Counties - P.I. No. 721440</i>							
DESCRIPTION:		<i>Use 11 Foot Wide Lanes</i>	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
206-002 - Borrow Excavation, Including Material	CY	250,000	\$ 6.31	\$1,577,500	254,185	\$ 6.31	\$1,603,907
310-1101 - Graded Aggregate Base Course	TN	145,200	\$ 17.17	\$2,493,084	137,008	\$ 17.17	\$2,352,427
402-3121 - Recycled Asphalt Conc 25 mm	TN	50,000	\$ 61.84	\$3,092,000	46,548	\$ 61.84	\$2,878,528
402-3130 - Recycled Asphalt Conc 12.5 mm	TN	26,000	\$ 58.94	\$1,532,440	24,965	\$ 58.94	\$1,471,437
402-3190 - Recycled Asphalt Conc 19 mm	TN	35,000	\$ 64.12	\$2,244,200	33,619	\$ 64.12	\$2,155,650
Right-of-Way	LS	1	\$ 22,468,353	\$22,468,353	1	\$21,869,197	\$21,869,197
Note -- cost savings based on saving 4' of right-of-way for the full length of the project.							
Sub-total				\$33,407,577			
Mark-up at 10.00%				\$3,340,758			
TOTAL				\$36,748,335	\$35,564,262		

Value Analysis Design Suggestion



PROJECT: GEORGIA DEPARTMENT OF TRANSPORTATION

Project No. STP-164-1(29) – Fayette/Clayton Counties – P.I. No: 721440

ALTERNATIVE NO.:

BP - 4

DESCRIPTION: VERIFY PAVEMENT QUANTITIES FOR UTILIZATION OF EXISTING PAVEMENT

SHEET NO.:

1 of 1

Original Design:

The original design calls for widening and rehabilitating the existing pavement, in addition to constructing two new parallel lanes.

Alternative:

The design suggestion calls for recalculation of the quantities for the base and paving.

Opportunities:

- Reduce engineer's estimate for the project
-

Risks:

- None
-

Technical Discussion:

Looking at the total amount of GAB and ACP, in addition to the proportion of 12.5, 19.0, and 25.0 ACP, it appears that the designer has estimated quantities for completely reconstructing the existing lanes.

Value Analysis Design Suggestion



PROJECT: GEORGIA DEPARTMENT OF TRANSPORTATION
Project No. STP-164-1(29) – Fayette/Clayton Counties – P.I. No: 721440

ALTERNATIVE NO.:
BP - 5

DESCRIPTION: REVIEW “EYEBROW” LOCATIONS AT INTERSECTIONS
WHERE U-TURNS ARE PERMITTED

SHEET NO.: 1 of 1

Original Design:

The original design does not provide additional pavement (as shown on standard detail, M-3) at all intersections where u-turns are permitted.

Alternative:

The design suggestion alternative is to construct “eyebrows” or extend the channelized right turns at McElroy Road, Henderson Road, Simpson/Hewell Road, and Towngate Road.

Opportunities:

- Improve safety and operations
- Reduce maintenance cost by “protecting” curbs and shoulders

Risks:

- Increased paving costs
-

Technical Discussion:

Because of the “narrow” median on this project additional paving to accommodate u-turns would be required to prevent damage to the shoulders and curbs in addition to aiding in improved traffic operations. Five permitted u-turns, two of which should have significant volume, do not have any additional paving. It is recommended that the designer re-evaluate the locations where u-turns are permitted and/or where additional pavement to accommodate those movements are required.

Value Analysis Design Suggestion



PROJECT: GEORGIA DEPARTMENT OF TRANSPORTATION
Project No. STP-164-1(29) – Fayette/Clayton Counties – P.I. No: 721440

ALTERNATIVE NO.:
C - 1

DESCRIPTION: ELIMINATE CONCRETE SLOPE PAVING

SHEET NO.: 1 of 1

Original Design:

The original design had a pay item for concrete slope paving, 4 in. included in the Detail Estimate: Cost Estimate Report.

Alternative:

The alternate design would eliminate the pay item and costs for concrete slope paving, 4 in.

Opportunities:

- Reduced construction costs
-

Risks:

- None
-

Technical Discussion:

Concrete slope paving is typically used to protect the end roll (2:1 slope) at the abutments of bridges. Slope paving is not used on bridges over rivers, creeks, streams, etc. and is replaced by rip rap. All three bridges on this project span waterways and rip rap is set up for these end rolls.

Value Analysis Design Alternative



PROJECT: GEORGIA DEPARTMENT OF TRANSPORTATION
 Project No. STP-164-1(29) – Fayette/Clayton Counties – P.I. No: 721440

ALTERNATIVE NO.:
C - 4

DESCRIPTION: PUT SIDEWALK ON ONE SIDE OF THE ROADWAY ONLY SHEET NO.: 1 of 4

Original Design:

The original design provides for a five foot wide sidewalk on both the north and south shoulders of the roadway.

Alternative:

The alternative design would provide for a five foot wide sidewalk on the south shoulder only.

Opportunities:

- Reduced construction costs
- Reduced construction time
- Accomplishes same function

Risks:

- Minor redesign required
- Elimination of pedestrian access on one side of roadway

Technical Discussion:

A field review of the project showed little pedestrian traffic. There were no worn paths to indicate any substantial pedestrian traffic. Subdivisions adjacent to the project had no pedestrian access to encourage walkers. The addition of the new signals would simplify pedestrian movement from the north side to south side.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 1,540,440	\$	\$ 1,540,440
ALTERNATIVE	\$ 1,196,582	\$	\$ 1,196,582
SAVINGS	\$ 343,858	\$	\$ 343,858

Calculations



PROJECT: GEORGIA DEPARTMENT OF TRANSPORTATION
Project No. STP-164-1(29) - Fayette/Clayton Counties - P.I. No: 721440

ALTERNATIVE NO.: C-4

DESCRIPTION: PLACE SIDEWALK ON ONE SIDE
OF ROADWAY

SHEET NO.: 3 of 4

PROJECT LENGTH

STA 20+00 - STA 302+50 28250 LF

AREA OF ELIMINATED SIDEWALK

SIDEWALK 5 FT WIDTH

5 FT x 28250 FT = 141250 SF = 15695 S4

Value Analysis Design Alternative



PROJECT: GEORGIA DEPARTMENT OF TRANSPORTATION
 Project No. STP-164-1(29) – Fayette/Clayton Counties – P.I. No: 721440

ALTERNATIVE NO.:
BR-3

DESCRIPTION: **USE 8' MULTI-USE TRAIL IN-LIEU OF 6' SIDEWALKS
 AND 4' BIKE LANES ON THE BRIDGES**

SHEET NO.: 1 of 4

Original Design:

All three bridges, SR 54 over Morning Creek, Camp Creek and Flint River, are identical in geometry and similar in superstructure composition. The original design calls for similar and symmetrical widening schemes of the existing bridges at these locations (also identical in geometry and superstructure composition) to the North and South of the construction centerline. The six 40' spans (totaling 240') of the existing bridges are 47'-3" wide (out-to-out) and comprise of 8 ¾" concrete decks on Type I Modified AASHTO PSC Beams evenly spaced. The 28' widening to the North and South is achieved by the addition of 3 Type I Modified AASHTO PSC Beams evenly spaced and extending the concrete deck across them. The final 98'-5" cross section accommodates a 6' sidewalk, 2' buffer, 4' bike lane, two 12' lanes, 2' buffer, 2' curb and gutter on each half of the bridge along with a 16' raised median.

Alternative:

The alternative proposes the use of 8' multi-use trails in-lieu of 6' sidewalks and 4' bike lanes.

All other geometry is maintained as in the original design.

Opportunities:

- Bridge Cost savings by reducing total bridge width
- Reduced construction time
- May provide an opportunity for reduced Right-of-way requirements

Risks:

- Phased construction (staging) may be required
- Re-design effort will require minimal or no additional time as it is currently in the concept phase
- Roadway alignments may require minor modifications

Technical Discussion:

The suggested alternative will reduce the required out-to-out width of the bridge by 8'. The resulting 90'-5" cross section will accommodate a 8' multi-use trail (sidewalk & bike lane), 2' buffer, two 12' lanes, 2' buffer on each half of the bridge along with a 16' raised median.

The 24' widening to the North and South is achieved by the addition of 3 Type I Modified AASHTO PSC Beams evenly spaced and extending the concrete deck across them.

See the next sheet for the calculation of the savings noted below.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 269,334	\$	\$ 269,334
ALTERNATIVE	\$ 90,265	\$	\$ 90,265
SAVINGS	\$ 179,069	\$	\$ 179,069

Illustrations

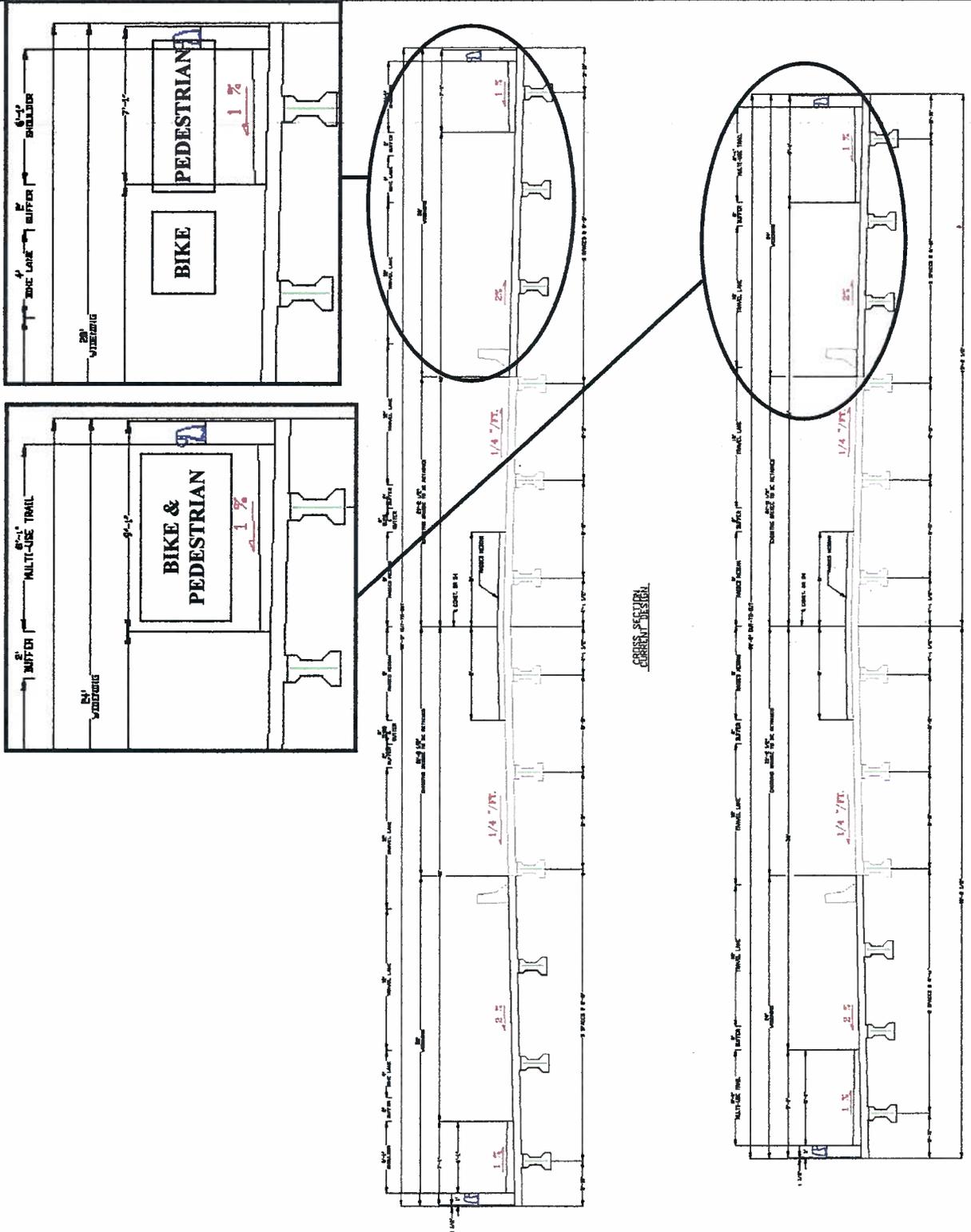


PROJECT: GEORGIA DEPARTMENT OF TRANSPORTATION
Project No. STP-164-1(29) – Fayette/Clayton Counties – P.I. No: 721440

ALTERNATIVE NO.:
BR-3

DESCRIPTION: USE 8' MULTI-USE TRAIL IN-LIEU OF 6' SIDEWALKS
AND 4' BIKE LANES

SHEET NO.: 2 of 4



Calculations



PROJECT: **GEORGIA DEPARTMENT OF TRANSPORTATION**

Project No. STP-164-1(29) – Fayette/Clayton Counties – P.I. No: 721440

ALTERNATIVE NO.:

BR-3

DESCRIPTION: **USE 8' MULTI-USE TRAIL IN-LIEU OF 6' SIDEWALKS
AND 4' BIKE LANES**

SHEET NO.:

3 of 4

Note:

- 1) The VE team is cognizant of the fact that the project design is in its concept phase.
- 2) Calculations below are based on the Bridge Cross sections provided at the time of the VE study.
- 3) Costs savings are based on reduction of structure width from the current design.
- 4) Further cost savings may be realized due to reduction in sub structure components but these components were not addressed since the substructure design has not been completed at the time of the VE study.

