Value Engineering Study Report

Project – STP-065-2(13)
P.I. No. 621490

SR- 53 Business from SR 515/APD to CR 243/Industrial Boulevard
Pickens County

Value Management Team

Design Team

February 2008

February 28, 2008

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

RE: Submittal of the final Value Engineering Report
Project – STP-065-2(13)
Pickens County
P.I. No. 6214 90
State Route 53 Business from SR 515/APD to CR 243/Industrial Boulevard
PBS&J Project Task Order No. 28

Dear Ms. Myers:

Please find enclosed four (4) hard copies and a CD of our final Value Engineering Report for the State Route 53 Business from SR 515/APD to CR 243/Industrial Boulevard as referenced above.

This Value Engineering Study, which was performed during the period February 11 through February 14, 2008, identified **23 Alternative Ideas,** of which **11 are recommended for implementation.** 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

Les M. Thomas

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

Value Engineering Study Report

Project STP- 065-2(13)
P.I. No. 621490
SR-53Business from SR 515/APD to CR 243/Industrial Boulevard
Pickens County

Table of Contents

Executive Summary

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

Study Results

Introduction
Summary of Alternatives & Design Suggestions
Documentation of Alternative & Design Suggestions

Project Description

Introduction
Representative Documents

Value Engineering Process

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

EXECUTIVE SUMMARY

EXECUTIVE SUMMARY

INTRODUCTION

This report summarizes the analysis, conclusions and recommendations by the PBS&J Value Engineering workshop team as they performed a VE study during the period of February 11 – February 14, 2008 in Atlanta, at the office of the Georgia Department of Transportation. The subject of the Value Engineering study was Project STP-065-2(13) Pickens County, P.I. No. 621490. The concept design for the project has been prepared by CH2MHILL. At the time of the workshop, the plans had advanced to the concept design level.

PROJECT DESCRIPTION

Eastern Pickens County is a mixed use area consisting of commercial, residential and industrial land uses with a need for improved east-west connectivity. Project STP-065-2(13) consists of the widening and reconstruction of SR 53 Business in Pickens County. The project begins at the intersection of SR 515 and SR 53 Business and continues to the intersection of CR 243/Industrial Boulevard and Burnt Mountain Road. The total project distance is approximately 2.6 miles, including a one-way pair section. This project consists of widening SR 53 Business from the existing two lane facility to four 12-foot lanes with a 20-foot raised median and urban shoulders from the intersection of SR 515 to the intersection of Summit Street. The project continues eastward and splits into one-way pairs with one portion following the existing alignment and the other section following a new location from Summit Street to the intersection of CR 243/Industrial Boulevard and Burnt Mountain Road. The one way pair sections are proposed as two 12-foot lanes in each direction with urban shoulders.

The need for the project is driven by the amount of current traffic and the projected traffic growth in the project area. The purpose of the project is to relieve congestion by widening SR 53 Business and institute operational improvements at signalized intersections. Current conditions are over saturated with traffic Levels of Service (LOS) of "F". Traffic at these signalized intersections is over design capacity. Future design year 2014 traffic volumes are estimated to be approximately 26,475 Vehicles per Day (VPD) along SR 53 Business (BU) and design year 2034 volumes are expected to increase to approximately 37,725 VPD.

Project STP-065-2(13) will improve the LOS (Level of Service) along the roadway by adding two additional lanes from the intersection of SR 515 to the proposed one way split at the intersection with Summit Street. The proposed improvements will allow each major intersection within the project limits to operate at the design year LOS (Level of Service). This project will also improve vertical sight distance and provide for additional turn lanes, signal upgrades, and pedestrian improvements at intersections. Urban shoulders will be utilized for the entire project length. Pickens County needs improved

east-west connectivity through Jasper. This project will serve the need by widening SR 53 Business (BU) and reconfiguring the intersection and facilitating traffic flows to the east of Summit Street.

No significant environmental or displacements were identified during the preliminary evaluation process. However, any known historical sites, cemeteries, or other environmental constraints must be recognized and considered prior to implementation of final design decisions by the GDOT.

For Project STP-065-2(13) the estimated construction cost is $12,539,117. The preliminary R/W acquisition cost is $25,521,000.

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

PROJECT CONCERNS AND OBJECTIVES

Some of the information from the concept report and the designer's presentation indicated the following important points about the project:

- There are three streams to be crossed
- There is an existing Church near the new alignment to be avoided
- The property to be acquired will divide a ranch and provision must be made to enable cattle access to both parcels.
- There is a middle school which must be given easy access.

VALUE ENGINEERING PROCESS

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

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

This report is a component of the Presentation Phase. As part of the VE workshop in Atlanta, the team made an informal presentation of their results on the last morning of the workshop. This report is intended to formalize the workshop results and set the stage for a formal implementation meeting in which alternatives and design suggestions will typically be accepted, accepted with modifications, or rejected for cause. The worksheet that follows, along with the formally developed alternatives and design suggestions can be used as a "score sheet" for the implementation meeting. It is also included in this report to identify, on a summary basis, the results of the workshop.

The reader is encouraged to visit the third tabbed section of this report entitled ***Study Results*** for a review of the details of the developed alternatives. The tabbed section ***Project Description*** includes information about the project itself and the tabbed section ***Value Engineering Process*** presents the detail process of the Value Engineering Study.

CONCLUSIONS AND RECOMMENDATIONS

During the speculation phase the VE Team identified ***23 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*** remained for further consideration. These Alternative Ideas and Design Suggestions may be found, in their documented form, in the section of this report entitled ***Study Results***. The following ***Summary of Alternatives and Design Suggestions*** coupled with the documentation of the developed alternatives should provide the reader with the information required to fully evaluate the merits of each of the alternatives.

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

SUMMARY OF ALTERNATIVES & DESIGN SUGGESTIONS

PBSJ

Georgia Department of Transportation
STP-065-2(13) - P.I. No. 621490
SR 53 BUS. FROM SR 515/APD TO CR 243/IND. BLVD

Alternative Number	Description of Alternative	Initial Cost Savings
	ROADWAY (RD)	
RD – 1	Use 14' flush median	$1,067,528
RD – 2	Use 12' shoulders in 4-lane section	$1,394,425
RD – 4	Limit work on West Spring Road	$31,058
RD– 5	Utilize more of the R/W on Industrial Blvd.	$493,814
RD – 7	Delete west bound left turn lane at Bryant Street	$313,957
RD – 9	Reduce R/W at Mike Hosley tract	$1,277,856
RD – 14	Extend R/W to SR 515 to accommodate future project	$16,500
RD – 20	Rehabilitate in-lieu of rebuild existing roadway for one way pairs	$127,590
RD – 21	Use single sidewalk on one way pair	$210,754
RD – 22	Relocate eastbound 2 lane to the east adjacent to creek	$155,279
RD – 23	Relocate right turn lane at McDonalds easterly past Pickens Bank, then construct return to McDonalds and other businesses; reduce median as necessary	$1,699,952

Study Results

Study Results

Introduction

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

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

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

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

Cost Calculations

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

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

SUMMARY OF ALTERNATIVES & DESIGN SUGGESTIONS

Georgia Department of Transportation
STP-065-2(13) - P.I. No. 621490
SR 53 BUS. FROM SR 515/APD TO CR 243/IND. BLVD

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Value Analysis Design Alternative

PBSJ

PROJECT: **Georgia Department of Transportation**
STP-065-2 (13) – P.I. No. 621490
Widening of SR 53 – Pickens County

ALTERNATIVE NO.: **RD-1**

DESCRIPTION: **USE 14' FLUSH MEDIAN**

Original Design:

The Original Design proposes the use of a 20' raised median in the 4-lane/two-way section of the project.

Alternative:

The Alternative Design proposes the use of a 14' flush median in the 4-lane section.

Opportunities:

- Reduced R/W cost
- Reduced R/W impacts
- Reduced roadway cost

Risks:

- Less access
- Moderate design effort
- Reduced separation of opposing traffic

Technical Discussion:

The use of a flush median in the 4 lane section will reduce the required R/W and R/W impacts in the areas with significant commercial development. ADT for the design year (2034) is not expected to exceed 25,000 vpd so many negative safety and operational issues associated with 5-lane sections should be minimal.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	$ 29,001,460	$	$ 29,001,460
ALTERNATIVE	$ 27,922,092	$	$ 27,922,092
SAVINGS	$ 1,079,368	$	$ 1,079,368

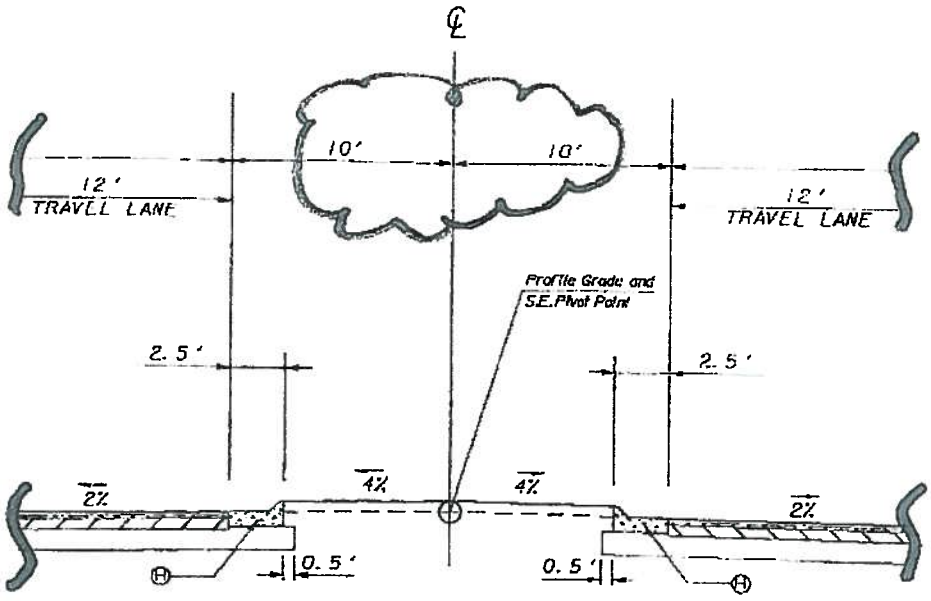
Illustrations

PROJECT: **Georgia Department of Transportation**
STP-065-2 (13) – P.I. No. 621490
Widening of SR 53 – Pickens County

ALTERNATIVE NO.: **RD-1**

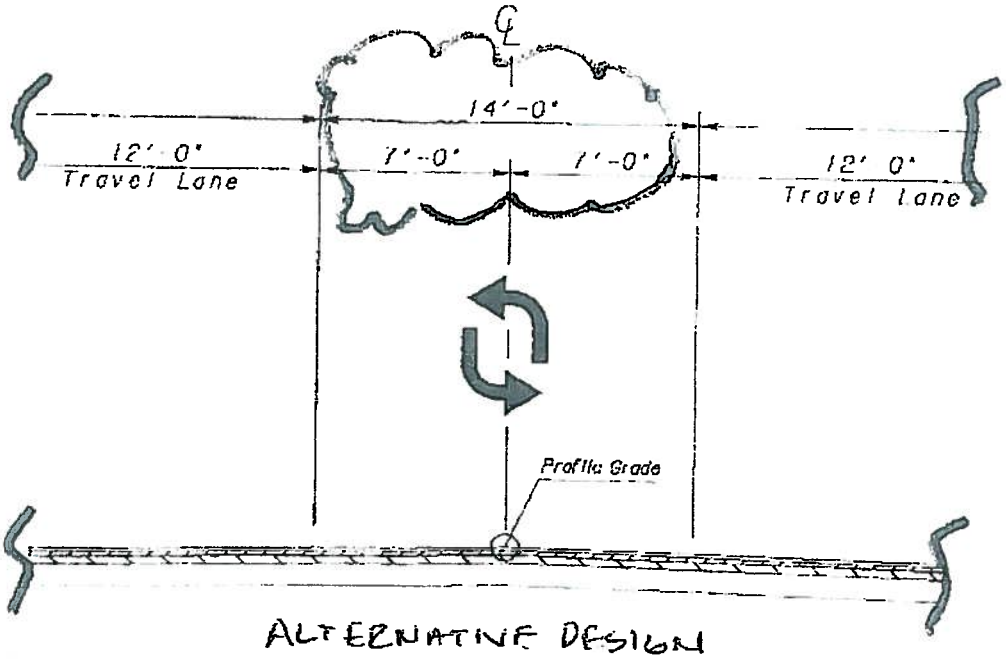
DESCRIPTION: **USE 14' FLUSH MEDIAN**

SHEET NO.: 2 of 4



ORIGINAL DESIGN

NTS



ALTERNATIVE DESIGN

NTS

Roadway Length:
From SR 515 to Summit Street- 5500 lf
Right of Way-
Commercial: Reduction (5500 lf x 6'wide)/(43,560 sf /ac) = 0.76 acres

Net Cost	0.76 ac x $350,000.00/ac =	$ 266,000
Scheduling	55% =	$ 146,300
Administrative	60% =	$ 247,380
Inflation	40% =	$ 263,872
Total	=	$ 923,522

Alternative Cost: $25,521,000 - $923,522 = $24,597,478
Clearing and Grubbing:
(5,500 lf x 6'wide) / (43560sf/ac) = 0.76 ac
Original Cost: $450,000.00 / 14.31 ac => $31,500.00 / ac
Alternative Cost: $450,000 - $23,940 = $426,060
Earthwork:
Original -Assume an average depth of 1.0 feet.
Volume (5,500 lf x 6'wide x 1.0 ft) / (27cf/cy) => 1,220 cy
Paving Area: Assume Superpave-12.5 mm @165#/sy, 19.0 mm @220#/sy &25.0 mm @440#/sy.
Original- 5 median openings 430'x20'= 8600 sf/ (9sf/sy) => 955 sy
8 left turn lanes 8 ea x[250' +((125'+0)/2) x 12'] = 30,000 sf / (9sf/sy) => 3,335 sy
Total- 4,290 sy
12.5 mm Superpave- (4,290 sy) x (165#/sy) / (2000#/ton) => 354 tons
19.0 mm Superpave- (4,290 sy) x (220#/sy) / (2000#/ton) => 472 tons
25.0 mm Superpave- (4,290 sy) x (440#/sy) / (2000#/ton) => 944 tons
Alternative- 14' x 5500 lf = 77,000sf / (9sf/sy) => 8,555 sy
12.5 mm Superpave- (8,555 sy) x (165#/sy) / (2000#/ton) => 706 tons
19.0 mm Superpave- (8,555 sy) x (220#/sy) / (2000#/ton) => 941 tons
25.0 mm Superpave- (8,555 sy) x (440#/sy) / (2000#/ton) => 1,882 tons
Curb & Gutter:
5500lf - 430'(median openings) x 2 each = 10,140 lf
GAB: Assume 12"
Original- [(430'x20')+(10,140 lf x 3') +(8 ea x250' +((125'+0)/2) x 12')] x 1'depth = 69,020 cf
69,020 cf x (135#/cf) / (2,000#/ton) => 4,660 tons
Alternative- 14' x 5500 lf x 1'depth = 77,000 cf
77,000 cf x (135#/cf) / (2,000#/ton) => 5200 tons

COST WORKSHEET

PBSJ

PROJECT: **Georgia Department of Transportation**
STP-065-2 (13) – P.I. No. 621490
Widening of SR 53 – Pickens County

ALTERNATIVE NO.: **RD-1**

DESCRIPTION: **USE 14' FLUSH MEDIAN**

SHEET NO.: 4 of 4

CONSTRUCTION ITEM		ORIGINAL ESTIMATE			PROPOSED ESTIMATE		
ITEM	UNITS	NO. OF UNITS*	COST/ UNIT	TOTAL	NO. OF UNITS	COST/ UNIT	TOTAL
GAB	TN	4,660	$ 18.89	$ 88,027	5200	$ 18.89	$ 98,228
12.5 mm SUPERPAVE	TN	354	$ 70.48	$ 24,950	706	$ 70.48	$ 49,759
19.0 mm SUPERPAVE	TN	472	$ 104.50	$ 49,324	941	$ 104.50	$ 98,335
25.0 mm SUPERPAVE	TN	944	$ 64.38	$ 60,775	1886	$ 64.38	$ 121,421
CURB & GUTTER	LF	10,140	$ 15.91	$ 161,327	0	$ 15.91	$ -
UNCLASSIFIED EXCAVATION	CY	1220	$ 5.21	$ 6,356	0	$ 5.21	$ -
CLEARING & GRUBBING	LS	1	$ 450,000.00	$ 450,000	1	$ 426,060.00	$ 426,060
RIGHT OF WAY	LS	1	$ 25,521,000.00	$ 25,521,000	1	$ 24,597,478.00	$ 24,597,478
				$ -			$ -
				$ -			$ -
				$ -			$ -
				$ -			$ -
				$ -			$ -
				$ -			$ -
				$ -			$ -
				$ -			$ -
				$ -			$ -
				$ -			$ -
Sub-total				$ 26,361,760			$ 25,391,280
Mark-up at 10.00%				$ 2,636,176			$ 2,539,128
TOTAL				**$ 28,997,936**			**$ 27,930,408**
Estimated Savings:							$1,067,528

Value Analysis Design Alternative

PROJECT: **Georgia Department of Transportation**
STP-065-2 (13) – P.I. No. 621490
Widening of SR 53 – Pickens County

ALTERNATIVE NO.: **RD-2**

DESCRIPTION: **USE 12' SHOULDERS IN 4-LANE SECTIONS**

SHEET NO.: 1 of 4

Original Design:

The Original Design proposes the use of 16' urban shoulders in the 4-lane curb and gutter section of the project

Alternative:

The Alternative Design proposes the use of 12' urban shoulders in the 4-lane curb and gutter section of the project.

Opportunities:

- Reduced R/W cost
- Reduced R/W impacts
- Reduced earthwork

Risks:

- Reduced area for utilities
- Moderate design effort
- Reduced separation between pedestrians and traffic

Technical Discussion:

The use of 12' shoulders should be adequate with low speeds and lower volumes and are utilized on the one-way pairs on the remainder of the project.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	$ 28,577,442	$	$ 28,577,442
ALTERNATIVE	$ 27,183,016	$	$ 27,183,016
SAVINGS	$ 1,394,425	$	$ 1,394,425

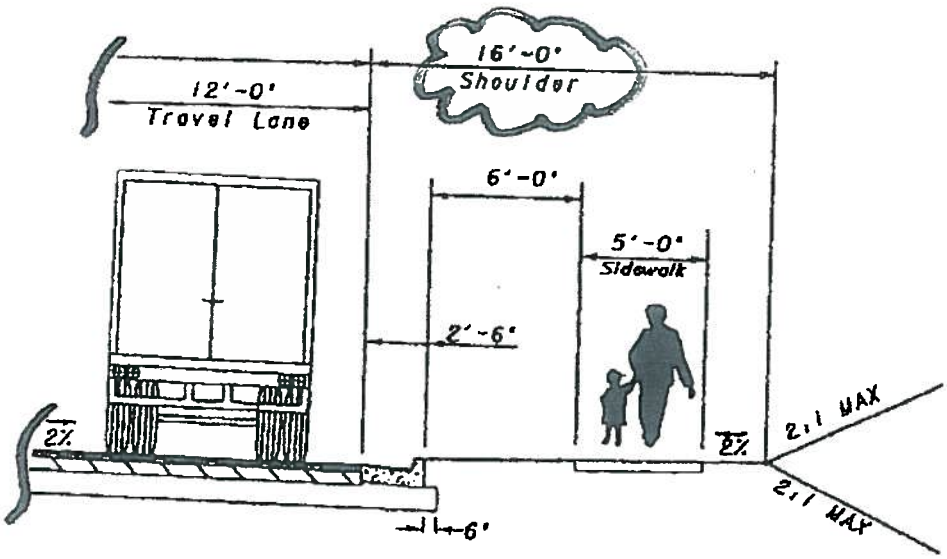
Illustrations

PROJECT: **Georgia Department of Transportation**
STP-065-2 (13) – P.I. No. 621490
Widening of SR 53 – Pickens County

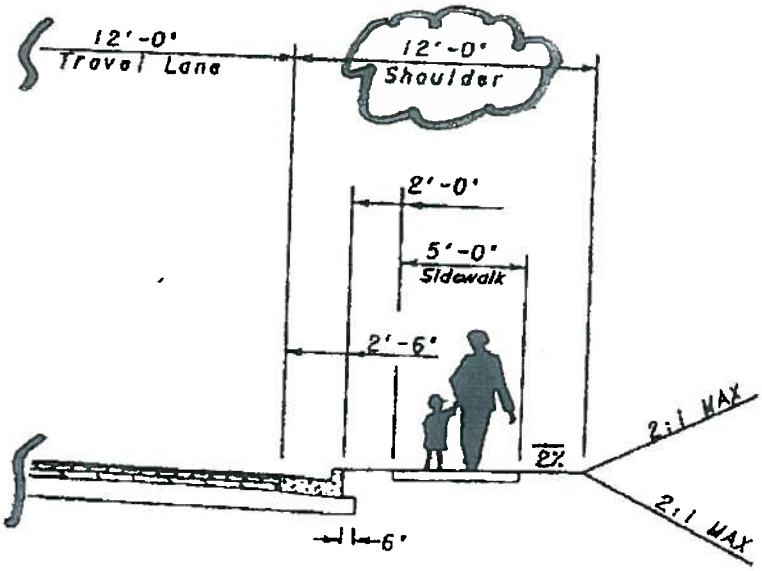
ALTERNATIVE NO.: **RD-2**

DESCRIPTION: **USE 12' SHOULDERS IN 4-LANE SECTIONS**

SHEET NO.: 2 of 4



ORIGINAL DESIGN



ALTERNATIVE DESIGN

Roadway Length:
From SR 515 to Summit Street- 5500 lf

Right of Way-
Commercial: Reduction (5500 lf x 8'wide)/(43,560 sf /ac) = 1.01 acres

Net Cost	1.01 ac x $350,000.00/ac = $	353,500
Scheduling	55% = $	194,425
Administrative	60% = $	328,755
Inflation	40% = $	350,672
Total	= $	1,227,352

Alternative Cost: $25,521,000 - $ 1,227,352 = $24,293,648

Clearing and Grubbing:
(5,500 lf x 8'wide) / (43560sf/ac) = 1.01 ac
Original Cost: $450,000.00 / 14.31 ac => $31,815.00 / ac
Alternative Cost: $450,000 - $31,500 = $418,185

Earthwork:
Original -Assume an average depth of 1.0 feet.
Volume (5,500 lf x 8'wide x 1.0 ft) / (27cf/cy) => 1,630 cy

COST WORKSHEET

PBSJ

PROJECT: **Georgia Department of Transportation**
STP-065-2 (13) – P.I. No. 621490
Widening of SR 53 – Pickens County

ALTERNATIVE NO.: **RD-2**

DESCRIPTION: **USE 12' SHOULDERS IN 4-LANE SECTIONS**

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
				$ -			$ -
UNCLASSIFIED EXCAVATION	CY	1630	$ 5.21	$ 8,492	0	$ 5.21	$ -
CLEARING & GRUBBING	LS	1	$ 450,000.00	$ 450,000	1	$ 418,185.00	$ 418,185
RIGHT OF WAY	LS	1	$ 25,521,000.00	$ 25,521,000	1	$ 24,293,648.00	$ 24,293,648
Sub-total				$ 25,979,492			$ 24,711,833
Mark-up at	**10.00%**			$ 2,597,949			$ 2,471,183
TOTAL				**$ 28,577,442**			**$ 27,183,016**
Estimated Savings:							$1,394,425

Value Analysis Design Alternative

PROJECT: **Georgia Department of Transportation**
STP-065-2 (13) – P.I. No. 621490
Widening of SR 53 – Pickens County

ALTERNATIVE NO.: **RD-4**

DESCRIPTION: **LIMIT WORK ON WEST SPRING ROAD**

SHEET NO.: 1 of 4

Original Design:

The Original Design proposes the reconstruction of West Spring Road to the Jasper Methodist Church parking lot on the east side of the church.

Alternative:

The Alternative Design proposes eliminating the majority of this work and simply re-construct the tie at Holly Street and the church parking lot.