Current Design:

Identical, six 40' spans, 98'-5" out-to-out (total of 56' widening/new construction) at three locations – Morning Creek, Camp Creek & Flint River.

Alternative BR-3:

This alternative proposes similar geometry but with a bridge cross section of 90'-5" (total of 48' widening/new construction).

Reduction in width of Class AA Deck Concrete = $56' - 48' = 8'$

Volume of reduced Class AA Concrete for all three bridges = $[8' \times (8.75''/12)' \times 240' \times 3] / 27 = 155.56 \text{ CY}$

Increase in width of Class A Sidewalk Concrete = $9.083'' - 7.083' = 2'$

Volume of increased Class A Concrete for all three bridges = $[2' \times (6/12)' \times 2 \times 240' \times 3] / 27 = 53.33 \text{ CY}$

Required width of grooved deck in current design = $(20.75') \times 2 = 41.5'$

Required width of grooved deck in alternative BR-3 = $(14.75') \times 2 = 29.5'$

Net reduction in concrete grooving due to alternative BR-3 =

$$[(41.5' - 29.5') \times 240' \times 3] / 9 = 960 \text{ SY}$$

Value Analysis Design Alternative



PROJECT: GEORGIA DEPARTMENT OF TRANSPORTATION Project No. STP-164-1(29) – Fayette/Clayton Counties – P.I. No: 721440	ALTERNATIVE NO.: BR-4
DESCRIPTION: USE SEPARATE STRUCTURES FOR PEDESTRIANS AND BICYCLISTS IN-LIEU OF 6' SIDEWALKS AND 4' BIKE LANES ON BRIDGES	SHEET NO.: 1 of 5

Original Design:

All three bridges, SR 54 over Morning Creek, Camp Creek and Flint River, are identical in geometry and similar in superstructure composition. The original design calls for similar and symmetrical widening schemes of the existing bridges at these locations (also identical in geometry and superstructure composition) to the North and South of the construction centerline. The six 40' spans (totaling 240') of the existing bridges are 47'-3" wide (out-to-out) and comprise of 8 ¾" concrete decks on Type I Modified AASHTO PSC Beams evenly spaced. The 28' widening to the North and South is achieved by the addition of 3 Type I Modified AASHTO PSC Beams evenly spaced and extending the concrete deck across them. The final 98'-5" cross section accommodates a 6' sidewalk, 2' buffer, 4' bike lane, two 12' lanes, 2' buffer, 2' curb and gutter on each half of the bridge along with a 16' raised median.

Alternative:

The alternative proposes the use of separate pre-manufactured Pedestrian Cum Bicycle Bridges alongside the Road Bridges in-lieu of providing sidewalks and bike lanes on the Road Bridges. The resulting required cross section of the Road Bridge will be less than that in the current design.

All other geometry is maintained as in the original design.

Opportunities:

- Bridge Cost savings by reducing total bridge width will more than offset cost of separate pedestrian structures
- Improved safety of pedestrians and bicyclists by directing them off the road bridge
- Architecturally enhanced and environmentally friendly structures may be more appealing to the public

Risks:

- Phased construction (staging) may be required
- Re-design effort will require minimal or no additional time as it is currently in the concept phase
- Roadway alignments may require minor modifications

Technical Discussion:

The suggested alternative will reduce the required out-to-out width of the bridges by 24'-3'. The resulting 74'-3" cross section will accommodate a 2' buffer, two 12' lanes, and 2' buffer on each half of the bridge along with a 16' raised median.

The 15'11' widening to the North and South is achieved by the addition of 2 Type I Modified AASHTO PSC Beams evenly spaced and extending the concrete deck across them.

See the next sheet for the calculation of the savings noted below.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 1,360,111	\$	\$ 1,360,111
ALTERNATIVE	\$ 1,248,624	\$	\$ 1,248,624
SAVINGS	\$ 111,487	\$	\$ 111,487

Illustrations



PROJECT: **GEORGIA DEPARTMENT OF TRANSPORTATION**
Project No. STP-164-1(29) – Fayette/Clayton Counties – P.I. No: 721440

ALTERNATIVE NO.:
BR-4

DESCRIPTION: **USE SEPARATE STRUCTURES FOR PEDESTRIANS AND BICYCLISTS IN LIEU OF 6' SIDEWALKS AND 4' BIKE LANES**

SHEET NO.: **2 of 5**



Illustrations

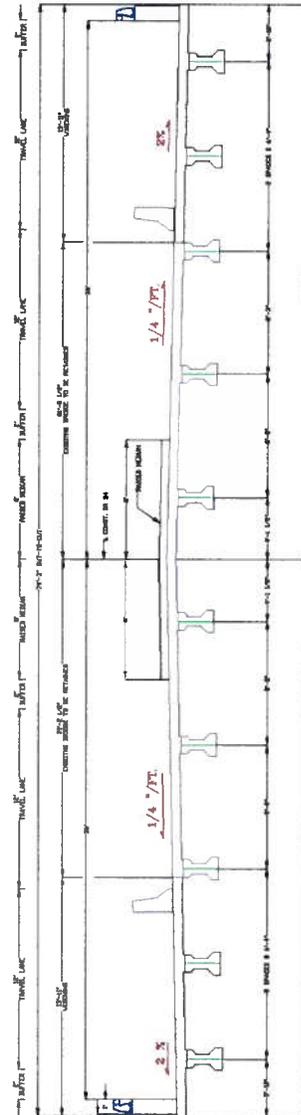
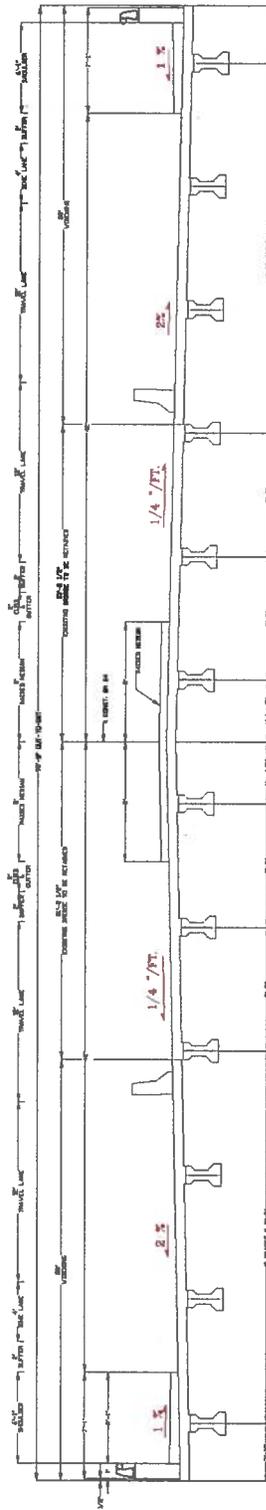


PROJECT: **GEORGIA DEPARTMENT OF TRANSPORTATION**
Project No. STP-164-1(29) – Fayette/Clayton Counties – P.I. No: 721440

ALTERNATIVE NO.: **BR-4**

DESCRIPTION: **USE SEPARATE STRUCTURES FOR PEDESTRIANS AND BICYCLISTS IN LIEU OF 6' SIDEWALKS AND 4' BIKE LANES**

SHEET NO.: **3 of 5**



Calculations



PROJECT: GEORGIA DEPARTMENT OF TRANSPORTATION Project No. STP-164-1(29) – Fayette/Clayton Counties – P.I. No: 721440	ALTERNATIVE NO.: BR-4
DESCRIPTION: USE SEPARATE STRUCTURES FOR PEDESTRIANS AND BICYCLISTS IN-LIEU OF 6' SIDEWALKS AND 4' BIKE LANES	SHEET NO.: 4 of 5

Note:

- 1) The VE team is cognizant of the fact that the project design is in its concept phase.
- 2) Calculations below are based on the Bridge Cross sections provided at the time of the VE study.
- 3) Costs savings are based on reduction of structure width from the current design.
- 4) Further cost savings may be realized due to reduction in sub structure components but these components were not addressed since the substructure design has not been completed at the time of the VE study.

Current Design:

Identical, six 40' spans, 98'-5" out-to-out (total of 56' widening/new construction) at three locations – Morning Creek, Camp Creek & Flint River.

Alternative BR-6:

This alternative proposes similar geometry but with a bridge cross section of 74'-3" (total of 31'-10" widening/new construction).

Reduction in width of Class AA Deck Concrete = $56' - 31.83' = 24.17'$

Volume of reduced Class AA Concrete for all three bridges = $[24.2' \times (8.75''/12)' \times 240' \times 3] / 27 = 470 \text{ CY}$

Reduction in width of Class AA Sidewalk = $7.083' \times 2 = 14.17'$

Volume of reduced Sidewalk Class AA Concrete for all three bridges =
 $[14.17' \times (6/12)' \times 240' \times 3] / 27 = 188.88 \text{ CY}$

Required width of grooved deck in current design = $(20.75') \times 2 = 41.5'$

Required width of grooved deck in alternative BR-4 = $(14.75') \times 2 = 29.5'$

Net reduction in concrete grooving due to alternative BR-4 =
 $[(41.5' - 29.5') \times 240' \times 3] / 9 = 960 \text{ SY}$

Reduction in Type I Mod AASHTO PSC Beam requirement = $2 \times 40' \times 6 \times 3 = 1440 \text{ LF}$

Required length of STEADFAST™ pre-manufactured pedestrian/bicycle truss bridge = $2 \times 240 \times 3 = 1440 \text{ LF}$

Note:

- 1) Cost of STEADFAST™ Bridges Delivered = \$575 per LF, designed, manufactured and delivered on site as quoted by manufacturer.
- 2) Cost of substructure for pedestrian/bicycle bridge will be more than offset by the cost of the savings due to reduction in substructure requirements from the current design and has not been included in savings analysis (conservative).

COST WORKSHEET



PROJECT:	GEORGIA DEPARTMENT OF TRANSPORTATION	ALTERNATIVE NO.:	BR-4						
STP-164-1(29) - SR 54 - Fayette/Clayton Counties - P.I. No. 721440									
USE SEPARATE STRUCTURES FOR PEDESTRIANS AND BICYCLISTS IN-LIEU OF 6' SIDEWALKS AND 4' BIKE LANES		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		
Class "AA" Concrete (Sup)	CY	470	\$1,122.40	\$527,528.00	0	\$1,122.40	\$0.00		
Class "AA" Conc. (S'walk & Me	CY	188.88	\$1,122.40	\$211,998.91	0	\$1,122.40	\$0.00		
Concrete Deck Grooving	SY	960	\$ 4.17	\$4,003.20	0	\$ 4.17	\$0.00		
Type I Mod AASHTO Beams	LF	1,440	\$ 110.00	\$158,400.00	0	\$ 110.00	\$0.00		
Pedestrian Bridge (Super)	LF	0	\$ 650.00	\$0.00	1,440	\$ 575.00	\$828,000.00		
(This is the cost that would be incurred for the current design)									
Sub-total				\$901,930				\$828,000	
Mark-up at	10.00%				\$458,180				\$420,624
TOTAL					\$1,360,111				\$1,248,624

Value Analysis Design Alternative



PROJECT: **GEORGIA DEPARTMENT OF TRANSPORTATION**

Project No. STP-164-1(29) – Fayette/Clayton Counties – P.I. No: 721440

ALTERNATIVE NO.:

BR-6

DESCRIPTION: **USE 5' SIDEWALKS IN-LIEU OF 6' SIDEWALKS AND
REDUCE MEDIAN TO 14'**

SHEET NO.: 1 of 4

Original Design:

All three bridges, SR 54 over Morning Creek, Camp Creek and Flint River, are identical in geometry and similar in superstructure composition. The original design calls for similar and symmetrical widening schemes of the existing bridges at these locations (also identical in geometry and superstructure composition) to the North and South of the construction centerline. The six 40' spans (totaling 240') of the existing bridges are 47'-3" wide (out-to-out) and comprise of 8 ¾" concrete decks on Type I Modified AASHTO PSC Beams evenly spaced. The 28' widening to the North and South is achieved by the addition of 3 Type I Modified AASHTO PSC Beams evenly spaced and extending the concrete deck across them. The final 98'-5" cross section accommodates a 6' sidewalk, 2' buffer, 4' bike lane, two 12' lanes, 2' buffer, 2' curb and gutter on each half of the bridge along with a 16' raised median.

Alternative:

The alternative proposes the use of 5' sidewalks in-lieu of 6' sidewalks and reduction of the 16' raised median to 14'. Additionally, it is proposed that the 2' curb and gutter on either side of the median be removed.

All other geometry is maintained as in the original design.