Opportunities:

- Reduce pavement construction

Risks:

- Minimal design effort
- Opposition by the church members

Technical Discussion:

Unless commitments to the church as part of the Right of Way negotiations have been made and were not conveyed to the Value Engineering Design Team, re-construction of 550' of a side street off the project appears to be out of scope and unnecessary.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	$ 31,058	$	$ 31,058
ALTERNATIVE	$ 0	$	$ 0
SAVINGS	$ 31,058	$	$ 31,058

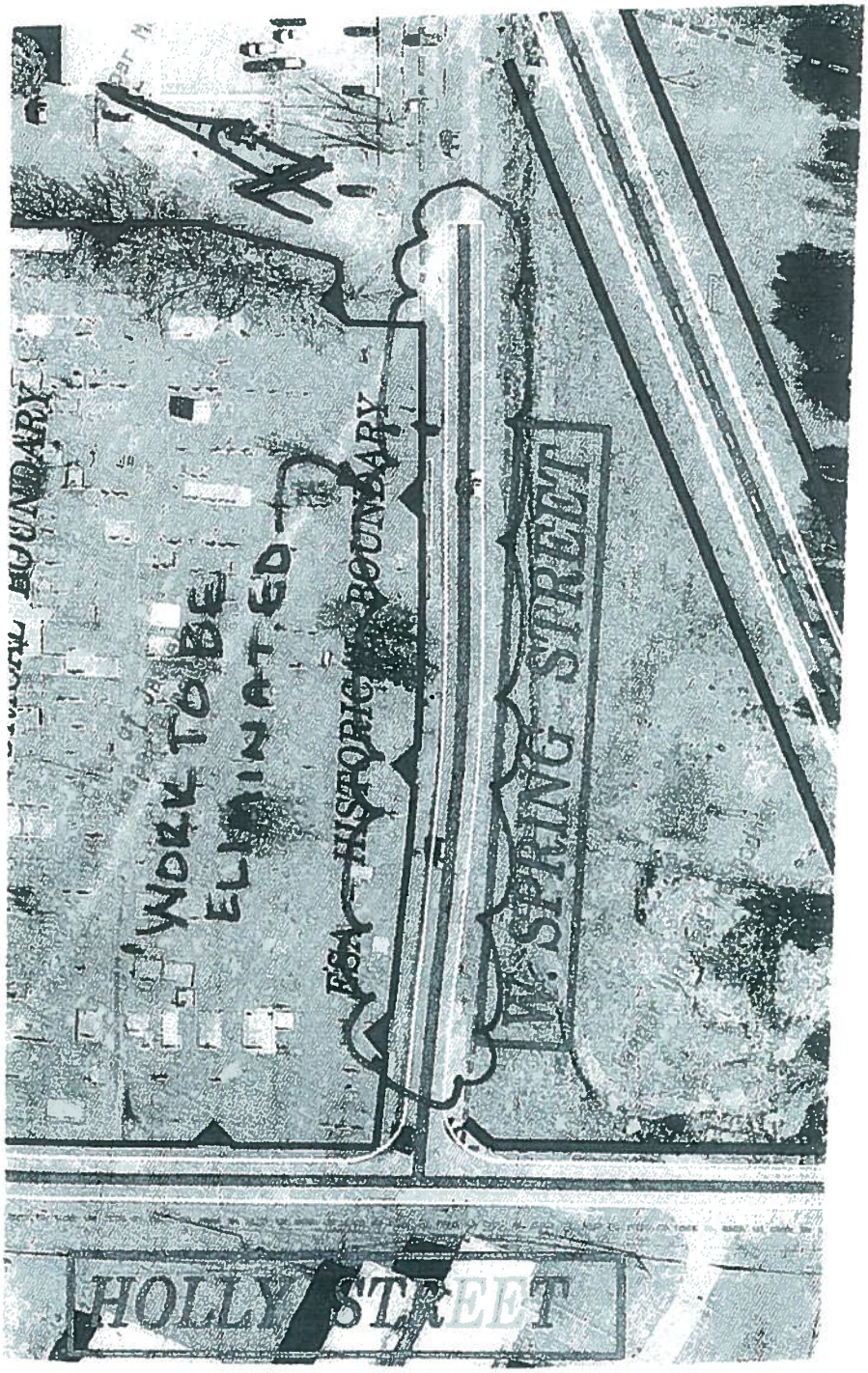
Illustrations

PROJECT: **Georgia Department of Transportation**
STP-065-2 (13) – P.I. No. 621490
Widening of SR 53 – Pickens County

ALTERNATIVE NO.: **RD-4**

DESCRIPTION: **LIMIT WORK ON WEST SPRING ROAD**

SHEET NO.: 2 of 4



Roadway Length:

550 lf

Original Design Paving:

Area of paving: 550 lf x 20 ft = 11,000 sf / 9sf/sy => 1,225 sy
6" GAB-(11,000 sf x 0.5 ft) x (135#/cf) / (2000#/ton) => 371 tons
12.5 mm Superpave- (1,225 sy) x (165#/sy) / (2000#/ton) => 101 tons
19.0 mm Superpave- (1,225sy) x (220#/sy) / (2000#/ton) => 135 tons

COST WORKSHEET

PBSJ

PROJECT: **Georgia Department of Transportation**
STP-065-2 (13) – P.I. No. 621490
Widening of SR 53 – Pickens County

ALTERNATIVE NO.: **RD-4**

DESCRIPTION: **LIMIT WORK ON WEST SPRING ROAD**

SHEET NO.: 4 of 4

CONSTRUCTION ITEM		ORIGINAL ESTIMATE			PROPOSED ESTIMATE		
ITEM	UNITS	NO. OF UNITS*	COST/ UNIT	TOTAL	NO. OF UNITS	COST/ UNIT	TOTAL
GAB	TN	371	$ 18.89	$ 7,008	0	$ 18.89	$ -
12.5 mm SUPERPAVE	TN	101	$ 70.48	$ 7,118	0	$ 70.48	$ -
19.0 mm SUPERPAVE	TN	135	$ 104.50	$ 14,108	0	$ 104.50	$ -
Sub-total				$ 28,234			$ -
Mark-up at	**10.00%**			$ 2,823			$ -
TOTAL				**$ 31,058**			**$ -**

Estimated Savings: $31,058

Value Analysis Design Alternative

PROJECT: **Georgia Department of Transportation**
STP-065-2 (13) – P.I. No. 621490
Widening of SR 53 – Pickens County

ALTERNATIVE NO.: **RD-5**

DESCRIPTION: **UTILIZE MORE OF THE R/W ON INDUSTRIAL BLVD.**

SHEET NO.: 1 of 4

Original Design:

The Original Design proposes utilizing approximately 1,100' of the existing R/W of Industrial Boulevard.

Alternative:

The Alternative Design proposes extending the new one way roadway an additional 350ft - 400 ft along existing Industrial Boulevard.

Opportunities:

- Reduced R/W cost
- Reduced the skew of the Holly Street intersection
- Reduced impacts to the Jasper Methodist Church future parking lot.

Risks:

- Moderate design effort
- Potential 4f issues at the Jasper Middle School

Technical Discussion:

Extending the new eastbound roadway as to utilize more of the existing R/W on Industrial Boulevard will have positive effects with respect to the amount of land acquired but may pose some potential 4f issues. The alignment required to take advantage of the existing right of way will require taking a small "sliver" of property from Jasper Middle School. Since this will not impact any facilities and we already need a corner clip from the School it is anticipated that a letter of concurrence from the school may satisfy any 4f issues.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	$ 28,568,100	$	$ 28,568,100
ALTERNATIVE	$ 28,074,286	$	$ 28,074,286
SAVINGS	$ 493,814	$	$ 493,814

Illustrations

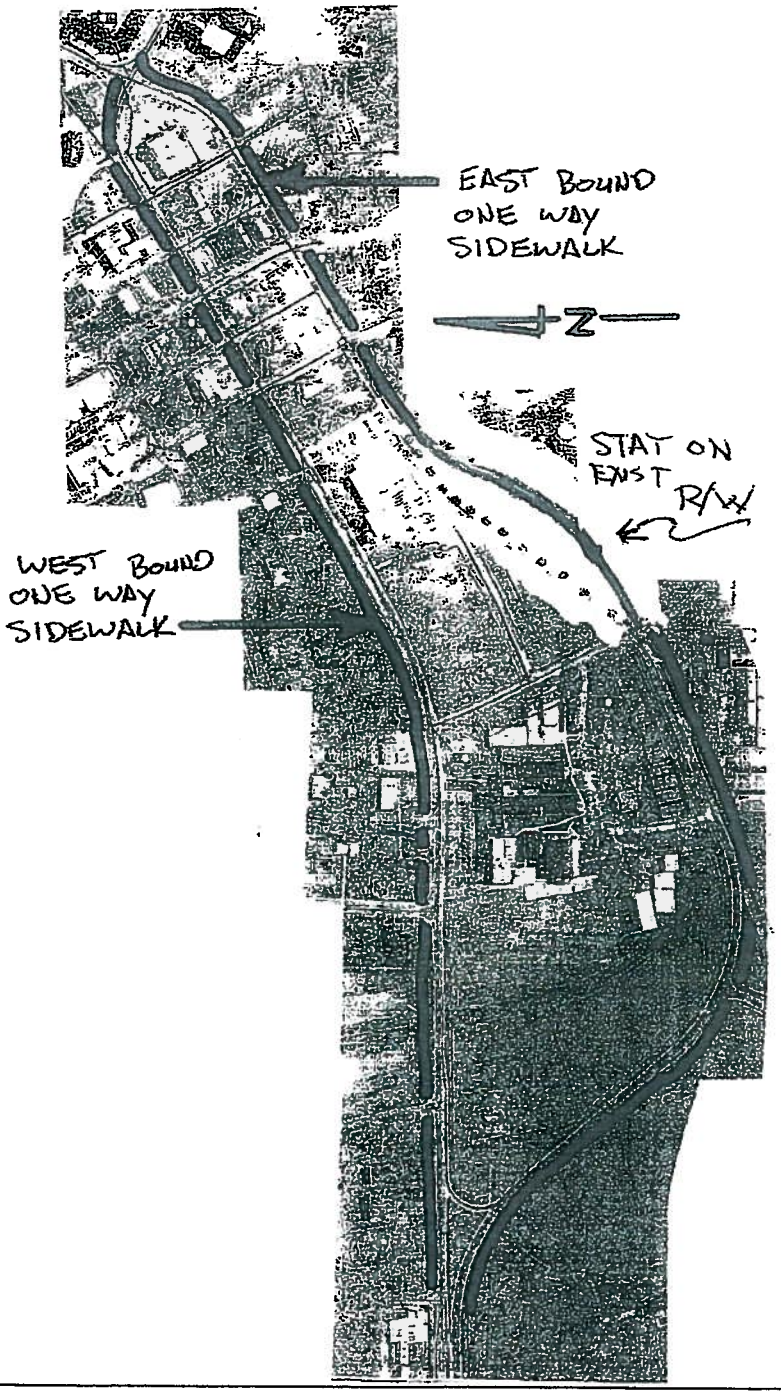
PBSJ

PROJECT: **Georgia Department of Transportation**
STP-065-2 (13) – P.I. No. 621490
Widening of SR 53 – Pickens County

ALTERNATIVE NO.:
RD-5

DESCRIPTION: **UTILIZE MORE OF THE R/W ON INDUSTRIAL BLVD.**

SHEET NO.: 2 of 4



Right of Way-

Commercial: Reduction (350 lf x 45'wide)/(43,560 sf /ac) = 0.36 acres

Net Cost	0.36 ac x $350,000.00/ac = $	126,000
Scheduling	55% = $	69,300
Administrative	60% = $	117,180
Inflation	40% = $	124,992
Total	= $	437,472

Alternative Cost: $25,521,000 - $ 437,472 = $25,083,528

Clearing and Grubbing:

(350 lf x 45'wide) / (43560sf/ac) = 0.36 ac

Original Cost: $450,000.00 / 14.31 ac => $31,815.00 / ac

Alternative Cost: $450,000 - $11,450 = $438,550

COST WORKSHEET

PBSJ

PROJECT: **Georgia Department of Transportation**
STP-065-2 (13) – P.I. No. 621490
Widening of SR 53 – Pickens County

ALTERNATIVE NO.: **RD-5**

DESCRIPTION: **UTILIZE MORE OF THE R/W ON INDUSTRIAL BLVD.**

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
				$ -			$ -
				$ -			$ -
CLEARING & GRUBBING	LS	1	$ 450,000	450,000	1	$ 438,550	$ 438,550
RIGHT OF WAY	LS	1	$ 25,521,000	25,521,000	1	$25,083,528	$ 25,083,528
Sub-total				$ 25,971,000			$ 25,522,078
Mark-up at 10.00%				$ 2,597,100			$ 2,552,208
TOTAL				**$ 28,568,100**			**$ 28,074,286**
Estimated Savings:							$493,814

Design Alternative

PROJECT:	**Georgia Department of Transportation** **STP-065-2 (13) – P.I. No. 621490** **Widening of SR 53 – Pickens County**	ALTERNATIVE NO.:	**RD-7**
DESCRIPTION:	**Delete west bound left at Bryant Street**	SHEET NO.:	1 of 4

Original Design:

The original design has a left turn lane for west bound traffic at Bryant Street. This is for traffic to make u-turns at the beginning of the eastbound one way.

Alternative Design:

Eliminate the left turn lane for west bound traffic at Bryant Street.

Opportunities:

- Reduced R/W needed
- Reduced pavement quantity

Risks:

- Minimal design change
- Drivers on Summit Street, if they wanted to travel east on SR 35 BU would need to drive north to the intersection with Bryant Street then turn south to the intersection at SR 35 BU and make a left hand turn
- Increased median quantity

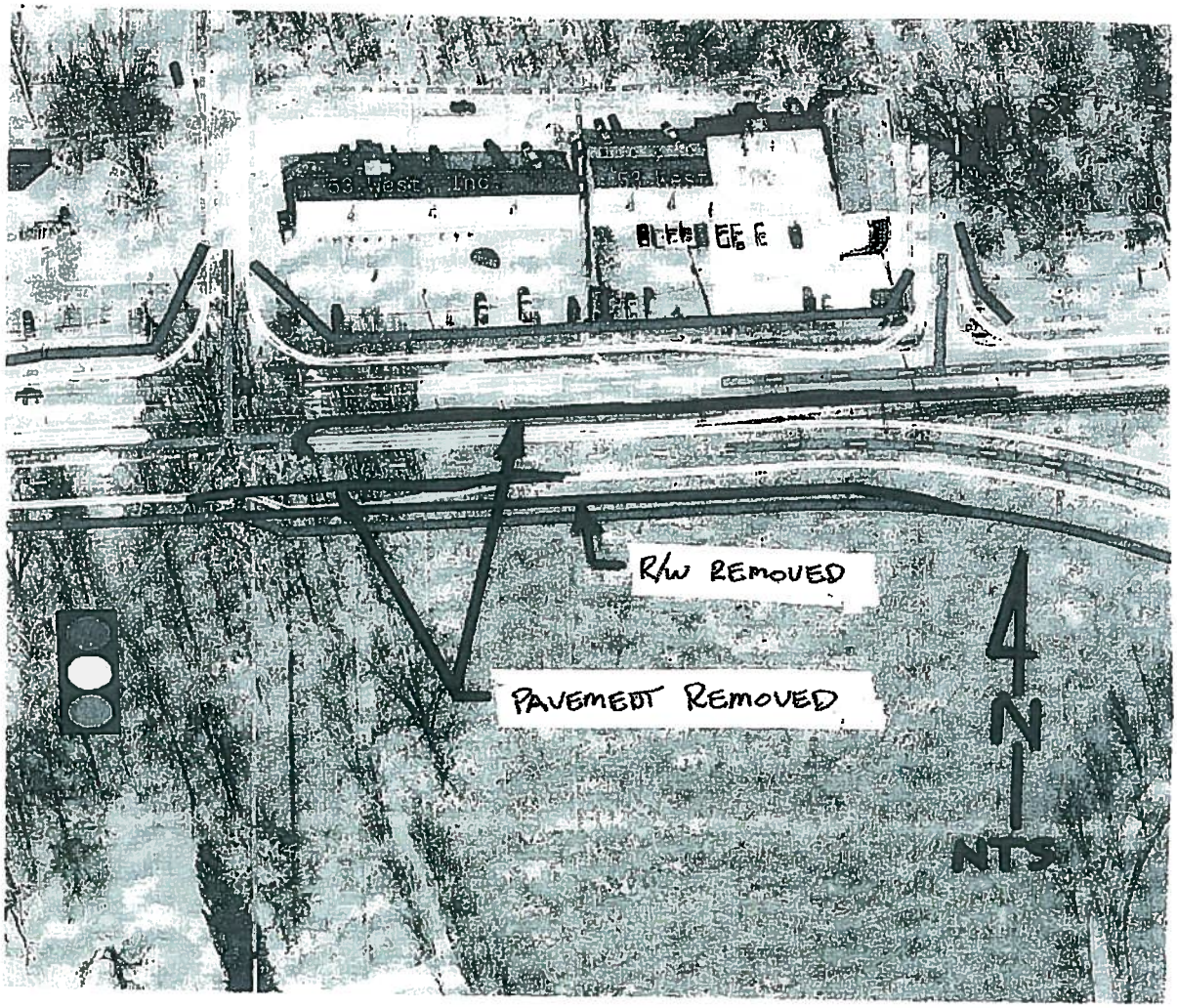
Technical Discussion:

The only west bound traffic that this benefits is traffic turning onto SR 53 BU from Summit Street, 400 feet to the east. West bound traffic to the east of Summit Street would use the left turn exit, 400 feet to the east of Summit Street to access the east bound one way.

Cost Summary	Initial Cost	Present Worth Recurring Costs	Present Worth Life-Cycle Costs
Original Design	$28,267,625	$67	$28,267,692
Alternative Design	$27,953,668	$67	$27,953,735
Savings	$313,957	$0	$313,957

Illustration

PROJECT:	**Georgia Department of Transportation** **STP-065-2 (13) – P.I. No. 621490** **Widening of SR 53 – Pickens County**	ALTERNATIVE NO.:	**RD-7**
DESCRIPTION:	**Delete west bound left at Bryant Street**	SHEET NO.:	2 of 4



Calculations

PBSJ

PROJECT:	**Georgia Department of Transportation** **STP-065-2 (13) – P.I. No. 621490** **Widening of SR 53 – Pickens County**	ALTERNATIVE NO.:	**RD-7**
DESCRIPTION:	**Delete west bound left at Bryant Street**	SHEET NO.:	3 of 4

Location	SF	SY
West bound lane	3930	437
East bound lane	1470	163

Area of Paving = 600 sy or SF = 5,400 SF

Original Design

ITEM	Area (sf) X Depth (ft)			Volum	weight (lbs)/cf		weight
12" GAB	5,400	1.0	=	5,400	135	=	365 tons

ITEM	Area (sf) X	ight (lbs)/sy		Tons
12.5 mm SP	5,400	165	=	446 T
19.0 mm SP	5,400	220	=	594 T
25.0 mm SP	5,400	440	=	1,188 T

ITEM	Length	Width		Area (sy)
7 1/2 IN.	240	5	=	133

From 'Revised Right of Way Cost Estimate' by Mickie McJunkin with Wilber Smith Assoc. dated 7/17/07

Net Cost		$7,350,300
Scheduling Contingency	55%	$4,042,665
Adm/Court Cost	60%	$6,835,779
Inflation Factor	40%	$2,791,497
Total Cost for Right of Way		$25,521,000

Alternative Design

ITEM	Length	Width		Area (s	Cost/SF		Cost
Right of Way	380	10	=	3800	$8.03	=	$30,514

Original Net Cost		$7,350,300
Alternative design deduction		$30,514
Alternative Net Cost		$7,319,786
Scheduling Contingency	55%	$4,025,882
Adm/Court Cost	60%	$6,807,401
Inflation Factor	40%	$7,261,228
Alternative Total Cost for Right of Wa		$25,414,297

ITEM	Area (sf) X Depth (ft)			Volume (cy)
Unclass Excav	6,600	1.5	=	367

Cost Worksheet

PBSJ

PROJECT: **Georgia Department of Transportation**
STP-065-2 (13) – P.I. No. 621490
Widening of SR 53 – Pickens County

ALTERNATIVE NO.: **RD-7**

DESCRIPTION: **Delete west bound left at Bryant Street**

SHEET NO.: 4 of 4

CONSTRUCTION ITEM		ORIGINAL ESTIMATE			PROPOSED ESTIMATE		
ITEM	UNITS	NO. OF UNITS	COST/ UNIT	TOTAL	NO. OF UNITS	COST/ UNIT	TOTAL
RIGHT OF WAY	LS	1	$25,521,000	$25,521,000	1	$25,414,297	$25,414,297
GAB	TN	365	$18.89	$6,885	0	$18.89	$0
12.5 mm SUPERPAVE	TN	446	$70.48	$31,399	0	$70.48	$0
19.0 mm SUPERPAVE	TN	594	$104.50	$62,073	0	$104.50	$0
25.0 mm SUPERPAVE	TN	1,188	$64.38	$76,483	1	$64.38	$39
UNCLASS EXCAV	CY	0	$5.21	$0	367	-$5.21	-1,910
	Sub-total			$25,697,841			$25,412,425
Mark-up at	**10.00%**			$2,569,784			$2,541,243
	TOTAL			**$28,267,625**			**$27,953,668**

Estimated Savings: $313,957

Design Alternative

PROJECT:	**Georgia Department of Transportation** **STP-065-2 (13) – P.I. No. 621490** **Widening of SR 53 – Pickens County**	ALTERNATIVE NO.:	**RD-9**
DESCRIPTION:	**Reduce R/W at Mike Hosley tract**	SHEET NO.:	1 of 4

Original Design:

Original design purchases R/W from the west property line of Mike Hosley tract to the east of the proposed east bound one way from A. W. Lawson.

Alternative Design:

Alternative design is to purchase 80 foot R/W for the proposed east bound one way in this area.

Opportunities:

- Reduction of R/W purchased

Risks:

- Property owner would not have access to property without traveling on roadway R/W on the east side of the proposed one way.
- Minor design effort.

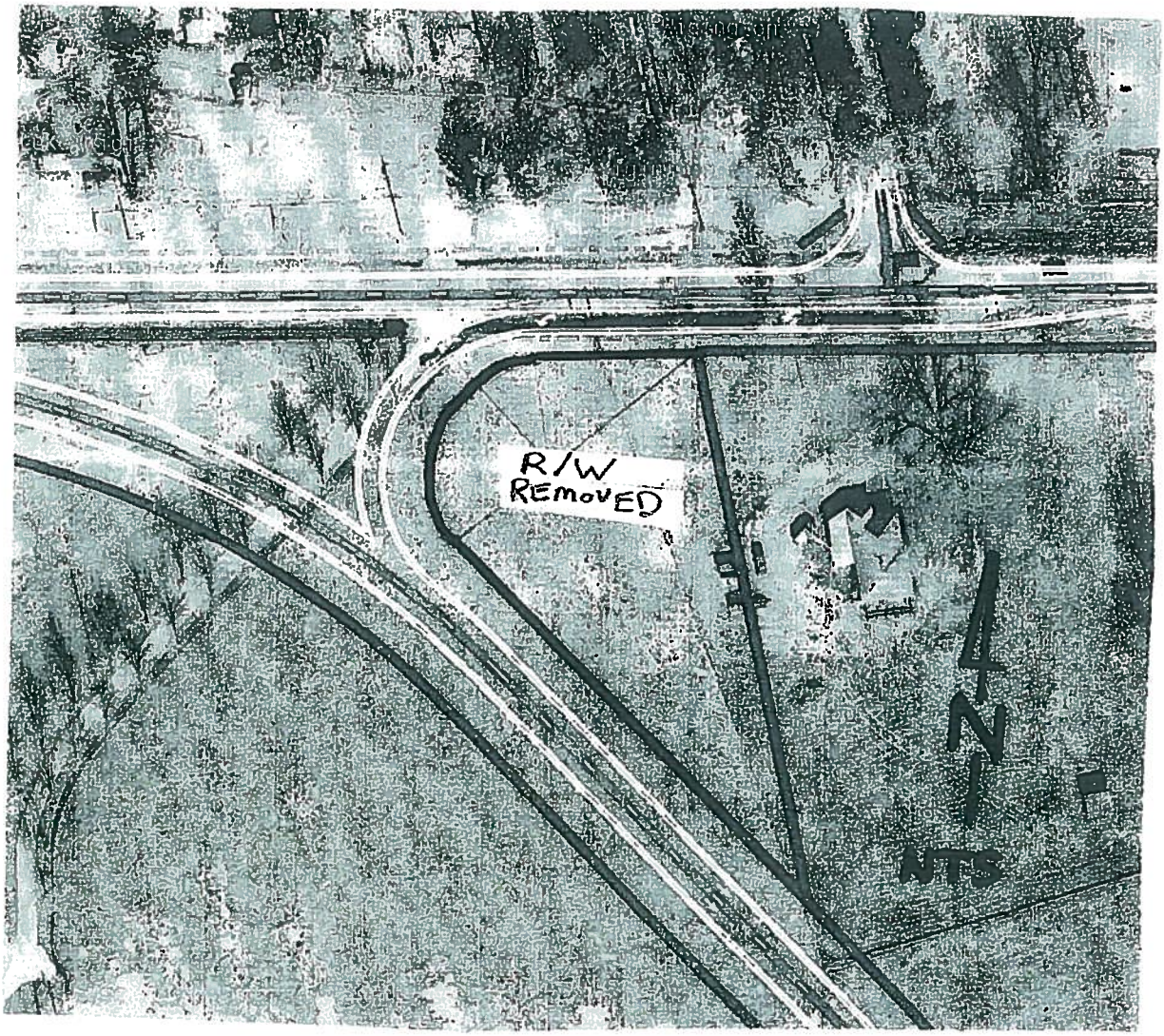
Technical Discussion:

The purchase of this section of R/W appears to be for the connivance of the property owner. It does not appear to be necessary for road construction or maintenance.