Opportunities:

- Bridge Cost savings by reducing total bridge width
- Reduced construction time
- May provide an opportunity for reduced Right-of-way requirements

Risks:

- Phased construction (staging) may be required
- Re-design effort will require minimal or no additional time as it is currently in the concept phase
- Roadway alignments may require minor modifications

Technical Discussion:

The suggested alternative will reduce the required out-to-out width of the bridge by 8'. The resulting 90'-5" cross section will accommodate a 5' sidewalk, 2' buffer, 4' bike lane, two 12' lanes and 2' buffer on each half of the bridge along with a 14' raised median .

The 24' widening to the North and South is achieved by the addition of 3 Type I Modified AASHTO PSC Beams evenly spaced and extending the concrete deck across them.

See the next sheet for the calculation of the savings noted below.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 356,581	\$	\$ 356,581
ALTERNATIVE	\$ 0	\$	\$ 0
SAVINGS	\$ 356,581	\$	\$ 356,581

Calculations



PROJECT: **GEORGIA DEPARTMENT OF TRANSPORTATION**

Project No. STP-164-1(29) – Fayette/Clayton Counties – P.I. No: 721440

ALTERNATIVE NO.:

BR-6

DESCRIPTION: **USE 5' SIDEWALKS IN-LIEU OF 6' SIDEWALKS AND
REDUCE MEDIAN TO 14'**

SHEET NO.:

3 of 4

Note:

- 1) The VE team is cognizant of the fact that the project design is in its concept phase.
- 2) Calculations below are based on the Bridge Cross sections provided at the time of the VE study.
- 3) Costs savings are based on reduction of structure width from the current design.
- 4) Further cost savings may be realized due to reduction in sub structure components but these components were not addressed since the substructure design has not been completed at the time of the VE study.

Current Design:

Identical, six 40' spans, 98'-5" out-to-out (total of 56' widening/new construction) at three locations – Morning Creek, Camp Creek & Flint River.

Alternative BR-6:

This alternative proposes similar geometry but with a bridge cross section of 90'-5" (total of 48' widening/new construction).

Reduction in width of Class AA Deck Concrete = $56' - 48' = 8'$

Volume of reduced Class AA Concrete for all three bridges = $[8' \times (8.75"/12)' \times 240' \times 3] / 27 = 155.56 \text{ CY}$

Reduction in width of Class AA Sidewalk and Raised Median Concrete = $[6.083" - 5.083'] + [8' - 7'] = 2'$

Volume of increased Class A Concrete for all three bridges = $[2' \times (6/12)' \times 2 \times 240' \times 3] / 27 = 53.33 \text{ CY}$

Required width of grooved deck in current design = $(20.75') \times 2 = 41.5'$

Required width of grooved deck in alternative BR-6 = $(17.75') \times 2 = 35.5'$

Net reduction in concrete grooving due to alternative BR-6 =

$$[(41.5' - 35.5') \times 240' \times 3] / 9 = 480 \text{ SY}$$

COST WORKSHEET



PROJECT:	GEORGIA DEPARTMENT OF TRANSPORTATION	ALTERNATIVE NO.:	BR-6				
STP-164-1(29) - SR 54 - Fayette/Clayton Counties - P.I. No. 721440							
DESCRIPTION:	USE 5' SIDEWALKS IN-LIEU OF 6' SIDEWALKS AND REDUCE MEDIAN TO 14'	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
Class "AA" Concrete (Sup)	CY	155.56	\$1,122.40	\$174,600.54	0	\$1,122.40	\$0.00
Class "AA" Conc. (S'walk & Me	CY	53.33	\$1,122.40	\$59,857.59	0	\$1,122.40	\$0.00
Concrete Deck Grooving	SY	480	\$ 4.17	\$2,001.60	0	\$ 4.17	\$0.00
(This is the cost that would be incurred for the current design)							
Sub-total				\$236,460			\$0
Mark-up at 10.00%				\$120,122			\$0
TOTAL				\$356,581			\$0

Project Description

PROJECT DESCRIPTION

The purpose of Project STP-164-1(29) is to widen the existing roadway from two lanes to a four lanes of the 5.3 miles of SR 54 from just north of McDonough Road in Fayette County to US 19/41/SR 3/ Tara Boulevard in Clayton County. There are three bridges along this 5.3 mile roadway section at: Morning Creek; Camp Creek; and the Flint River bridge and it is proposed to widen these bridges to accommodate the new four lane highway with a divided median.. All three bridges were built around the year 2000 under replacement project BRP-164-1(18). The existing bridges are in good condition and demonstrate acceptable sufficiency ratings of above 80 as reported in the Bridge Ratings reports obtained from the GDOT Bridge Maintenance Office. The existing bridges were last inspected on July3, 2006.

All three bridges are identical in geometry and similar in superstructure composition. The original design calls for similar and symmetrical widening schemes of the existing bridge superstructures at these locations to the North and South of the construction centerline and centerlines of the existing bridges. The six 40' spans (totaling 240') of the existing bridges are 47'-3" wide (out-to-out) and comprise of 8 ¾" concrete decks on Type I Modified AASHTO PSC Beams evenly spaced. The 28' widening to the North and South is achieved by the addition of 3 Type I Modified AASHTO PSC Beams evenly spaced and extending the concrete deck across them. The final 98'-5" cross section accommodates a 6' sidewalk, 2' buffer, 4' bike lane, two 12' lanes, 2' buffer, 2' curb and gutter on each half of the bridge along with a 16' raised median.

The existing substructures at all bridges include end bents that comprise of concrete caps supported on piles. The intermediate bents at the bridges over Morning Creek and Flint River are a mix of concrete caps supported on piles and concrete caps supported on concrete columns. All intermediate bents at the bridge across Camp Creek are all concrete caps supported on piles. There was no information provided at the time of this VE Study on the bridge substructures to determine the scheme that was being adopted for the substructures to achieve the indicated superstructure widening.

The expected cost of this construction including right of way purchase is approximately \$65,204,565 dollars. This cost estimate is included in the first document noted below as part of the enclosures in this report section.

REPRESENTATIVE DOCUMENTS

- Georgia Department of Transportation
 - The Concept Plans of Proposed -164-1(29), P.I. # 721440) Clayton and Fayette Counties, Georgia;
 - Construction Cost Estimate

The VE Team utilized the supplied project materials noted above, along with the design documents prepared by Arcadis. The Team was also provided with the current GDOT standard drawings, details and specifications.

REVISED PROJECT CONCEPT REPORT

Need and Purpose:

Background

This proposed improvement is located in Fayette and Clayton Counties and is located within the boundaries of the Atlanta Regional Commission (ARC). The project is found in the ARC's Regional Transportation Plan listed as ARC No. CL-041. This project was originally programmed in October 1989. Previously a concept report was approved in 1992, but subsequent changes following the concept approval require an updated concept.

Proposed Improvements

Project STP-164-1(29), PI # 721440 in Clayton and Fayette Counties consists of the widening from two to four lanes of 5.3 miles of SR 54 from just north of McDonough Road in Fayette County to US 19/41/SR 3/Tara Boulevard in Clayton County. In addition, project STP-164-1(29) would widen GDOT bridges, 113-5052, 113-5053, and 063-5046, over Morning Creek, Camp Creek, and the Flint River. These bridges were replaced in 2000 by project BRP-164-1(18), but will now need to be widened.

Logical Termini

The project length is 5.3 miles and both the northern and southern termini of the project link to an existing four lane sections of SR 54 in both Clayton and Fayette Counties.

Projects in the Area

Currently, there are three programmed projects in the area of the SR 54 widening project.

PI # 0007998, CSSFT-0007-00(998), Sign Upgrades on Several State Routes in District 7. This project is located on SR 3 near the northern terminus of Project 721440. The completion of this project will have no affect on the widening of SR 54.

PI # 0007346, CSSTP-0007-00(346), Signals at 5 locations on SR 54. This project is located on SR 54 south of the southern terminus of the project. The completion of this project will have no affect on the widening of SR 54.

PI # 742870, STP-2009(4), SR 920 widening from SR 54 to SR 3/US 19. This project is located on SR 920 and has SR 54 as its western project terminus. The completion of this project will have no affect on the widening of SR 54 since it is on an intersecting roadway.

Existing and Projected Traffic Conditions

The 2006 traffic (AADT) for SR 54 in the project area varies from 17,500 at the southern project limits to 20,000 at the northern terminus. In 2012, traffic is anticipated to decrease to 16,000 AADT at the southern limit and increasing to 22,720 AADT at the northern project limit. Design year (2032) traffic is projected to range from 26,280 AADT at the southern limit to 37,280 AADT at the northern limit. From 2006 to 2032, proposed traffic volumes represent an increase of 86% for this section of SR 54. The 2006 LOS is an E along the entire 5.3 corridor of SR 54 to be widened. In 2032, LOS will decline to F for the

entire SR 54 corridor without improvements. However, with the proposed improvements, in 2032 the projected LOS is C based on current traffic projections at the northern terminus and a B at the southern terminus.

Crash Information

This section of roadway has a crash rate lower than the statewide average for this classification of roadway, which is urban principal arterial, for years 2003-2005. For the purposes of crash rate calculation, a corridor length of 6.4 was used (2.9 miles in Fayette County and 3.5 miles in Clayton County).

SR 54 from SR McDonough Road to Tara Boulevard/US 19/41/SR 3

	2003	2004	2005
Total Accidents	138	160	129
Clayton County Accidents (Mile 0 - 3.5)	65	75	63
Fayette County Accidents (Mile 12.5-15.4)	73	85	66
Accidents Per 100 MVMT	380	407	349
Statewide Accidents Per 100 MVMT	526	463	513
Accident % Higher/Lower Than Statewide Average	-38.4%	-13.8%	-47.0%

Additionally, the number of injuries, number of fatalities and types of crashes were taken for the entire project length for years 2003-2005.

Injury and Fatality Data

SR 54 from SR McDonough Road to Tara Boulevard/US 19/41/SR 3

	2003	2004	2005
Total Number of Injuries	80	64	54
Injuries Per 100 MVMT	220	163	146
Statewide Injuries Per 100 MVMT	206	181	199
Injury % Higher/Lower Than Statewide Average	+6.8%	-11.0%	-36.3%
Total Number of Fatalities	1	0	0
Fatalities Per 100 MVMT	2.75	0	0
Statewide Fatalities Per 100 MVMT	1.07	1.13	1.50
Fatality % Higher/Lower Than Statewide Average	+157.01%	-100%	-100%

Types of Crashes

The 2003 injury and fatality data show that this section of SR 54 within the project area has a higher rate per 100 million vehicle miles traveled than the statewide average for an urban principal arterial facility. Contrastingly, the accident rate for 2003 is lower than the statewide average per 100 million vehicle miles traveled. All other accident, injury and fatality rates for 2004 and 2005 are lower than the statewide average per 100 million vehicle miles traveled.

In addition, locations were identified within the project limits that have a high concentration of crashes. Several locations along the project corridor represent locations where crashes are concentrated. The

majority of these locations are at intersections of an intersecting street with SR 54. Furthermore, these crashes are mostly rear-end type crashes. A few locations have traffic signals present at the intersection. When compared to the other hot spot intersections, those that have traffic signals have higher numbers of crashes. Sixteen locations were identified as hot spots for crashes with three of these intersections having a traffic signal and the remaining 13 without a traffic signal. The table below summarizes the number of crashes and their locations for the project corridor.

County	Location (mile/pt)	Cross Street	Total Crashes	Crash Type (% of total shown with actual no.)			
				Rear-End	Angle	Collision involving Only One Vehicle	Head-On
Clayton	2.66	Towngate Blvd	19	13 (68.4)	2 (10.5)	3 (15.8)	1 (0.05)
	2.38	Jenni Ln	5	3 (60)	--	2 (40)	--
	2.29	Fieldgreen Dr	14	6 (42.9)	3 (21.4)	5 (35.7)	--
	1.95	Brown Rd	15	8 (53.3)	3 (20)	4 (26.7)	--
	1.43	Margaret Ln	6	2 (33.3)	--	4 (66.7)	--
	1.16	Whaleys Lake Dr	18	11 (61.1)	1 (0.06)	6 (33.3)	--
	0.55	Mundys Mill Rd*	37	26 (70.3)	10 (27)	--	1 (0.03)
	0.45	N/A	8	7 (87.5)	--	1 (12.5)	--
	0.35	N/A	6	3 (50)	--	3 (50)	--
0.12	Thomas Rd*	32	26 (81.3)	4 (12.5)	2 (0.06)	--	
Fayette	14.9	Corinth Rd	22	6 (27.3)	13 (59.1)	3 (13.6)	--
	14.5	Simpson Rd	13	7 (53.9)	5 (38.5)	1 (0.08)	--
	13.9	Deer Forest Rd	8	3 (37.5)	--	5 (62.5)	--
	13.7	McElroy Rd	37	27 (73)	5 (13.5)	5 (13.5)	--
	13.47	Banks Rd*	57	14 (24.6)	31 (53.9)	2 (0.04)	10 (27.1)
	12.73	McDonough Rd	41	21 (51.2)	13 (31.7)	6 (14.6)	1 (0.07)

*Intersections with a traffic signal.