Cost Summary	Initial Cost	Present Worth Recurring Costs	Present Worth Life-Cycle Costs
Original Design	$28,073,100	$67	$28,073,167
Alternative Design	$26,795,244	$67	$26,795,311
Savings	$1,277,856	$0	$1,277,856

Illustration

PROJECT:	**Georgia Department of Transportation** **STP-065-2 (13) – P.I. No. 621490** **Widening of SR 53 – Pickens County**	ALTERNATIVE NO.:	**RD-9**
DESCRIPTION:	**Reduce R/W at Mike Hosley tract**	SHEET NO.:	2 of 4



Calculations

PROJECT:	**Georgia Department of Transportation** **STP-065-2 (13) – P.I. No. 621490** **Widening of SR 53 – Pickens County**	ALTERNATIVE NO.:	**RD-9**
DESCRIPTION:	**Reduce R/W at Mike Hosley tract**	SHEET NO.:	3 of 4

East of Mike Hosley tract	Area (sf)
R/W area east	41640

R/W area = 41,640 sf

Original Design

From 'Revised Right of Way Cost Estimate' by Mickie McJunkin with Wilber Smith Associates dated 7/17/07

Net Cost		$7,350,300
Scheduling Contingency	55%	$4,042,665
Adm/Court Cost	60%	$6,835,779
Inflation Factor	40%	$2,791,497
Total Cost for Right of Way		$25,521,000

Alternative Design

ITEM		SF	/SF		
Right of Way reduction	=	41,640	$8.03	=	$334,369.20

Original Net Cost		$7,350,300
Alternative design deduction		$334,369
Alternative Net Cost		$7,015,931
Scheduling Contingency	55%	$3,858,762
Adm/Court Cost	60%	$6,524,816
Inflation Factor	40%	$6,959,804
Alternative Total Cost for Right of Way		$24,359,313

Cost Worksheet

PBS&J

PROJECT: **Georgia Department of Transportation**
STP-065-2 (13) – P.I. No. 621490
Widening of SR 53 – Pickens County

ALTERNATIVE NO.: **RD-9**

DESCRIPTION: **Reduce R/W at Mike Hosley tract**

SHEET NO.: 4 of 4

CONSTRUCTION ITEM		ORIGINAL ESTIMATE			PROPOSED ESTIMATE		
ITEM	UNITS	NO. OF UNITS	COST/ UNIT	TOTAL	NO. OF UNITS	COST/ UNIT	TOTAL
RIGHT OF WAY	SF	1	$25,521,000	$25,521,000	1	$24,359,313	$24,359,313
	Sub-total			$25,521,000			$24,359,313
Mark-up at	**10.00%**			$2,552,100			$2,435,931
	TOTAL			**$28,073,100**			**$26,795,244**
Estimated Savings:							$1,277,856

Value Analysis Design Alternative

PROJECT: **Georgia Department of Transportation**
STP-065-2 (13) – P.I. No. 621490
Widening of SR 53 – Pickens County

ALTERNATIVE NO.: **RD-14**

DESCRIPTION: **EXTEND R/W TO SR-515 TO ACCOMMODATE FUTURE PROJECT**

SHEET NO.: 1 of 4

Original Design:

The Original Design tapers the roadway and the R/W to match the existing roadway.

Alternative:

The Alternative Design proposes tapering the proposed roadway to match the existing roadway but not the right of way.

Opportunities:

- Reduced R/W acquisition cost
- Improved relations with Landowner

Risks:

- Minimal design effort
- Increase in current expenditure

Technical Discussion:

It appears the SR-53 intersection at SR-515 will need to be widened to correct the lane balance for the future project to the west. Acquiring sufficient right of way to accommodate the future project to the west on SR-53 will eliminate having to buy land twice from the same parcel. It will also" protect" the property from development that would be damaged by future acquisitions.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	$ 33,000	$	$ 33,000
ALTERNATIVE	$ 16,500	$	$ 16,500
SAVINGS	$ 16,500	$	$ 16,500

Illustrations

PBSJ

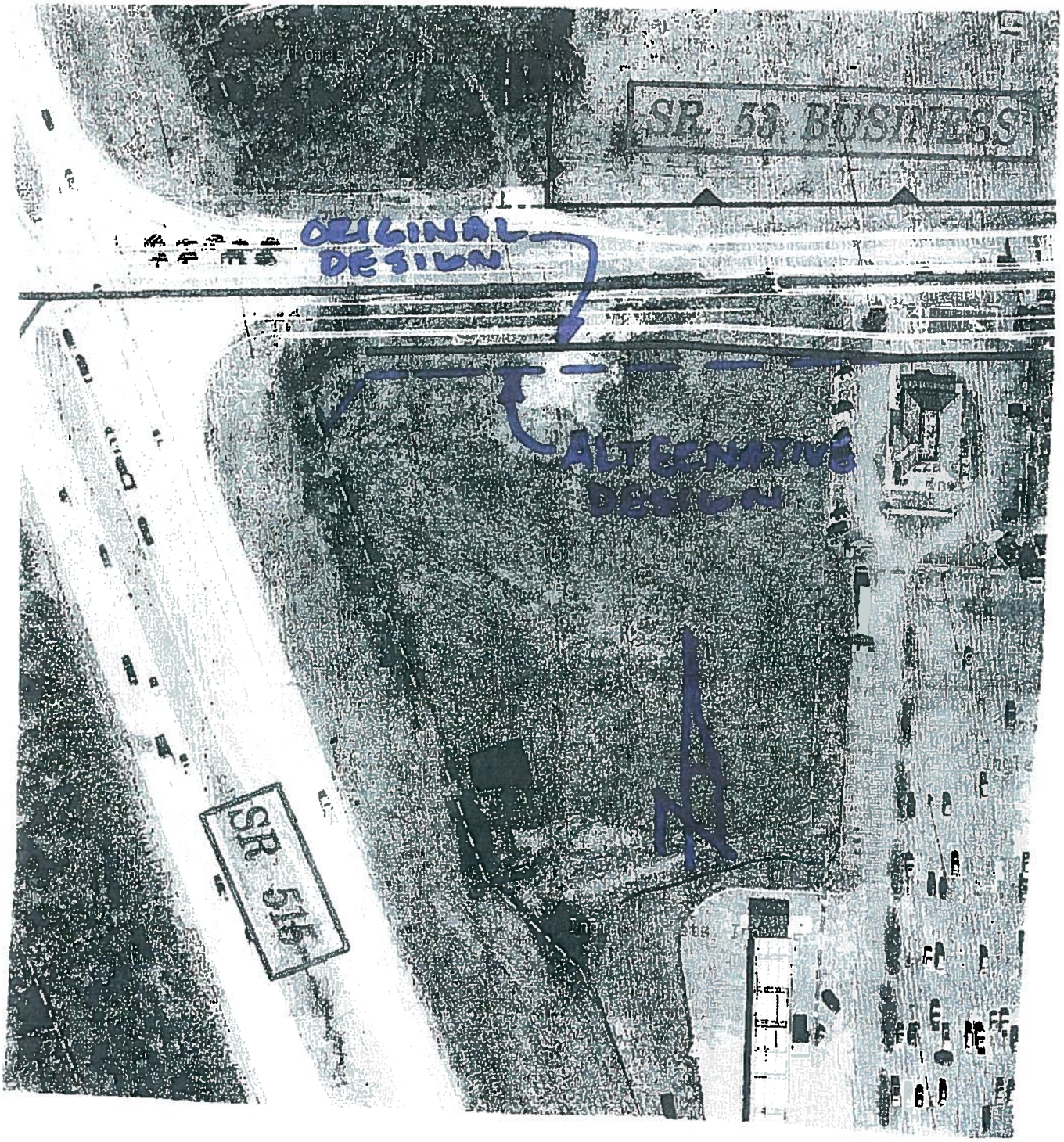
PROJECT: **Georgia Department of Transportation**
STP-065-2 (13) – P.I. No. 621490
Widening of SR 53 – Pickens County

ALTERNATIVE NO.:

RD-14

DESCRIPTION: **EXTEND R/W TO SR-515 TO ACCOMMODATE FUTURE PROJECT**

SHEET NO.: 2 of 4



Right of Way-

Assume any differences between present and future R/W costs are negligible.
Assume an acquisition cost of ~ $15,000/parcel.

COST WORKSHEET

PBSJ

PROJECT: **Georgia Department of Transportation**
STP-065-2 (13) – P.I. No. 621490
Widening of SR 53 – Pickens County

ALTERNATIVE NO.: **RD-14**

DESCRIPTION: **EXTEND R/W TO SR-515 TO ACCOMMODATE FUTURE PROJECT**

SHEET NO.: 4 of 4

CONSTRUCTION ITEM		ORIGINAL ESTIMATE			PROPOSED ESTIMATE		
ITEM	UNITS	NO. OF UNITS*	COST/ UNIT	TOTAL	NO. OF UNITS	COST/ UNIT	TOTAL
RIGHT OF WAY(ACQUISITION)	LS	2	$ 15,000.00	$ 30,000	1	$ 15,000.00	$ 15,000
Sub-total				$ 30,000			$ 15,000
Mark-up at 10.00%				$ 3,000			$ 1,500
TOTAL				**$ 33,000**			**$ 16,500**
Estimated Savings:							$16,500

Design Alternative

PROJECT:	**Georgia Department of Transportation** **STP-065-2 (13) – P.I. No. 621490** **Widening of SR 53 – Pickens County**	ALTERNATIVE NO.:	**RD-20**
DESCRIPTION:	**Resurface and stripe - one way pairs on existing alignment**	SHEET NO.:	1 of 4

Original Design:

The original design appears to be removal and replacement of the existing conc. curb and gutter on the existing roads, in the downtown area, that are being converted into one way roads and placing new 12.5 mm Superpave and new roadway markings.

Alternative Design:

The alternative design recommends leaving the existing conc. curb and gutter in place and placing new 12.5 mm Superpave on the existing pavement with new roadway markings.

Opportunities:

- Minimize construction impact to the historic district

Risks:

- Will not correct any grade or parking problems.

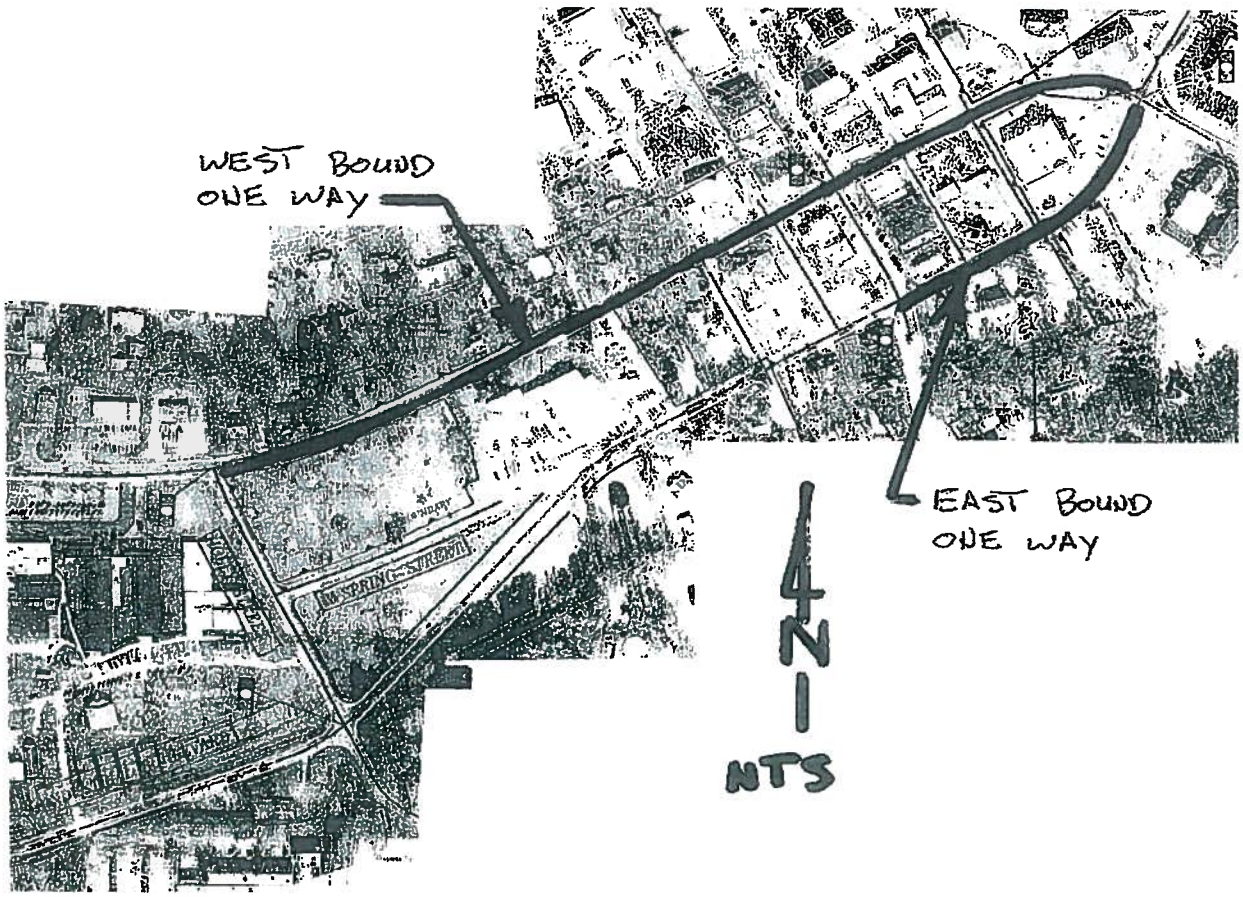
Technical Discussion:

In order to minimize disruption to the downtown "eligible historic district", it is recommended to eliminate as much work as possible. This will reduce detour time in the demolition of the existing conc. curb & gutter and the placement of the new conc. curb & gutter. It is assumed that the quantities of 12.5 mm Superpave and pavement marking are the same for both the Original Design and the Alternative Design. The only differences in quantities is the removal of existing conc. curb & gutter (unclass excav) and placement of new Conc. Curb and Gutter, 6 IN X 30 IN, TP 2 in the Original Design.

Cost Summary	Initial Cost	Present Worth Recurring Costs	Present Worth Life-Cycle Costs
Original Design	$127,590	$67	$127,657
Alternative Design	$0	$67	$67
Savings	$127,590	$0	$127,590

Illustration

PROJECT:	**Georgia Department of Transportation** **STP-065-2 (13) – P.I. No. 621490** **Widening of SR 53 – Pickens County**	ALTERNATIVE NO.:	**RD-20**
DESCRIPTION:	**Resurface and stripe - one way pairs on existing alignment**	SHEET NO.:	2 of 4



Calculations

PROJECT:	Georgia Department of Transportation STP-065-2 (13) – P.I. No. 621490 Widening of SR 53 – Pickens County	ALTERNATIVE NO.:	RD-20
DESCRIPTION:	Resurface and stripe - one way pairs on existing alignment	SHEET NO.:	3 of 4

It is assumed that the quantities of 12.5 mm Superpave and pavement marking are the same for both the Original Design and the Alternative Design. The only differences in quantities is the removal of existing conc. curb & gutter (unclass excav) and placement of new Conc. Curb and Gutter, 6 IN X 30 IN, TP 2 in the Original Design.

Original Design

ITEM

Conc. Curb & Gutter, 6 IN X 30 IN, TP 2	Road LF	Road Sides	Total
East bound one way	2,200	2	4,400
West bound one way	750	2	1,500
		Total	5,900

ITEM	LF x	Area (cf/lf)	Total CY
UNCLASS EXCAV	5,900	1.5	328

Alternative Design

See note above

Cost Worksheet

PBSJ

PROJECT:	Georgia Department of Transportation STP-065-2 (13) – P.I. No. 621490 Widening of SR 53 – Pickens County	ALTERNATIVE NO.:	RD-20
DESCRIPTION:	Resurface and stripe - one way pairs on existing alignment	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
UNCLASS EXCAV	CY	328	$5.21	$1,708	0	$5.21	$0
CONC. CURB & GUTTER	LF	5,900	$19.37	$114,283	0	$19.37	$0
	Sub-total			$115,991			$0
Mark-up at	10.00%			$11,599			$0
	TOTAL			$127,590			$0
Estimated Savings:							$127,590

Design Alternative

PROJECT:	**Georgia Department of Transportation** **STP-065-2 (13) – P.I. No. 621490** **Widening of SR 53 – Pickens County**	ALTERNATIVE NO.:	**RD-21**
DESCRIPTION:	**Use single sidewalk on one way pair**	SHEET NO.:	1 of 4

Original Design:

The original design has 5' wide sidewalks on both sides of the one ways.

Alternative Design:

The alternative design eliminates one side of the 5' wide sidewalk on the one ways.

Opportunities:

- Reduce the quantity of 5' wide sidewalk

Risks:

- Make pedestrian traffic walk on just one side of the one ways.
- Slight design change

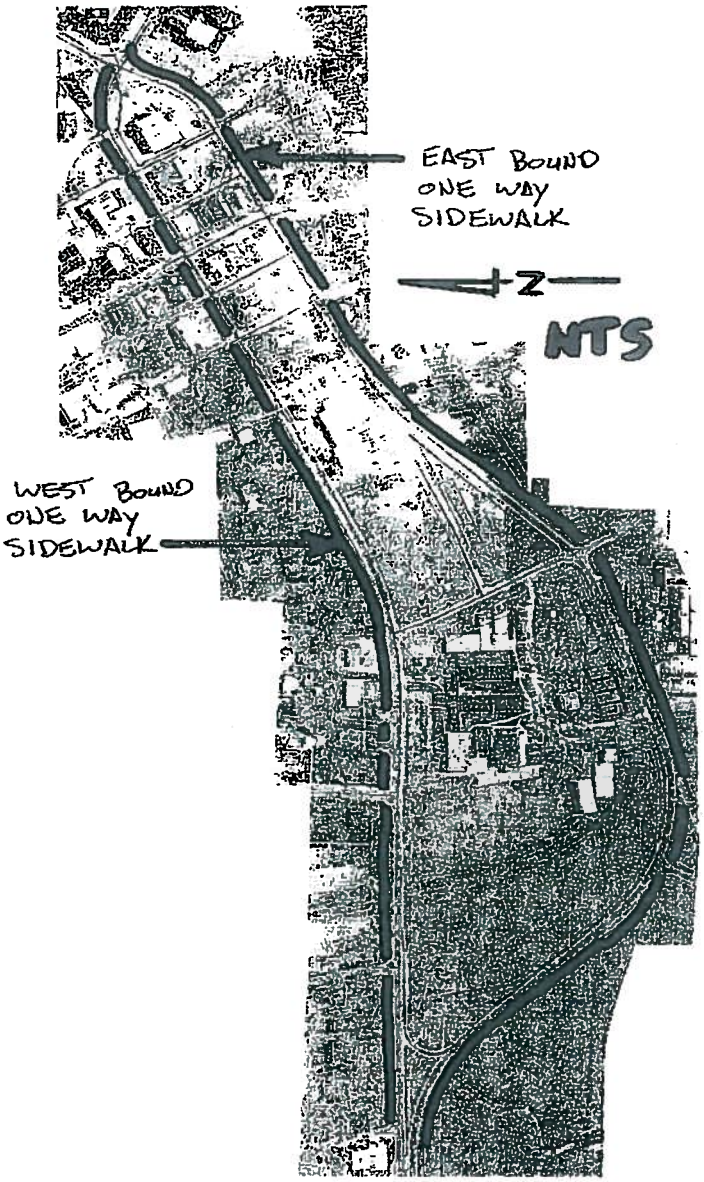
Technical Discussion:

To reduce costs it is recommended to install 5' wide sidewalk on just one side of the one ways. This should have minimal impact on pedestrain traffic. The R/W and shoulder are to remain the original width and at a future time, the other sidewalk could be constructed if so needed.

Cost Summary	Initial Cost	Present Worth Recurring Costs	Present Worth Life-Cycle Costs
Original Design	$780,850		$780,850
Alternative Design	$570,096		$570,096
Savings	$210,754		$210,754

Illustration

PROJECT:	**Georgia Department of Transportation** **STP-065-2 (13) – P.I. No. 621490** **Widening of SR 53 – Pickens County**	ALTERNATIVE NO.:	**RD-21**
DESCRIPTION:	**Use single sidewalk on one way pair**	SHEET NO.:	2 of 4



Calculations

PBSJ

PROJECT:	**Georgia Department of Transportation** **STP-065-2 (13) – P.I. No. 621490** **Widening of SR 53 – Pickens County**	ALTERNATIVE NO.:	**RD-21**
DESCRIPTION:	**Use single sidewalk on one way pair**	SHEET NO.:	3 of 4

	Length	Width (Ft)	SY
East bound one way	4700	5	2,611
West bound one way	3900	5	2,167
	Area of Sidewalk =		4,778 sy

Original Design

ITEM	Length	Width (Ft)	SY
CONC. SIDEWALK, 4 IN.	32040	5	17,800

Alternative Design

ITEM	Length	Width (Ft)	SY	
CONC. SIDEWALK, 4 IN.	32040	5	17,800	Original quantity
	8600	5	4,778	Alternative deduction
			13,022	

ITEM	SY	AC
PERMANENT GRASSING	4,778	0.99

Cost Worksheet

PBS&J

PROJECT: **Georgia Department of Transportation**
STP-065-2 (13) – P.I. No. 621490
Widening of SR 53 – Pickens County

ALTERNATIVE NO.: **RD-21**

DESCRIPTION: **Use single sidewalk on one way pair**

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
CONC. SIDEWALK, 4 IN.	SY	17,800	$39.88	$709,864.00	13,022	$39.88	$519,326.22
PERMANMENT GRASSING	AC				0.99	-$1,070.77	-$1,057
	Sub-total			$709,864			$518,269
Mark-up at	10.00%			$70,986			$51,827
	TOTAL			**$780,850**			**$570,096**
Estimated Savings:							$210,754

Value Analysis Design Alternative

PROJECT: **Georgia Department of Transportation**
STP-065-2 (13) – P.I. No. 621490
Widening of SR 53 – Pickens County

ALTERNATIVE NO.: **RD-22**

DESCRIPTION: **RELOCATE EASTBOUND 2-LANE TO THE EAST, ADJACENT TO THE CREEK**

SHEET NO.: 1 of 4

Original Design:

The Original Design proposes crossing the A.W. Lawson tract at a NW to SE diagonal beginning at Summit Street.

Alternative:

The Alternative Design proposes crossing the Mike Mosley and A.W. Lawson tract at North to South approximately parallel to Town Creek.