Most hot spot crash locations show rear-end crashes as the most dominant type of crash. However one location, Banks Road, has a high number of angle and head-on collisions. This intersection is a four-way stop with turn lanes on all four approaches. Both SR 54 and Banks Road narrow to two lanes before and following this intersection. Other intersections with high number of crashes are located at McDonough Road, Thomas Road, Mundys Mill and McElroy Road. At the SR 54 and McDonough Road intersection, there is no traffic signal and vehicles from McDonough Road must turn onto SR 54 with cars traveling at the speed limit of 55 mph. The Thomas Road intersection has a traffic signal with a left turn arrow and has a high number of rear-end crashes (26 of 32 or 81%). Similarly, Mundys Mill Road has a traffic signal and also has a high number of rear-end crashes (26 of 37 or 70%). Mundys Mill Road, like Banks Road, is an intersection having turn lanes only on SR 54. Finally, McElroy Road intersects with SR 54 at an angle less than 90 degrees. A high number of rear-end crashes have occurred at this intersection (27 of 37 or 73%).

Community Issues

This project lies within a total of four Census Tracts, two in Fayette County and two in Clayton County. Data for each of the four Census Tracts were analyzed including: population amounts from 1990 and 2000, percent of minority population, median household income, and percentage of families living below poverty level. Data for Fayette and Clayton Counties are given for comparative purposes. The results are presented in the table below.

Tract	1990 Population	2000 Population	Population Growth Rate	Percentage Minority	Median Household Income	Percentage of Families Below Poverty
406.07 Clayton	7,644	18,097	136.7%	55.5	51,900	7.3
405.17 Clayton	N/A *	8,577	N/A *	71.9	47,246	5.4
1401.02 Fayette	5,231	5,482	4.8%	25.6	73,807	1.7
1404.06 Fayette	N/A *	3,372	N/A *	12.8	54,160	0.8
Clayton County	182,052	236,517	29.9%	62.1	42,697	8.2
Fayette County	62,415	91,263	46.2%	16.1	71,227	2.0

Source: U.S. Census

Note: * 1990 population data and population growth rate data are absent from Census Tracts 405.17 and 1404.06 as these tracts were created at the time of the 2000 Census.

Need & Purpose

Traffic projections indicate that future roadway demand will exceed existing carrying capacity. Projected traffic amounts in 2032 along this segment of SR 54 result in a LOS F indicating a need to address capacity issues in this corridor. The purpose of this project is to widen SR 54 from just north of McDonough Road in Fayette County to US 19/41/SR 3/Tara Boulevard in Clayton County to address additional capacity needs along this segment of roadway.

Project location:

Project length is proposed to be 5.3 miles, but actual improvements or overlay at termini intersections will lengthen the project slightly. Project begins at McDonough Road (ML 12.81) in Fayette County, follows existing SR 54 east to the Clayton County Line (Fayette ML 15.36, Clayton ML 0.00), and continues east following existing SR 54 to US 19/41/SR 3/Tara Boulevard (ML 2.94). Project length is 2.55 miles in Fayette County, and 2.94 miles in Clayton County, for total length of 5.49 miles. The last 0.43 miles will be a slight relocation due to substandard horizontal curves.

Description of the approved concept:

PDP Classification: Major X Minor _____

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

Functional Classification: Rural Minor Arterial (Begin to Corinth Road)
Urban Connecting Link (Corinth Road to US 19/41)

U. S. Route Number(s): NA **State Route Number(s):** 54

Traffic (AADT) as shown in the approved concept:

Current Year: 14600 (1996) **Design Year:** 26350 (2016)

Proposed features to be revised:

The proposed rural shoulders and 44' depressed grassed median will now be urban shoulder, 24' raised median, and sidewalks. The land use now has changed from rural and vacant to residential with several subdivisions, churches, and schools with direct access onto SR 54. The proposed right of way width of 170' will now be a normal 150', with some locations possibly reaching 200'. The alignment with the urban shoulder and 24' raised median will be symmetrical for the most part, but there will be lengths with widening either left or right.

Describe the revised feature(s) to be approved:

Proposed now is an urban shoulder, 24' raised median, sidewalks, and 45 mph design speed. Posted speed in Clayton County is 45 mph, and in Fayette County it is 55 mph. The District Offices concur with speed zone change later for 45 mph full length of project.

Functional Classification: Urban Principal Arterial (Begin to Corinth Road)
Urban Principal Arterial (Corinth Road to US 19/41)

Updated traffic data (AADT):

Current Year: 23680 (2012) **Design Year:** 38760 (2032)

Programmed/Schedule:

P.E. 1997 **R/W:** 2008 **Construction:** 2010

VE Study Required Yes(X) No()

Revised cost estimates:

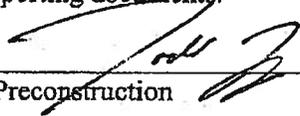
1. Construction cost including E&C,
2. Right-of-Way, and
3. Utilities

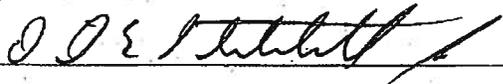
Is the project located in a Non-attainment area? Yes. Proposed 4-lane and project termini agree with current Model. Proposed open year based on FY 2010 Construction does not agree with Model Year 2015.

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

Attachments:

1. Sketch Map,
2. Cost Estimate,
3. Conforming plan's network schematics showing thru lanes, (Note: This attachment is required for non-attainment areas only.), and
4. Other supporting documents.

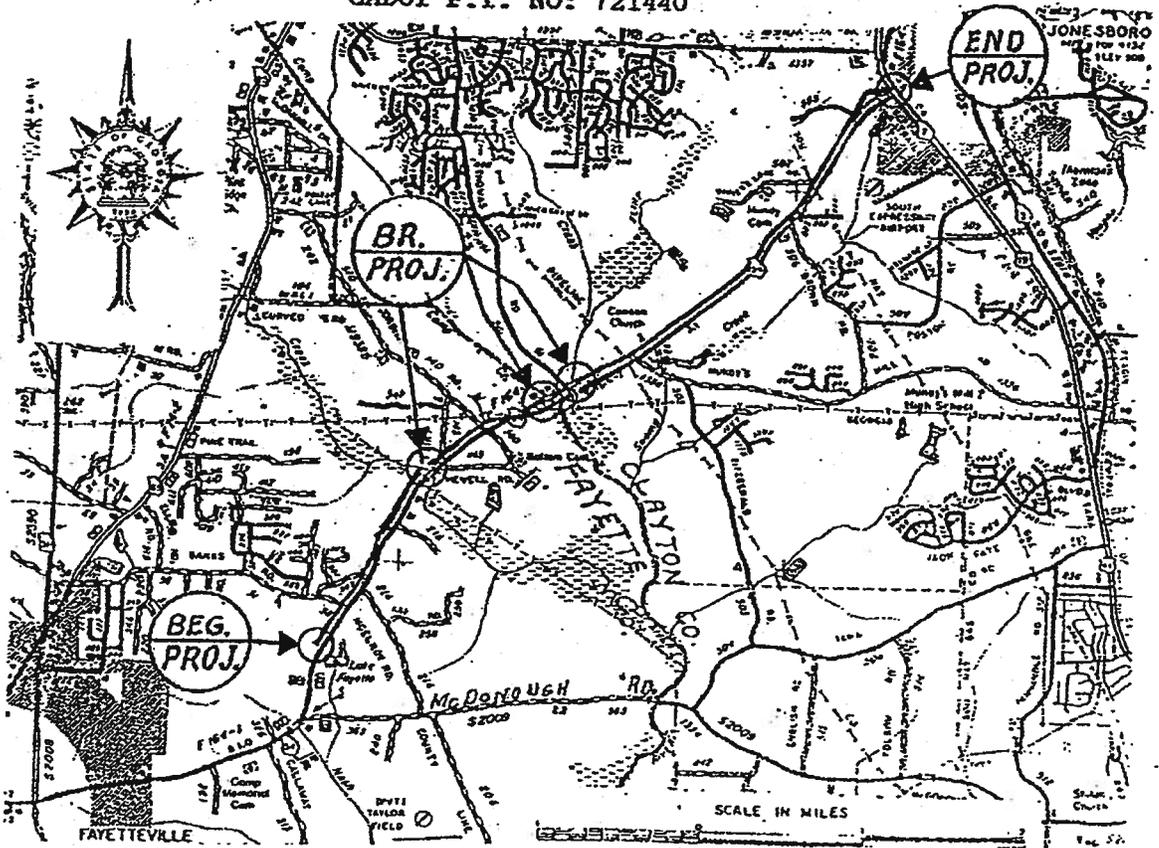
Concur: 
Director of Preconstruction

Approve: 
Chief Engineer

SKETCH MAP

STP-164-1(27)

GADOT P.I. NO: 721440



Estimate Report for file "0721440"

Section ROADWAY					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
150-1000	1	LS	1266200.00	TRAFFIC CONTROL -	1266200.00
153-1300	1	EA	57050.00	FIELD ENGINEERS OFFICE TP 3	57050.00
201-1500	1	LS	375000.00	CLEARING & GRUBBING -	375000.00
205-0001	105000	CY	5.61	UNCLASS EXCAV	589050.00
206-0002	250000	CY	6.31	BORROW EXCAV, INCL MATL	1577500.00
310-1101	145200	TN	17.17	GR AGGR BASE CRS, INCL MATL	2493084.00
318-3000	2000	TN	17.21	AGGR SURF CRS	34420.00
402-1812	8000	TN	58.91	RECYCLED ASPH CONC LEVELING, INCL BITUM MATL & H LIME	471280.00
402-3121	50000	TN	61.84	RECYCLED ASPH CONC 25 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME	3092000.00
402-3130	26000	TN	58.94	RECYCLED ASPH CONC 12.5 MM SUPERPAVE, GP 2 ONLY, INCL BITUM MATL & H LIME	1532440.00
402-3190	35000	TN	64.12	RECYCLED ASPH CONC 19 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME	2244200.00
413-1000	10000	GL	1.84	BITUM TACK COAT	18400.00
433-1000	1120	SY	135.15	REINF CONC APPROACH SLAB	151368.00
441-0004	1000	SY	52.66	CONC SLOPE PAV, 4 IN	52660.00
441-0016	1600	SY	39.88	DRIVEWAY CONCRETE, 6 IN TK	63808.00
441-0018	400	SY	41.96	DRIVEWAY CONCRETE, 8 IN TK	16784.00
441-0104	45000	SY	37.12	CONC SIDEWALK, 4 IN	1670400.00
441-0301	10	EA	1876.27	CONC SPILLWAY, TP 1	18762.70
441-0748	6000	SY	38.26	CONCRETE MEDIAN, 6 IN	229560.00
441-4020	1200	SY	38.30	CONC VALLEY GUTTER, 6 IN	45960.00
441-4030	300	SY	45.27	CONC VALLEY GUTTER, 8 IN	13581.00
441-6222	80680	LF	17.08	CONC CURB & GUTTER, 8 IN X 30 IN, TP 2	1378014.40
441-6740	55480	LF	15.62	CONC CURB & GUTTER, 8 IN X 30 IN, TP 7	866597.60
500-3101	100	CY	578.66	CLASS A CONCRETE	57866.00
511-1000	5000	LB	0.95	BAR REINF STEEL	4750.00
550-1180	31000	LF	41.02	STORM DRAIN PIPE, 18 IN, H 1-10	1271620.00
550-1240	3200	LF	53.78	STORM DRAIN PIPE, 24 IN, H 1-10	172096.00
550-1300	750	LF	65.92	STORM DRAIN PIPE, 30 IN, H 1-10	49440.00
550-1360	500	LF	77.97	STORM DRAIN PIPE, 36 IN, H 1-10	38985.00
550-1480	300	LF	130.46	STORM DRAIN PIPE, 48 IN, H 1-10	39138.00
550-4218	24	EA	678.07	FLARED END SECTION 18 IN, STORM DRAIN	16273.68
550-4224	6	EA	882.93	FLARED END SECTION 24 IN, STORM DRAIN	5297.58
550-4230	3	EA	909.32	FLARED END SECTION 30 IN, STORM DRAIN	2727.96
550-4236	3	EA	1202.05	FLARED END SECTION 36 IN, STORM DRAIN	3606.15
573-2006	1000	LF	17.71	UNDDR PIPE INCL DRAINAGE AGGR, 6 IN	17710.00
641-1200	5000	LF	18.54	GUARDRAIL, TP W	92700.00
641-5001	20	EA	617.35	GUARDRAIL ANCHORAGE, TP 1	12347.00
641-5012	20	EA	1871.80	GUARDRAIL ANCHORAGE, TP 12	37436.00
668-1100	180	EA	2277.92	CATCH BASIN, GP 1	410025.60
668-1200	50	EA	2457.90	CATCH BASIN, GP 2	122895.00
Section Sub Total:					\$20,613,033.67