Opportunities:

- Eliminate Cattle Crossing
- Reduced earthwork
- Eliminate/reduce unusable R/W parcel
- Eliminate 10' "hump" in the profile grade

Risks:

- Smaller radius curves
- Moderate design effort
- Potential stream impacts

Technical Discussion:

Relocating the alignment of the eastbound one-way roadway will allow the elimination of the Cattle Crossing, significant earthwork to traverse the cattle crossing and reduction in the amount of "unusable" R/W that will be necessary to be acquired. A slightly wider R/W will be required next to Town Creek in order to provide an "environmental/safety buffer" and to protect against scouring, however, this should be more than offset by elimination of the large "unusable tract east of the divergence of the two roadways. Westbound vehicles wanting to u-turn at the end of the on-way section could utilize the "eyebrow" proposed at Bryant Street or if a revised traffic study indicates higher counts a T intersection for u-turning traffic could be built.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	$ 155,279	$	$ 155,279
ALTERNATIVE	$ 0	$	$ 0
SAVINGS	$ 155,279	$	$ 155,279

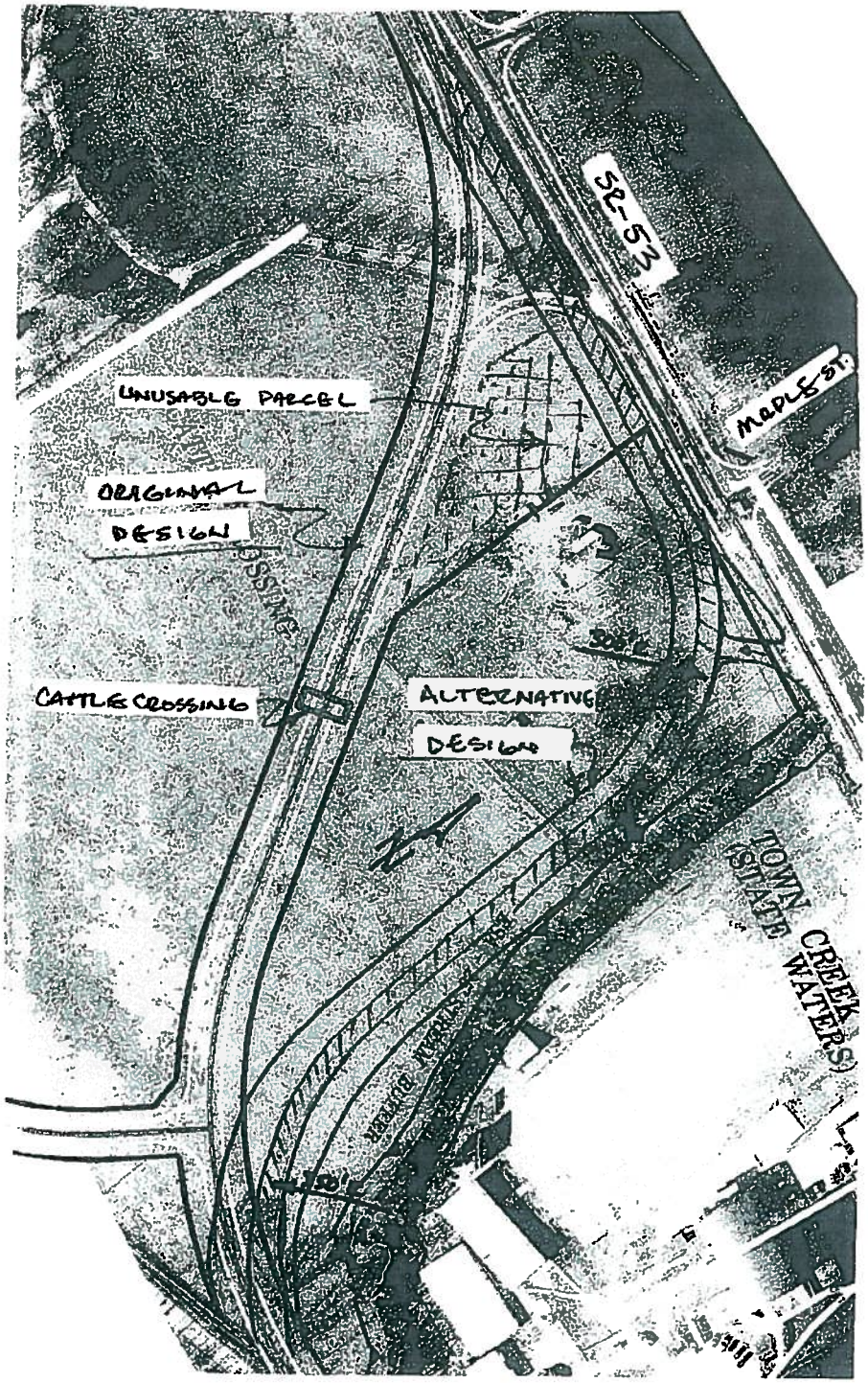
Illustrations

PROJECT: **Georgia Department of Transportation**
STP-065-2 (13) – P.I. No. 621490
Widening of SR 53 – Pickens County

ALTERNATIVE NO.: **RD-22**

DESCRIPTION: **RELOCATE EASTBOUND 2-LANE TO THE EAST, ADJACENT TO THE CREEK**

SHEET NO.: 2 of 4



Cattle Pass:

Assume a 70 lf, 7x7 box with headwalls buried 1' to create a natural bottom-(use GDOT standard #2323)
Concrete- (70 lf x 0.950 cy/lf) + (2 wing walls x 20.89 cy/ea) => 108.3 cy
Steel-(70 lf x 111.2#/lf) + (2 wing walls x 912#/ea) => 9608 lbs

Earthwork:
Original -Assume a 300' approach and 300' departure, 10' fill height and ~3.5% grade
End area @ 10 high => 10' x [(48'+108)/2] = 780 sf
Volume (2 each x 300 lf x[(0 sf +780 sf)/2] / (27cf/cy) => 8,667 cy

COST WORKSHEET

PBSJ

PROJECT: **Georgia Department of Transportation**
STP-065-2 (13) – P.I. No. 621490
Widening of SR 53 – Pickens County

ALTERNATIVE NO.: **RD-22**

DESCRIPTION: **RELOCATE EASTBOUND 2-LANE TO THE EAST, ADJACENT TO THE CREEK**

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
				$ -			$ -
CONCRETE	CY	108	$ 800.00	$ 86,400	0	$ 800.00	$ -
REINFORCING STEEL	LBS	9608	$ 1.00	$ 9,608	0	$ 1.00	$ -
UNCLASSIFIED EXCAVATION	CY	8667	$ 5.21	$ 45,155	0	$ 5.21	$ -
Sub-total				$ 141,163			$ -
Mark-up at	**10.00%**			$ 14,116			$ -
TOTAL				**$ 155,279**			**$ -**
Estimated Savings:							$155,279

Design Alternative

PBS&J

PROJECT:	**Georgia Department of Transportation** **STP-065-2 (13) – P.I. No. 621490** **Widening of SR 53 – Pickens County**	ALTERNATIVE NO.:	**RD – 23**
DESCRIPTION:	**RELOCATE RIGHT TURN LANE AT McDONALDS EASTERLY PAST THE PICKENS BANK SITE, THEN CONSTRUCT A RETURN TO THE BUSINESSES**	SHEET NO.:	1 of 5

Current Design:

The current design proposes to widen the roadway east of the intersection of SR 53 and SR 515 to provide access to the existing restaurants via the existing side entrance to the Ingles shopping center.

Alternative Design:

The alternative design proposes to shift the proposed right turn lane into Ingles further to the east, just past the Pickens Bank Site and constructing a parallel return street back to the Ingles and restaurants, thereby allowing a reduced R/W width resulting in a minimization of the impact of the new roadway to the existing users and most likely a "saving" of those properties rather than a "taking".

Opportunities:

- **Reduced R/W takings, delete signal**
- **Improved safety and operations**
- **Reduce project cost and time**

Risks:

- Minimal re-design effort
- May increase construction time

Technical Discussion:

The current design: deletes the existing access to the McDonalds and the Pizza Restaurant, and requires additional R/W which may significantly impact those two existing restaurants; and creates a new intersection to serve the Ingles shopping center, requiring a signal. Presently the Ingles shopping center's main entrance is on SR 515 and it is planned to remain. By moving the proposed right turn lane and by limiting the proposed new median in this area, the existing properties should be able to remain intact, and safe access to all the users would be met.

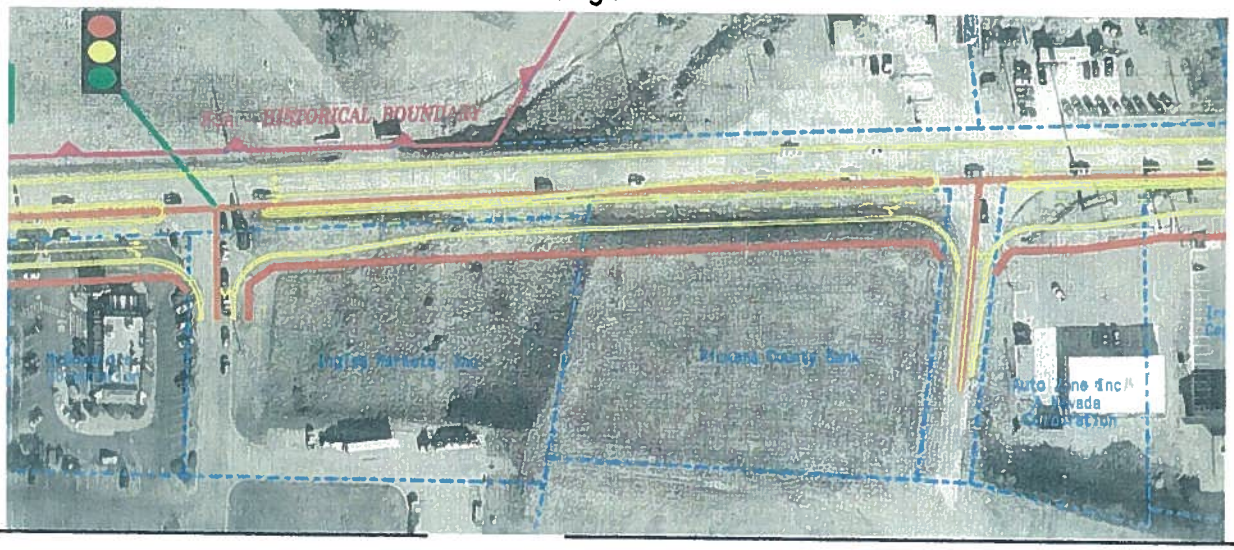
Cost Summary	Initial Cost	Present Worth Recurring Costs	Present Worth Life-Cycle Costs
Original Design	$2,129,975	$0	$2,129,975
Alternative Design	$430,023	$0	$430,023
Savings	$1,699,952	$0	$1,699,952

Illustration

PBSJ

PROJECT:	**Georgia Department of Transportation** **STP-065-2 (13) – P.I. No. 621490** **Widening of SR 53 – Pickens County**	ALTERNATIVE NO.:	**RD – 23**
DESCRIPTION:	**RELOCATE RIGHT TURN LANE AT McDONALDS EASTERLY PAST THE PICKENS BANK SITE, THEN**	SHEET NO.:	2 of 5

Current Design



Illustration

PROJECT:	**Georgia Department of Transportation** **STP-065-2 (13) – P.I. No. 621490** **Widening of SR 53 – Pickens County**	ALTERNATIVE NO.:	**RD – 23**
DESCRIPTION:	**RELOCATE RIGHT TURN LANE AT McDONALDS EASTERLY PAST THE PICKENS BANK SITE, THEN**	SHEET NO.:	3 of 5

Proposed Alternative Development

Calculations

PBS&J

PROJECT:	**Georgia Department of Transportation** **STP-065-2 (13) – P.I. No. 621490** **Widening of SR 53 – Pickens County**	ALTERNATIVE NO.:	**RD – 23**
DESCRIPTION:	**RELOCATE RIGHT TURN LANE AT McDONALDS EASTERLY PAST THE PICKENS BANK SITE, THEN**	SHEET NO.:	4 of 5

Assumptions: The driving force of this idea is to save the impact to existing businesses. It is assumed that the cost for shifting the right turn lane would be the same in either location. The costs will be for an additional 500' of 24' access roadway, and the savings will be R/W

Roadway Length

From	To	Length	Width (Ft)	SY			
Ingles	Bank	500	24	1,333			
		Area of Paving =		1,333 sy		or SF =	12,000 SF