Section PERMANENT EROSION CONTROL					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
441-0204	6000	SY	33.76	PLAIN CONC DITCH PAVING, 4 IN	202560.00
603-2024	1000	SY	53.68	STN DUMPED RIP RAP, TP 1, 24 IN	53680.00
603-7000	1000	SY	4.83	PLASTIC FILTER FABRIC	4830.00
700-6910	51	AC	906.91	PERMANENT GRASSING	46252.41
700-7000	102	TN	58.05	AGRICULTURAL LIME	5921.10
700-7010	255	GL	19.30	LIQUID LIME	4921.50
700-8000	46	TN	348.14	FERTILIZER MIXED GRADE	16014.44
700-8100	2550	LB	2.04	FERTILIZER NITROGEN CONTENT	5202.00
710-9000	35000	SY	3.65	PERMANENT SOIL REINFORCING MAT	127750.00
715-2200	7000	SY	1.95	BITUMINOUS TREATED ROVING, WATERWAYS	13650.00
Section Sub Total:					\$480,781.45

Section TEMPORARY EROSION CONTROL					
Item Number	Quantity	Units	Unit Price	Item Description	Cost

Item Number	Quantity	Units	Unit Price	Item Description	Cost
163-0232	26	AC	571.97	TEMPORARY GRASSING	14871.22
163-0240	234	TN	183.84	MULCH	43018.56
163-0300	8	EA	2872.37	CONSTRUCTION EXIT	22978.96
163-0503	20	EA	549.25	CONSTRUCT AND REMOVE SILT CONTROL GATE, TP 3	10985.00
163-0530	1000	LF	3.67	CONSTRUCT AND REMOVE BALED STRAW EROSION CHECK	3670.00
163-0550	230	EA	308.76	CONSTRUCT AND REMOVE INLET SEDIMENT TRAP	71014.80
165-0010	18000	LF	0.93	MAINTENANCE OF TEMPORARY SILT FENCE, TP A	16740.00
165-0030	12000	LF	1.83	MAINTENANCE OF TEMPORARY SILT FENCE, TP C	21960.00
165-0070	500	LF	2.29	MAINTENANCE OF BALED STRAW EROSION CHECK	1145.00
165-0087	10	EA	178.48	MAINTENANCE OF SILT CONTROL GATE, TP 3	1784.80
165-0101	4	EA	660.01	MAINTENANCE OF CONSTRUCTION EXIT	2640.04
165-0105	115	EA	110.84	MAINTENANCE OF INLET SEDIMENT TRAP	12746.60
167-1000	2	EA	1349.35	WATER QUALITY MONITORING AND SAMPLING	2698.70
167-1500	24	MO	1035.76	WATER QUALITY INSPECTIONS	24858.24
171-0010	36000	LF	1.80	TEMPORARY SILT FENCE, TYPE A	64800.00
171-0030	24000	LF	3.84	TEMPORARY SILT FENCE, TYPE C	92160.00
XXX-XXXX	1	Lump Sum	250000.00	SEDIMENT BASIN	250000.00
Section Sub Total:					\$658,071.92

Section SIGNING AND MARKING					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
636-1020	600	SF	15.31	HIGHWAY SIGNS, TP 1 MATL, REFL SHEETING, TP 3	9186.00
636-1029	450	SF	18.64	HIGHWAY SIGNS, TP 2 MATL, REFL SHEETING, TP 3	8388.00
636-1033	480	SF	20.72	HIGHWAY SIGNS, TP 1 MATL, REFL SHEETING, TP 9	9945.60
636-1041	240	SF	32.42	HIGHWAY SIGNS, TP 2 MATL, REFL SHEETING, TP 9	7780.80
636-2070	1680	LF	8.75	GALV STEEL POSTS, TP 7	14700.00
636-2080	1120	LF	11.30	GALV STEEL POSTS, TP 8	12656.00
636-3010	20	EA	441.77	GROUND-MOUNTED BREAKAWAY SIGN SUPPORT	8835.40
647-1000	1	LS	100000.00	TRAFFIC SIGNAL INSTALLATION NO - (SR 54 @ CORNITH RD)	100000.00
647-1000	1	LS	100000.00	TRAFFIC SIGNAL INSTALLATION NO - (SR 54 @ THOMAS RD)	100000.00
647-1000	1	LS	100000.00	TRAFFIC SIGNAL INSTALLATION NO - (SR 54 @ MUNDY MILL RD)	100000.00
647-1000	1	LS	100000.00	TRAFFIC SIGNAL INSTALLATION NO - (SR 54 @ WHALEY LK. TRACE)	100000.00
647-1000	1	LS	100000.00	TRAFFIC SIGNAL INSTALLATION NO - (SR 54 @ TARA BLVD/US 41/US 19)	100000.00
653-0120	240	EA	72.67	THERMOPLASTIC PVMT MARKING, ARROW, TP 2	17440.80
653-1501	86880	LF	0.63	THERMOPLASTIC SOLID TRAF STRIPE, 5 IN, WHITE	54734.40
653-1502	86880	LF	0.69	THERMOPLASTIC SOLID TRAF STRIPE, 5 IN, YELLOW	59947.20
653-1704	1400	LF	5.02	THERMOPLASTIC SOLID TRAF STRIPE, 24 IN, WHITE	7028.00
653-1804	4000	LF	1.99	THERMOPLASTIC SOLID TRAF STRIPE, 8 IN, WHITE	7960.00
653-3501	56680	GLF	0.48	THERMOPLASTIC SKIP TRAF STRIPE, 5 IN, WHITE	27206.40
654-1001	50	EA	3.64	RAISED PVMT MARKERS TP 1	182.00
654-1003	7085	EA	3.78	RAISED PVMT MARKERS TP 3	26781.30
657-1054	1800	LF	4.82	PREFORMED PLASTIC SOLID PVMT MKG, 5 IN, WHITE, TP PB	8676.00
657-3054	1800	GLF	3.63	PREFORMED PLASTIC SKIP PVMT MKG, 5 IN, WHITE, TP PB	6534.00

657-3085	1800	GLF	4.48	PREFORMED PLASTIC SKIP PVMT MKG, 8 IN, CONTRAST (BLACK-WHITE), TP PB	8064.00
657-6054	1800	LF	4.69	PREFORMED PLASTIC SOLID PVMT MKG, 5 IN, YELLOW, TP PB	8442.00
Section Sub Total:					\$804,487.90

Section BRIDGES					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
211-0200	0	CY	79.47	BRIDGE EXCAVATION, GRADE SEPARATION	0.00
441-0004	0	SY	52.66	CONC SLOPE PAV, 4 IN	0.00
500-0100	0	SY	4.21	GROOVED CONCRETE	0.00
500-1006	1	LS	0.00	SUPERSTR CONCRETE, CL AA, BR NO -	0.00
500-3101	0	CY	578.66	CLASS A CONCRETE	0.00
500-3650	0	CY	974.80	CLASS AA-1 CONCRETE	0.00
507-9002	0	LF	125.98	PSC BEAMS, AASHTO TYPE II, BR NO -	0.00
507-9030	0	LF	197.93	PSC BEAMS, AASHTO, BULB TEE, 54 IN, BR NO -	0.00
511-1000	0	LB	0.95	BAR REINF STEEL	0.00
511-3000	1	LS	0.00	SUPERSTR REINF STEEL, BR NO -	0.00
514-1000	1	LS	0.00	EPOXY COATED SUPERSTR REINF STEEL, BR NO -	0.00
520-0353	0	EA	171.89	H-PILE POINTS, HP 12 X 53	0.00
520-1125	0	LF	49.30	PILING IN PLACE, STEEL H, HP 12 X 53	0.00
520-1147	0	LF	57.17	PILING IN PLACE, STEEL H, HP 14 X 73	0.00
520-4125	0	EA	0.39	LOAD TEST, STEEL H, HP 12 X 53	0.00
520-4147	0	EA	62.13	LOAD TEST, STEEL H, HP 14 X 73	0.00
XXX-XXXX	13440	SF	100.00	BR NO-2 CAMO CREEK - (WIDENING 240 LF X 56 FT)	1344000.00
XXX-XXXX	13440	SF	100.00	BR NO-1 MORNING CREEK - (WIDENING 240 LF X 56 FT)	1344000.00
XXX-XXXX	13440	SF	100.00	BR NO-3 FLINT RIVER- (WIDENING 240 LF X 56 FT)	1344000.00
Section Sub Total:					\$4,032,000.00

Total Estimated Cost: \$26,588,374.94

Subtotal Construction Cost	\$26,588,374.94
E&C Rate 10.0 %	\$2,658,837.49
Inflation Rate 0.0 % @ 0.0 Years	\$0.00
Total Construction Cost	\$29,247,212.43
Right Of Way	\$22,468,353.00
ReImb. Utilities	\$13,489,000.00
Grand Total Project Cost	\$65,204,565.43

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

INTERDEPARTMENT CORRESPONDENCE

FILE STP-164-1(29) Clayton/ Fayette Cos.
SR 54- Roadway & Bridge US 19/41
To McDonough Road
PI#721440

OFFICE District Seven
Chamblee, Georgia

DATE March 1, 2007

FROM Bryant R. Poole, District Engineer
TO Babs Abubakari, P.E., State Consultant Design
Attention: Rick Reasons

SUBJECT Preliminary Cost Estimate

A field inspection was conducted on the above project. As requested, we have provided a preliminary cost estimate for each utility to relocate. The following companies have facilities that occupy the public Right-of-way and prior rights have not been determined at this time:

Clayton County Water & Sewer	\$1,200,000.00
BellSouth Telecommunications	\$600,000.00
Atlanta Gas Light Company	\$1,000,000.00
Comcast of Georgia	\$600,000.00
Georgia Power Company (Distribution)	\$1,089,000.00
Georgia Power Company (Transmission)	<u>\$8,000,000.00</u>
Total	\$13,489,000.00

If you have any questions please contact Yulonda Pride-Foster at (770) 986-1117.

Sincerely,

Bryant R. Poole
District Engineer

By: Jonathan Walker
District Utilities Engineer

BRP:JW: YPF

Attachments

Jeff Baker, P.E./ Utilities (TMC)

Lee Upkins/ Preconstruction (TMC)

File

Department of Transportation State of Georgia

----- Interdepartmental Correspondence

FILE R/W Cost Estimate **OFFICE** Atlanta
PC / GAM **DATE** February 9, 2007
FROM Phil Copeland, Right of Way Administrator
TO To: Babs Abubakari, P.E.. State Consultant Design Engineer
Attention : Rick Reason

SUBJECT **Preliminary Right of Way Cost Estimate**
Project: STP-164-1(29)Fayette/Clayton
P.I. No.: 721440
Description: SR 54 widening from north of McDonough Rd to US19/41

As per your request, attached is a copy of the approved Preliminary Right of Way Cost Estimates on the above referenced projects.

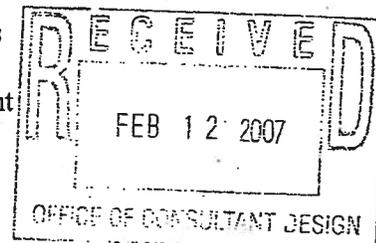
Please note the area of Required R/W was furnished with your request.
Please include total Required R/W areas for the entire corridor in all future requests.

If you have any questions, please contact Jerry Milligan at the West Annex Right of Way Office at (770) 986-1541.

PC:GAM

Attachments

c: Brian Summers, Engineering Services
Wes Brock, R/W
Windy Bickers, Financial Management
File



Preliminary Right of Way Cost Estimate

Date: 01/30/2007

Project: STP-164-1(29)

Existing/Required R/W: 47 Acres Required

Project Termini:

Project Description: Widening and Reconstruction of S.R. 54 From Just North of McDonough Rd to U.S.19/41

Land:

Commercial

12 Acres @ \$180,000 /ac. = \$ 2,160,000

Residential

35 Acres @ \$65,000 /ac. = \$ 2,275,000

TOTAL

\$4,435,000

Improvements: 2 commercial businesses, 6 SFR, Fencing, signs, landscaping, paving \$1,396,300

Relocation:

Commercial 2 @ \$25,000/parcel = \$ 50,000

Residential 6 @ \$40,000/parcel = \$ 240,000

TOTAL

\$290,000

Damages:

Proximity - \$ 340,000

Consequential - \$

Cost to Cure - \$ 10,000

TOTAL

\$350,000

SUB-TOTAL:

\$ 6,471,300

Net Cost		\$6,471,300
Scheduling Contingency	55 %	\$3,559,215
Adm/Court Cost	60 %	\$6,018,309
Market Appreciation	40 %	\$6,419,529

TOTAL

\$22,468,353

Total Cost

\$22,468,353

Prepared By:

Donald L. Willis

Approved:

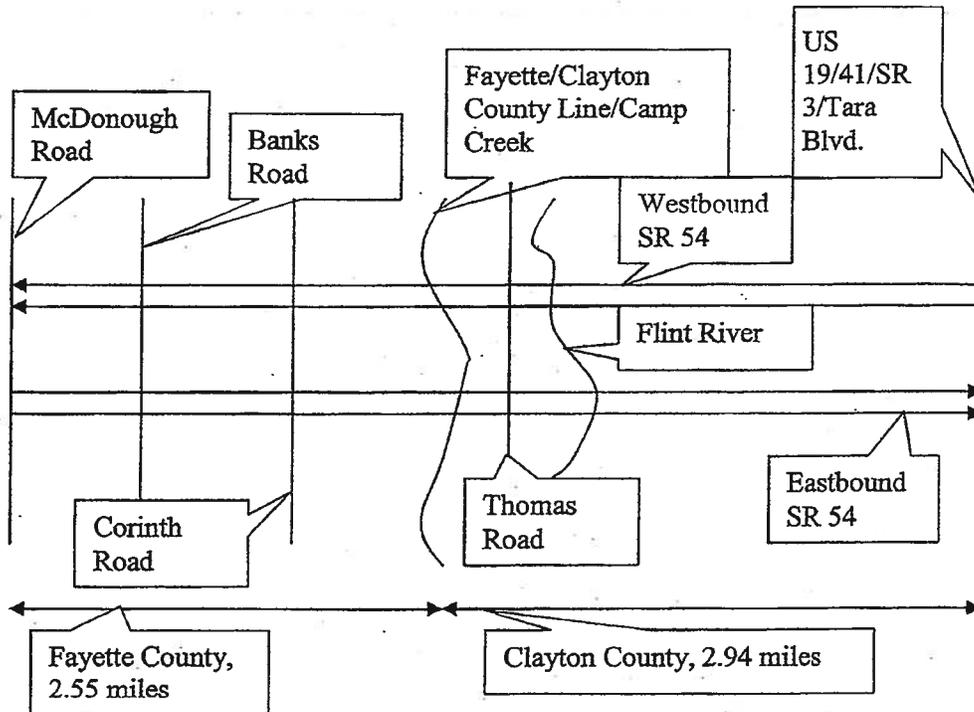
Howard P. Copeland
Howard P. Copeland
R/W Administrator

REVISED: 12-8-06

Fayette & Clayton County Land Sales

<u>Highest & Best Use</u>	<u>Size (acres)</u>	<u>Value/ac</u>	<u>Sales price</u>
Small Tract Residential	7.80	\$ 23,076	\$ 180,000
	1.00 (LOT)	\$ 64,900	\$ 64,900
	1.00 (LOT)	\$ 74,000	\$ 74,000
Agricultural / Residential	166	\$ 10,629	\$ 1,764,565
	25.9	\$ 110,000	\$ 2,849,000
	48	\$ 121,458	\$ 5,830,000
Commercial	1.800	\$ 122,222	\$ 220,000
	6.1	\$ 98,360	\$ 600,000
	1.7	\$ 323,529	\$ 550,000
Industrial	17.00	\$ 62,911	\$ 1,069,500
	8.00	\$ 70,000	\$ 560,000
	5.760	\$ 43,402	\$ 250,000

NETWORK SCHEMATIC
STP-164-1(29), PI 721440
FAYETTE/CLAYTON COUNTIES



REPORT

OF

PRELIMINARY PAVEMENT EVALUATION
ON
WIDENING AND RECONSTRUCTION
OF S.R. 54 (FAYETTEVILLE ROAD)
STP-164-1 (129), P.I. NO. 721440
FAYETTE COUNTY AND
CLAYTON COUNTY, GEORGIA

FOR

MR. MATT MCDOW
ARCADIS U.S., INC.
2849 PACES FERRY ROAD
SUITE 400
ATLANTA, GEORGIA 30339

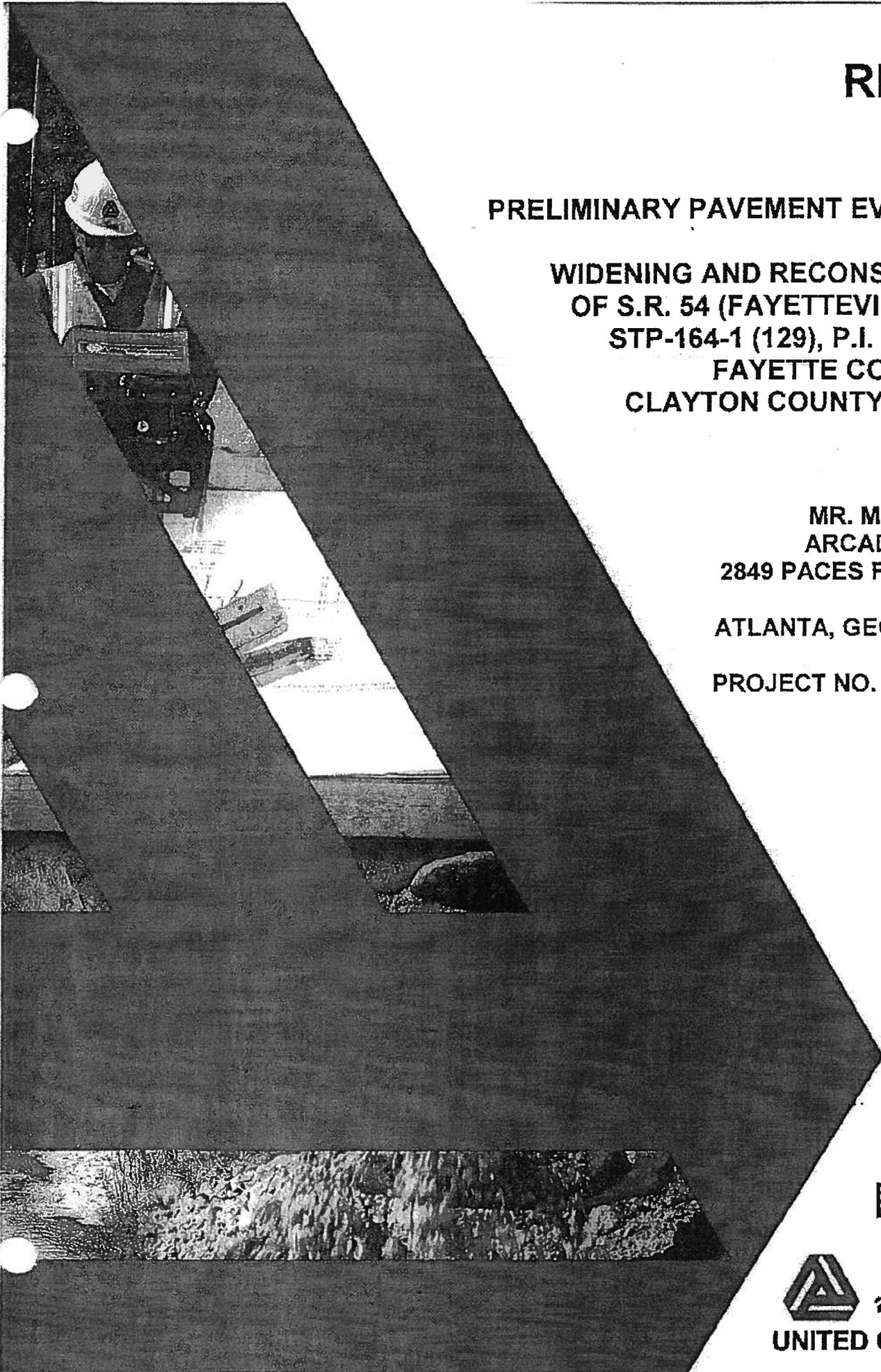
PROJECT NO. 2007.1666.01

DRAFT



We're here for you

UNITED CONSULTING





We're here for you

UNITED CONSULTING

July 3, 2007

Mr. Matt McDow
Arcadis U.S., Inc.
2849 Paces Ferry Road
Suite 400
Atlanta, Georgia 30339
Via E-mail: Matt.McDow@arcadis-us.com

PROJECT: Report of Preliminary Pavement Evaluation
Widening and Reconstruction of S.R. 54 (Fayetteville Road)
Fayette County and Clayton County, Georgia
STP – 164-1 (129); P.I. No. 721440
Project No. 2007.1666.01

Dear Mr. McDow:

United Consulting is pleased to submit this Report of Preliminary Pavement Evaluation for the above-referenced project. We appreciate the opportunity to assist you with this project and look forward to working with you on future projects. Please contact us if you have any questions regarding this report, or if we can be of further assistance.

Sincerely,

UNITED CONSULTING

Mehdi Moazzami
Senior Geotechnical Engineer

Donald E. Hill, P.E.
Chief Engineer

MM/DEH/jp

H:\geoenvir\reports\2007\2007.1666.01 SR54\Pavement Evaluation Summary

DRAFT

PRELIMINARY PAVEMENT EVALUATION SUMMARY
For
STP-164-1 (29) Fayette and Clayton Counties Georgia
PI No. 721440

1. LOCATION / DESCRIPTION

This project is for the widening and reconstruction of SR 54 (Fayetteville Road). The project begins from just North of McDonough Road at Sta. 20+00.00 in Fayette County and continues northeast to U.S. 19/41 at Sta. 303+40 in Clayton County. This preliminary evaluation includes adjacent intersections and road improvements in Fayette County and Clayton County within the following station limits:

Fayette County

<u>Station to Station</u>	<u>Location</u>
500+00 to 504+25	Banks Road
600+00 to 602+10	Banks Rd East
700+00 to 703+05	McElroy Road
800+00 to 802+12	Deer Forrest Tr
900+00 to 902+38	Oak Manor
1000+00 to 1003+04	Deer Forrest Road
1100+00 to 1101+53	Henderson Road
1200+00 to 1201+71	Hewell Road
1300+00 to 1302+62	Simpson Road
1400+00 to 1403+61	Corinth Road
1500+00 to 1501+48	Corinth Road

Clayton County

<u>Station to Station</u>	<u>Location</u>
1600+00 to 1601+98	Thomas Road
1700+00 to 1701+40	Tyler Tr
1800+00 to 1804+08	Mundys Mill Rd
1900+00 to 1902+08	Whalers Lake Tr
2000+00 to 2002+11	Margaret Drive
2100+00 to 2102+19	Crimson Ridge Drive
2200+00 to 2201+65	Brown Road
2300+00 to 2302+34	Swamp Creek Drive
2400+00 to 2401+55	Cypress Estate Drive
2500+00 to 2503+07	Whalcy Lake Road
2600+00 to 2604+02	Field Green Drive
2700+00 to 2703+77	Jenni Lane
2800+00 to 2804+25	Towngate Blvd
2900+00 to 2901+33	Winn Dixie Drive



2. PAVEMENT CONDITION SUMMARY

The existing pavement along SR 54 (Fayetteville Road) is in good to fair condition whereas the pavement along adjacent surface roads is in fair to poor condition. Based on the preliminary Pavement Distress survey, partial milling and inlay is recommended for exiting pavement on SR 54. Full depth replacement is recommended for those sections with Level 3 or greater Load Cracking and for those sections where more that 40% of Level 2 or greater Block/Transverse Cracking are present. These areas are listed below.

Fayette County

<u>Station to Station</u>	<u>Location</u>
701+80 to 703+05	McElroy Road
600+25 to 602+10	Banks Road East
800+25 to 803+12	Deer Forrest Tr.
1002+00 to 1003+04	Deer Forest Road
1400+00 to 1403+61	Corinth Road
1500+50 to 1501+00	Corinth Road

Clayton County

<u>Station to Station</u>	<u>Location</u>
2700+50 to 2703+77	Jenni Road
2300+00 to 2302+35	Swamp Creek Drive

3. FULL-DEPTH SECTIONS

The following full-depth pavement options are recommended for use on this project:

PAY ITEM NUMBER	MATERIAL	COURSE	THICKNESS	SPREAD RATE
402-3130	12.5 mm Superpave	Surface	1.5 inches	165 lbs/yd ²
402-3190	19 mm Superpave	Binder	2 inches	220 lbs/yd ²
402-3121	25 mm Superpave	Asphalt Base	4.5 inches	440 lbs/yd ²
310-1101	Graded Aggregate	Base	12 inches	N/A



PAY ITEM NUMBER	MATERIAL	COURSE	THICKNESS	SPREAD RATE
	Base			

Note: The Full-depth Pavement Design Analysis is attached.

4. OVERLAY SECTIONS

Since the thickness and gradation of the existing pavement is not known, an overlay design section is not provided.

5. PAVEMENT DISTRESSES

Except for the following, no other distresses were encountered during the field investigation of this project:

Rutting On SR 54 and adjacent roads, rutting measurements averaged 1/25 inch.

Load Cracking On SR 54, 100% Level 1 cracking was observed from Station 30+00 to Station 31+00.

On Banks Road, 50% Level 1 cracking was observed from Sta. 500+25 to Sta. 504+25.

On McElroy Road, 60% Level 3 cracking was observed from Sta. 701+80 to Sta. 703+05.

On Jenni Road, 100% Level 3 cracking was observed from 2700+50 to 2702+50.

Block/ Transverse Cracking On SR 54, 100% Level 1 block/ transverse cracking were observed from Sta. 186+00 to Sta. 189+60, from Sta. 193+00 to Sta. 246-25, and from 248+00 to Sta. 303+40.

On Banks Road East, 100% Level 2 block/ transverse cracking were observed from Sta. 600+25 to Sta. 602+10.

On Deer Forrest Tr. 50% of Level 2 block/ transverse cracking was observed from Sta. 800+25 to Sta. 803+93.



STP-164-1 (129), FAYETTE AND CLAYTON COUNTIES
P.I. NO. 721440

On Oak Manor 10% of Level 1 block/ transverse cracking was observed from Sta. 900+25 to Sta. 902+38.

On Deer Forrest Road, 100% Level 1 block/ transverse cracking was observed from Sta. 1000+30 to Sta. 1001+00 and 100% Level 3 block/ transverse cracking was observed from Sta. 1002+00 to Sta. 1003+04.

On Henderson Road, 80% Level 1 block/ transverse cracking was observed from Sta. 1100+25 to Sta. 1101+53.

On Corinth Road, 100% Level 2 block/ transverse cracking was observed from Sta. 1400+00 to Sta. 1403+61

On Tyler Trail., 100% Level 1 block/ transverse cracking was observed from Sta. 1700+70 to Sta. 1701+40.

On Mundys Mill Road, 100% Level 1 block/ transverse cracking was observed from Sta. 1800+30 to Sta. 1804+08.

On Brown Rd., 100% Level 1 block/ transverse cracking was observed from Sta. 2200+00 to Sta. 2201+65.

On Swamp Creek Drive, 100% Level 3 block/ transverse cracking was observed from Sta. 2300+40 to Sta. 2302+35.

On Field Green Drive, 100% Level 1 block/ transverse cracking was observed from Sta. 2600+50 to Sta. 2604+02.

On Jenni Ln., 60% Level 2 block/ transverse cracking was observed from Sta. 2700+40 to Sta. 2702+50 and 80% Level 2 block/ transverse cracking was observed from Sta. 2702+50 to Sta. 2703+77.

On Towngate Boulevard, 100% Level 1 block/ transverse cracking was observed from Sta. 2800+40 to Sta. 2804+25.

-- On Winn Dixie Road, 100% Level 1 block/ transverse cracking was observed from Sta. 2900+40 to Sta. 2801+32.

Reflection Cracking No reflection cracking was observed.



Edge Distress No Edge Distress was observed.

Raveling On SR 54, 10% Level 1 raveling was observed from Sta. 27+30 to Sta. 30+30.

Bleeding/ Flushing On SR 54, 5% bleeding was observed from Sta. 25+00 to Sta. 46+50 and from Sta. 134+65 to Sta. 135+10.

**Corrugation/
Pushing** No Corrugation/ Pushing was observed.

Loss of Section On Corinth Road, 90% loss of section was observed from Sta. 1500+50 to Sta. 1501+00 followed by gravel covered roadway.

6. CORES

Cores were not gathered for the preliminary phase of this project.

7. COPACES

No COPACES information is included with this evaluation.

8. OTHER INFORMATION

- A soils survey was not available at the time of this report. The attached design uses the design values included in Appendix G of Georgia Department of Transportation Pavement Design Manual.

9. LIMITATIONS	<p>This report is for the exclusive use of Georgia Department of Transportation, and the designers of the project described herein, and may only be applied to this specific project. Our conclusions and recommendations have been prepared using generally accepted standards of Engineering practice in the State of Georgia. No other warranty is expressed or implied. Our firm is not responsible for conclusions, opinions or recommendations of others.</p> <p>The right to rely upon this report and the data within may not be assigned without UNITED CONSULTING'S written permission.</p>
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	<p>Our conclusions and recommendations are based on our site reconnaissance, the proposed traffic load by the prime consultant and our past experience.</p> <p>UNITED CONSULTING</p>
--	---

Reported By: Roman Zhest

Reviewed By: Mehdi Moazzami, P.E.

Quality Control: Donald E. Hill, P.E.

Attachment:

Figure 1: Project Limits
Full Depth Replacement Pavement Section (1)



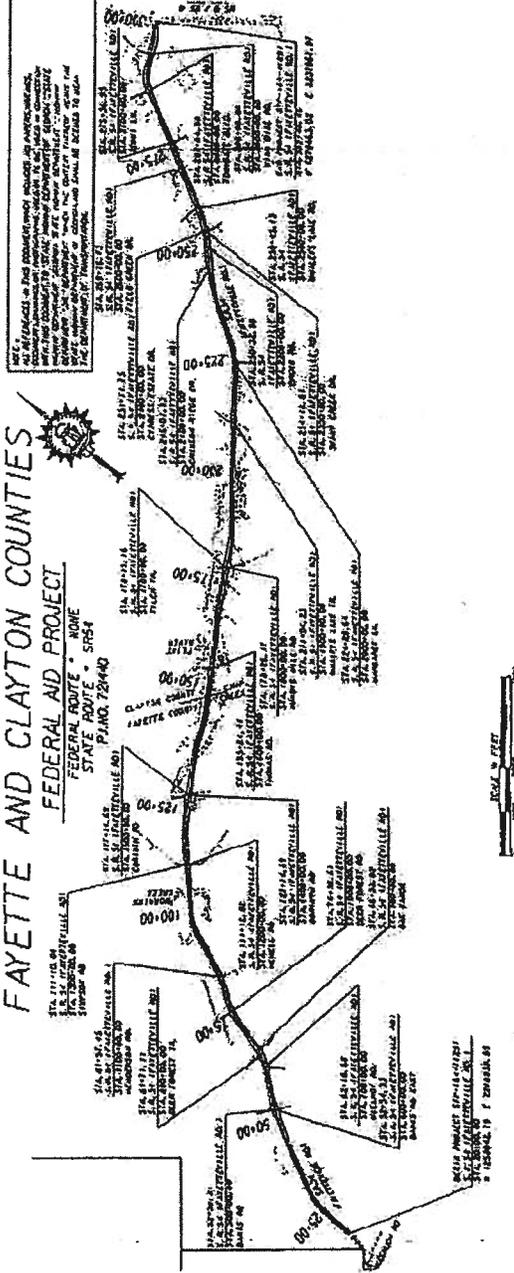
WIDENING AND RECONSTRUCTION OF
S.R. 54 (FAYETTEVILLE ROAD)
FROM JUST NORTH OF McDONOUGH RD TO
U.S. 19/41

FAYETTE AND CLAYTON COUNTIES

FEDERAL AID PROJECT

STATE ROUTE - SR54

P.L. NO. 720440



STP-164-1(129)
P.I. NO. 721440

SCALE: NTS	DATE: 7/03/07	PROJECT NO: 2007.1666.01	TITLE: PROJECT LIMITS
PREPARED: MM	CHECKED:	REVISIONS:	WIDENING AND RECONSTRUCTION OF S.R. 54, FAYETTE COUNTY, CLAYTON COUNTY, GA
CLIENT:	UNITED CONSULTING 625 Holcomb Bridge Road, Norcross, GA 30071 Tel. 770-209-0029 FAX 770-582-5900 www.unitedconsulting.com		
GEORGIA DEPARTMENT OF TRANSPORTATION			FIG. 1

FLEXIBLE PAVEMENT DESIGN ANALYSIS

Project: STP-164-1 (129)

County: FAYETTE/CLAYTON

P.I. no.: 721440

Description: WIDENING AND RECONSTRUCTION OF S.R. 54 (FAYETTEVILLE ROAD)

Traffic Data (NOTE: AADTs are one-way)

24-hour Truck Percentage: 4.00%
 AADT initial year of design period: 11,830 vpd (2012)
 AADT final year of design period: 19,380 vpd (2032)
 Mean AADT (one-way): 15,605 vpd

Design Loading

Mean AADT	LDF	Trucks	18-K ESAL	=	Total Daily Loads
15,605 *	0.85 *	0.040 *	0.95		505

Total predicted design period loading = 505 * 20 * 365 = 3,686,500

Design Data

Terminal Serviceability Index: 2.50
 Soil Support: 2.50
 Regional Factor: 1.60

PROPOSED FLEXIBLE PAVEMENT STRUCTURE

Material	Thickness		Structural Coefficient	Structural Value
	Inches	(mm)		
12.5 mm Superpave	1.50	(38)	0.44	0.66
19 mm Superpave	2.00	(51)	0.44	0.88
25 mm Superpave	1.00	(25)	0.44	0.44
	3.00	(76)	0.30	0.90
Graded Aggregate Base	12.00	(305)	0.16	1.92

Required SN = 5.45

Proposed SN = 4.80

>>> Proposed pavement is 11.9% Underdesign <<<

Remarks: Pavement Section for Full Depth Replacement/New Alignment

Prepared by United Consulting July 3, 2007
Date

Recommended State Materials & Research Engineer Date

Approved State Consultant Design Engineer Date

FLEXIBLE PAVEMENT DESIGN ANALYSIS

Project: STP-164-1(29)

County: Fayette/Clayton

P.I. no.: 721440

Description: SR 54 widening/reconstruction McDonough Road to US 19/41/Tara Blv

Traffic Data (NOTE: AADTs are one-way)

24-hour Truck Percentage: 4.10%

AADT initial year of design period: 11,840 vpd (2012)

AADT final year of design period: 19,380 vpd (2032)

Mean AADT (one-way): 15,610 vpd

Design Loading

Mean AADT	LDL	Trucks	18-K ESAL	Total Daily Loads
15,610	* 0.60	* 0.041	* 1.17	= 450

Total predicted design period loading = 450 * 20 * 365 = 3,285,000

Design Data

Terminal Serviceability Index: 2.50

Soil Support: 2.50

Regional Factor: 1.60

**OVERLAY DESIGN
EXISTING MAINLINE**

PROPOSED FLEXIBLE PAVEMENT STRUCTURE

Material	Thickness Inches	(mm)	Structural Coefficient	Structural Value
*** OVERLAY ***				
12.5 mm Superpave	1.50	(38)	0.44	0.66
19 mm Superpave	2.00	(51)	0.44	0.88
*** EXISTING PAVEMENT ***				
Asphaltic Concrete	1.00	(25)	0.44	0.44
	2.00	(51)	0.30	0.60
Asphaltic Concrete	5.00	(127)	0.30	1.50
Graded Aggregate Base	8.00	(203)	0.16	1.28
Required SN = 5.37			Proposed SN = 5.36	

>>> Proposed pavement is 0.2% Underdesign <<<

Remarks: preliminary overlay, original 2-lane

Prepared by RICK REASONS, DGM July 10, 2007
Date

Recommended _____
State Consultant Design Engineer Date

Approved _____
State Pavement Engineer Date

FLEXIBLE PAVEMENT DESIGN ANALYSIS

Project: STP-164-1(29)

County: Fayette/Clayton

P.I. no.: 721440

Description: SR 54 widening/reconstruction McDonough Road to US 19/41/Tara Blv

Traffic Data (NOTE: AADTs are one-way)

24-hour Truck Percentage: 4.10%

AADT initial year of design period: 11,840 vpd (2012)

AADT final year of design period: 19,380 vpd (2032)

Mean AADT (one-way): 15,610 vpd

Design Loading

Mean AADT	LDL	Trucks	18-K ESAL	Total Daily Loads
15,610	* 0.60	* 0.041	* 1.17	= 450

Total predicted design period loading = 450 * 20 * 365 = 3,285,000

Design Data

Terminal Serviceability Index: 2.50

Soil Support: 2.50

Regional Factor: 1.60

OVERLAY DESIGN
EXISTING BRIDGE APPROACHES

PROPOSED FLEXIBLE PAVEMENT STRUCTURE

Material	Thickness Inches	(mm)	Structural Coefficient	Structural Value
*** OVERLAY ***				
12.5 mm Superpave	1.50	(38)	0.44	0.66
19 mm Superpave	2.00	(51)	0.44	0.88
*** EXISTING PAVEMENT ***				
Asphaltic Concrete	1.00	(25)	0.44	0.44
	2.50	(64)	0.30	0.75
Asphaltic Concrete	4.00	(102)	0.30	1.20
Graded Aggregate Base	10.00	(254)	0.16	1.60
Required SN = 5.37			Proposed SN = 5.53	

>>> Proposed pavement is 2.9% Overdesign <<<

Remarks: preliminary overlay, reconstructed 2-lane at bridges

Prepared by RICK REASONS, DGM July 10, 2007
Date

Recommended State Consultant Design Engineer Date

Approved State Pavement Engineer Date

Reasons, Rick

From: Raju K. Shah [raju.shah@rkshah.com]
Sent: Tuesday, July 10, 2007 5:47 PM
To: Reasons, Rick; McDow, Matt; Hudgins, James; donhill@unitedconsulting.com; Jay Ashtiani
Subject: Re: SR 54-Asphalt Quantities.

Rick:

I double check my quantities and assumption for 12.5 mm (26000 Ton) and 19 mm Superpave (35000 Ton).

This quantities accounts for 3.5" of overlay(2"-19 mm and 1.5"- 12.5 mm) not 1.5" as I stated.

Please pass on this information to VE Team.

Please call me, if you need any addition input.

Raju K. Shah
R.K. SHAH & ASSOCIATES, INC.
"Working together to improve Transportation since 1988"
1280 Winchester Parkway
Suite 240
Smyrna, GA. 30080
Phone: 770-436-5070
Fax: 770-436-5410
raju.shah@rkshah.com

----- Original Message -----

From: Reasons, Rick
To: McDow, Matt ; Hudgins, James ; donhill@unitedconsulting.com ; Jay Ashtiani
Cc: rkshahinc
Sent: Tuesday, July 10, 2007 4:35 PM
Subject: RE: SR 54

I did an overlay design for both sections, the older 2-lane and the reconstructed 2-lane at the bridges. I made assumptions for the older 2-lane based on the old intersection project at Browns Road, and also assumed 2 overlays. That required overlay design is 1 ½" 12.5 mm superpave and 2" 19 mm superpave. District 3 checked PACES and apparently an overlay was done on the Fayette section in 2006 consisting of maybe 1 ½" surface course and ½" leveling. So, it's a safe bet at least one other overlay was done between then and the original 2-lane project.

The reconstructed section also requires the same overlay.

The required 0%-5% under design is what puts you over just a simple 1 ½" overlay as compared to a rural project. Raju has assumed 1 ½" overlay, you may now be at a point to discuss when to do your corings and get a good pavement design. I would recommend 3 ½" overlay is needed. Your preliminary report recommended minimal milling.

Value Engineering Process

VALUE ENGINEERING PROCESS

Introduction

This report summarizes the analysis and conclusions by the PBS&J Value Engineering team as they performed a VE Study during the period of July 10-13, 2007 in Atlanta, Georgia, for the Georgia Department of Transportation.

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

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

- The important functions of the project were identified as follows:
 - **Project Objective/Goals**
 - **Improve Safety**
 - **Improve Line-of-Sight**
 - **Increase Capacity**
 - **Separate Traffic**
 - **Provide for near future growth**
 - **Project Basic Functions**
 - **Construct Additional Traffic Lanes**
 - **Construction Additional Turn Lanes**
 - **Widen Bridge**
 - **Provide Raised Median**
 - **Route Stormwater**
 - **Direct Traffic**
- **Speculation Phase** - The VE team performed a brainstorming session to identify ideas that might help meet the project objectives:
 - Improve Operations
 - Improve Safety
 - Increase Capacity
 - Reduce construction and life cycle costs
 - Reduce the time of construction

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

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

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

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

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

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



FUNCTION ANALYSIS AND COST-WORTH

SHEET NO.: 1 of 3

PROJECT: GEORGIA DEPARTMENT OF TRANSPORTATION
 Proj. No. STP-164-1(29) – Fayette and Clayton Counties – P.I. Number: 721440

NO.	ELEMENT	FUNCTION			COST (000)	WORTH (000)	COMMENTS
		VERB	NOUN	KIND			
1	CONCRETE (C)	Support	Various Functions	S	4,570	4,000	C/W = 1.14
2	EARTHWORK (EW)	Match	Existing Roadway Elevation	B	2,166	2,000	C/W = 1.08
		Accommodate	Additional Lanes and Shoulders	B			
3	DRAINAGE (DR)	Minimize	Accidents	G	2,149	2,149	C/W = 1.00
		Protect	Pavement Integrity	S			
		Convey	Storm Water	S			
4	RIGHT-OF-WAY (RW)	Accommodate	Widening	B	22,468	19,000	C/W = 1.18
		Facilitate	Utilities	RS			
		Accommodate	Amenities	S			

Function defined as: Action Verb Measurable Noun
 Kind: B = Basic S = Secondary RS = Required Secondary
 HO = Higher Order LO = Lower Order
 Cost/Worth Ratio = (Total Cost + Basic Worth)



FUNCTION ANALYSIS AND COST-WORTH

SHEET NO.: 2 of 3

PROJECT: GEORGIA DEPARTMENT OF TRANSPORTATION
 Proj. No. STP-164-1(29) – Fayette and Clayton Counties – P.I. Number: 721440

NO.	ELEMENT	FUNCTION			COST (000)	WORTH (000)	COMMENTS
		VERB	NOUN	KIND			
5	BASE & PAVING (BP)	Increase	Traffic Capacity	B	9,886	8,886	C/W = 1.11
		Shed	Water	S			
		Channelize	Traffic	S			
6	BRIDGES (BR)	Provide	Bicycle Access	S			
		Increase	Capacity	B	4,000	3,500	C/W = 1.14
		Facilitate	Safe Construction	RS	1,266	1,266	C/W = 1.00
7	SIGNING & MARKING (SM)	Enhance	Wayfinding	S	804	804	C/W = 1.00
		Maintain	Safe Traffic Operations	RS			
		Channelize	Traffic	S			

Function defined as: Action Verb
 Measurable Noun

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

HO = Higher Order
 LO = Lower Order

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



FUNCTION ANALYSIS AND COST-WORTH

SHEET NO.: 3 of 3

PROJECT: GEORGIA DEPARTMENT OF TRANSPORTATION

Proj. No. STP-164-1(29) – Fayette and Clayton Counties – P.I. Number: 721440

NO.	ELEMENT	FUNCTION			COST (000)	WORTH (000)	COMMENTS
		VERB	NOUN	KIND			
9	OVERALL PROJECT	Increase	Traffic Capacity	B	65,204	60,000	C/W = 1.08
		Separate	Traffic	S			
		Enhance	Safety	S			
		Enhance	Property Access	S			
		Promote	Economic Development	S			

Function defined as: Action Verb
Measurable Noun

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

HO = Higher Order
LO = Lower Order

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

PARETO CHART - COST HISTOGRAM

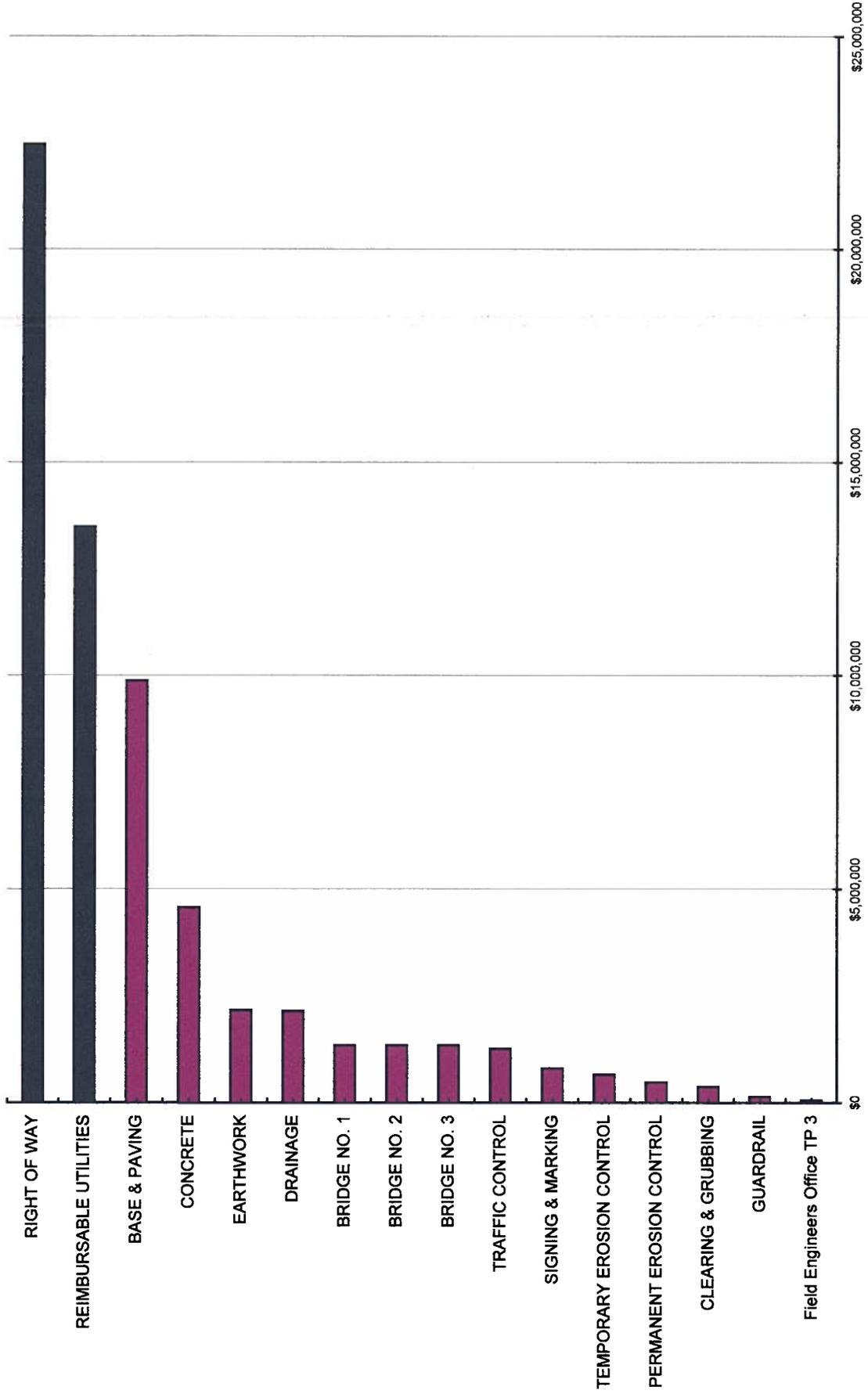
PROJECT: SR 54 Widening/Reconstruction -- Fayette - Clayton Counties

**CONCEPT COST ESTIMATE
STP-164-1(29), PI 721440**

PROJECT ELEMENT	COST	COST	PERCENT	CUM. PERCENT
RIGHT OF WAY	22,468,353			
BASE & PAVING		9,885,824	37.18%	37.18%
CONCRETE		4,570,112	17.19%	54.37%
EARTHWORK		2,166,550	8.15%	62.52%
DRAINAGE		2,149,815	8.09%	70.60%
BRIDGE NO. 1		1,344,000	5.05%	75.66%
BRIDGE NO. 2		1,344,000	5.05%	80.71%
BRIDGE NO. 3		1,344,000	5.05%	80.71%
TRAFFIC CONTROL		1,266,200	4.76%	85.48%
SIGNING & MARKING		804,488	3.03%	88.50%
TEMPORARY EROSION CONTROL		658,072	2.48%	90.98%
PERMANENT EROSION CONTROL		480,781	1.81%	92.78%
CLEARING & GRUBBING		375,000	1.41%	94.19%
GUARDRAIL		142,483	0.54%	94.73%
Field Engineers Office TP 3		57,050	0.21%	94.95%
REIMBURSABLE UTILITIES	13,489,000			
Subtotal	35,957,353	\$ 26,588,375	100.00%	
E & C Rate @ 10% INCL		\$ 2,658,838		
TOTAL CONSTRUCTION ESTIMATE	35,957,353	\$ 29,247,213		
GRAND TOTAL PROJECT COST		\$ 65,204,566	Comp Mark-up:	10%

Chart SR 54

SR 54 -- Widening/Reconstruction -- Fayette and Clayton Counties



Costs in Graph Do Not Include Mark-ups

DESIGNER'S PRESENTATION MEETING PARTICIPANTS



Date: 10 July 2007

Project: State Route 54 STP-164-1(29) -- Fayette/Clayton Counties -- PI No. 721440

Georgia Department of Transportation

NAME	ORGANIZATION & TITLE	E-MAIL	PHONE
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Brian Summers	 GDOT - Engineering Services	brian.summers@dot.state.us.ga.us	
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Gary King	 PBS&J - Highway/Roadway Construction	gking@pbsj.com	(770)933-0280
Jessica Winston	 PBS&J - Highway/Roadway Construction	jwinston@pbsj.com	(404)275-3362
Ramesh Kalvakaalva	 Civil Services, Inc.	rameshk@civilservicesinc.com	(404)885-8001

VE TEAM'S PRESENTATION

MEETING PARTICIPANTS



Project: State Route 54 STP-164-1(29) -- Fayette/Clayton Counties -- PI No. 721440

Date: 13 July 2007

Georgia Department of Transportation

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Rick Reasons	 GDOT - GDOT Consultant Design	rick.reasons@dot.state.us.ga.us	(404)463-3832
James Hudgins	 ARCADIS	james.hudgins@arcadis-us.com	(770)431-8666
Matt McDow	 ARCADIS	mmcdow@arcadis-us.com	(770)431-8666
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CREATIVE IDEA LISTING



PROJECT: **GEORGIA DEPARTMENT OF TRANSPORTATION**
STP-164-1(29) – Fayette and Clayton Counties – P.I. Number: 721440

SHEET NO.: **1 of 2**

NO.	IDEA DESCRIPTION	RATING
EARTHWORK (EW)		
EW-1	Utilize “bifurcated” profiles	4
EW-2	Use guardrails to steepen sideslopes	2
CLEARING AND GRUBBING (CG)		
CG-1	Restrict clearing to “construction limits”	2
RIGHT-OF-WAY (RW)		
RW-1	Reduce right-of-way to required width	4
RW-2	Reduce amenities	See C-5
RW-3	Shift horizontal curve at Station 290+32 to lessen R/W impact	2
RW-4	Reduce median width	3
RW-5	Reduce shoulder width	4
RW-6	Use multi-use trail	5
RW-7	Eliminate dedicated turn lanes	1
RW-8	Use “Shared” bike lanes	4
RW-9	Use traffic barrier in lieu of raised median	1
BASE AND PAVING (BP)		
BP-1	Remove bike lanes from roadway	See RW-6
BP-2	Eliminate 2 – foot “buffer” pavement from median	4
BP-3	Use 11 – foot wide lanes	5
BP-4	Verify pavement quantities for utilization of existing pavement	DS
BP-5	Review “eyebrow” locations at intersections where U-Turns are permitted	DS

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