Original Design Consequential and Cost to Cure

Carolina's Pizza	303,729
Mcdonald's	309,743

Alternative Design

ITEM	Area (sf) X Depth (ft)			Volume (cf) >weight (lbs)/cf			weight
6" GAB	12,000	1	=	12,000	135	=	810 tons

ITEM	Area (sf) Xight (lbs)/sy			Tons
12.5 mm SP	12,000	165	=	990 T
19.0 mm SP	12,000	220	=	1,320 T
25.0 mm SP	12,000	440	=	2,640 T

Cost Worksheet

PBSJ

PROJECT: **Georgia Department of Transportation**
STP-065-2 (13) – P.I. No. 621490
Widening of SR 53 – Pickens County

ALTERNATIVE NO.: **RD – 23**

DESCRIPTION: **RELOCATE RIGHT TURN LANE AT McDONALDS EASTERLY PAST THE PICKENS BANK SITE, THEN**

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
GAB	TN	0	$19	$0	810	$19	$15,390
12.5 mm SUPERPAVE	TN	0	$70	$0	990	$70	$69,300
19.0 mm SUPERPAVE	TN	0	$104	$0	1,320	$104	$137,280
25.0 mm SUPERPAVE	TN	0	$64	$0	2,640	$64	$168,960
Carolina's Pizza	LS	1	303,729	$303,729	0	303,729	$0
Mcdonald's	LS	1	309,743	$309,743	0	309,743	$0
Scheduling Contingency	1	55%	613,472	$337,410	0	337,410	$0
Admin/Court Cost	1	60%	950,882	570,529	0	570,529	$0
Inflation Factor	1	40%	1,521,411	608,564	0	608,564	$0
	Sub-total			$2,129,975			$390,930
Mark-up at	**10.00%**			0			$39,093
	TOTAL			**$2,129,975**			**$430,023**
Estimated Savings:							$1,699,952

Project Description

PROJECT DESCRIPTION

Eastern Pickens County is a mixed use area consisting of commercial, residential and industrial land uses with a need for improved east-west connectivity. Project STP-065-2(13) consists of widening and reconstruction of SR 53 Business (BU) in Pickens County. The project begins at the intersection of SR 515 and SR 53 Business (BU) and continues to the intersection of CR 243/Industrial Boulevard and Burnt Mountain Road. The total project distance is approximately 2.6 miles, including a one-way pair section. This project consists of widening SR 53 Business (BU) from the existing two lane facility to four 12-foot lanes with a 20-foot raised median and urban shoulders from the intersection of SR 515 to the intersection of Summit Street. The project continues eastward and splits into one-way pairs with one portion following the existing alignment and the other section following a new location from Summit Street to the intersection of CR 243/Industrial Boulevard and Burnt Mountain Road. The one way pair sections are proposed as two 12-foot lanes in each direction with urban shoulders.

The need for the project is driven by the amount of current traffic and the projected traffic growth in the project area. The purpose of the project is to relieve congestion by widening SR 53 Business (BU) and institute operational improvements at signalized intersections. Current conditions are over saturated with traffic Levels of Service (LOS) of "F". Traffic at these signalized intersections is over design capacity. Future design year 2014 traffic volumes are estimated to be approximately 26,475 Vehicles per Day (VPD) along SR 53 Business (BU) and design year 2034 volumes are expected to increase to approximately 37,725 VPD.

Project STP-065-2(13) will improve the LOS (Level of Service) along the roadway by adding two additional lanes from the intersection of SR 515 to the proposed one way split at the intersection with Summit Street. The proposed improvements will allow each major intersection within the project limits to operate at the design year LOS (Level of Service). This project will also improve vertical sight distance and provide for additional turn lanes, signal upgrades, and pedestrian improvements at intersections. Urban shoulders will be utilized for the entire project length. Pickens County needs improved east-west connectivity through Jasper. This project will serve the need by widening SR 53 Business (BU) and reconfiguring the intersection and facilitating traffic flows to the east of Summit Street.

No significant environmental or displacements were identified during the preliminary evaluation process. However, any known historical sites, cemeteries, or other environmental constraints must be recognized and considered prior to implementation of final design decisions by the GDOT.

For Project STP-065-2(13) the estimated construction cost is $12,539,117. The preliminary ROW acquisition cost is $25,521,000.

REPRESENTATIVE DOCUMENTS

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

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

Representative documents follow:

Estimate Report for file "STP-065-2(13)"

Section Road

Item Number	Quantity	Units	Unit Price	Item Description	Cost
150-1000	Lump	LS	250000.00	TRAFFIC CONTROL - STP-065-2(13)	250000.00
150-5010	2	EA	12228.36	TRAFFIC CONTROL, PORTABLE IMPACT ATTENUATOR	24456.72
153-1300	1	EA	79134.11	FIELD ENGINEERS OFFICE TP 3	79134.11
201-1500	Lump	LS	450000.00	CLEARING & GRUBBING - STP-065-2(13)	450000.00
205-0001	101000	CY	5.21	UNCLASS EXCAV	526210.00
207-0203	200	CY	60.01	FOUND BKFILL MATL, TP II	12002.00
310-1101	65000	TN	18.89	GR AGGR BASE CRS, INCL MATL	1227850.00
318-3000	1000	TN	19.38	AGGR SURF CRS	19380.00
402-1812	1000	TN	65.83	RECYCLED ASPH CONC LEVELING, INCL BITUM MATL & H LIME	65830.00
402-3121	20900	TN	64.38	RECYCLED ASPH CONC 25 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME	1345542.00
402-3130	7900	TN	70.48	RECYCLED ASPH CONC 12.5 MM SUPERPAVE, GP 2 ONLY, INCL BITUM MATL & H LIME	556792.00
402-3192	10500	TN	104.50	RECYCLED ASPH CONC 19 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL	1097250.00
413-1000	6700	GL	2.05	BITUM TACK COAT	13735.00
432-0206	660	SY	1.65	MILL ASPH CONC PVMT, 1 1/2 IN DEPTH	1089.00
441-0014	100	SY	38.47	DRIVEWAY CONCRETE, 4 IN TK	3847.00
441-0104	17800	SY	39.88	CONC SIDEWALK, 4 IN	709864.00
441-0204	100	SY	32.95	PLAIN CONC DITCH PAVING, 4 IN	3295.00
441-0754	7500	SY	50.99	CONCRETE MEDIAN, 7 1/2 IN	382425.00
441-6022	32000	LF	19.37	CONC CURB & GUTTER, 6 IN X 30 IN, TP 2	619840.00
441-6720	9000	LF	15.91	CONC CURB & GUTTER, 6 IN X 30 IN, TP 7	143190.00
446-1100	2500	LF	5.00	PVMT REINF FABRIC STRIPS, TP 2, 18 INCH WIDTH	12500.00
500-3101	680	CY	611.14	CLASS A CONCRETE	415575.20
500-3200	70	CY	391.43	CLASS B CONCRETE	27400.10
511-1000	79900	LB	0.96	BAR REINF STEEL	76704.00
550-1180	1000	LF	42.82	STORM DRAIN PIPE, 18 IN, H 1-10	42820.00
550-1181	8000	LF	44.87	STORM DRAIN PIPE, 18 IN, H 10-15	358960.00
550-1182	4000	LF	73.35	STORM DRAIN PIPE, 18 IN, H 15-20	293400.00
550-1241	2500	LF	61.87	STORM DRAIN PIPE, 24 IN, H 10-15	154675.00
550-1242	1600	LF	61.86	STORM DRAIN PIPE, 24 IN, H 15-20	98976.00
550-1361	200	LF	105.20	STORM DRAIN PIPE, 36 IN, H 10-15	21040.00
550-1482	400	LF	144.48	STORM DRAIN PIPE, 48 IN, H 15-20	57792.00
550-2180	3000	LF	36.98	SIDE DRAIN PIPE, 18 IN, H 1-10	110940.00
550-2182	3500	LF	24.45	SIDE DRAIN PIPE, 18 IN, H 15-20	85575.00
550-3318	10	EA	614.93	SAFETY END SECTION 18 IN, STORM DRAIN, 4:1 SLOPE	6149.30
550-3424	5	EA	766.91	SAFETY END SECTION 24 IN, SIDE DRAIN, 4:1 SLOPE	3834.55
550-4118	60	EA	452.74	FLARED END SECTION 18 IN, SIDE DRAIN	27164.40
550-4136	60	EA	892.00	FLARED END SECTION 36 IN, SIDE DRAIN	53520.00
550-4236	30	EA	1227.33	FLARED END SECTION 36 IN, STORM DRAIN	36819.90
576-1018	1000	LF	32.46	SLOPE DRAIN PIPE, 18 IN	32460.00
603-2018	300	SY	59.31	STN DUMPED RIP RAP, TP 1, 18 IN	17793.00
610-9099	Lump	LS	6889.66	REM WINGWALLS & PARAPETS, STA -	6889.66
620-0200	1300	LF	65.55	TEMPORARY BARRIER, METHOD NO. 2	85215.00
634-1200	264	EA	105.44	RIGHT OF WAY MARKERS	27836.16
641-1200	1300	LF	18.05	GUARDRAIL, TP W	23465.00
641-5001	7	EA	653.72	GUARDRAIL ANCHORAGE, TP 1	4576.04
641-5012	7	EA	1811.86	GUARDRAIL ANCHORAGE, TP 12	12683.02
643-0010	1000	LF	4.96	FIELD FENCE WOVEN WIRE	4960.00
668-1100	160	EA	2891.31	CATCH BASIN, GP 1	462609.60
668-2100	100	EA	4239.62	DROP INLET, GP 1	423962.00
668-5000	10	EA	2267.29	JUNCTION BOX	22672.90
668-6000	2	EA	1658.65	SPRING BOX	3317.30
				Section Sub Total:	**$10,544,016.96**

Section Erosion Control Items

Item Number	Quantity	Units	Unit Price	Item Description	Cost

163-0232	15	AC	726.07	TEMPORARY GRASSING	10891.05
163-0300	5	EA	1518.45	CONSTRUCTION EXIT	7592.25
163-0501	35	EA	838.45	CONSTRUCT AND REMOVE SILT CONTROL GATE, TP 1	29345.75
163-0502	15	EA	698.61	CONSTRUCT AND REMOVE SILT CONTROL GATE, TP 2	10479.15
163-0520	300	LF	17.12	CONSTRUCT AND REMOVE TEMPORARY PIPE SLOPE DRAIN	5136.00
163-0521	1000	EA	211.97	CONSTRUCT AND REMOVE TEMPORARY DITCH CHECKS	211970.00
163-0531	2	EA	7792.46	CONSTRUCT AND REMOVE SEDIMENT BASIN, TP 1, STA NO -	15584.92
165-0010	10000	LF	1.03	MAINTENANCE OF TEMPORARY SILT FENCE, TP A	10300.00
165-0030	1000	LF	1.77	MAINTENANCE OF TEMPORARY SILT FENCE, TP C	1770.00
165-0040	1000	EA	76.69	MAINTENANCE OF EROSION CONTROL CHECKDAMS/DITCH CHECKS	76690.00
165-0060	2	EA	1457.77	MAINTENANCE OF TEMPORARY SEDIMENT BASIN, STA NO -	2915.54
165-0085	35	EA	225.11	MAINTENANCE OF SILT CONTROL GATE, TP 1	7878.85
165-0086	15	EA	109.72	MAINTENANCE OF SILT CONTROL GATE, TP 2	1645.80
165-0101	5	EA	617.94	MAINTENANCE OF CONSTRUCTION EXIT	3089.70
167-1000	2	EA	1334.19	WATER QUALITY MONITORING AND SAMPLING	2668.38
167-1500	2	MO	982.74	WATER QUALITY INSPECTIONS	1965.48
171-0010	10000	LF	2.08	TEMPORARY SILT FENCE, TYPE A	20800.00
171-0030	1000	LF	4.08	TEMPORARY SILT FENCE, TYPE C	4080.00
700-6910	30	AC	1070.77	PERMANENT GRASSING	32123.10
700-7000	60	TN	70.85	AGRICULTURAL LIME	4251.00
700-7010	75	GL	20.69	LIQUID LIME	1551.75
700-8000	30	TN	350.44	FERTILIZER MIXED GRADE	10513.20
700-8100	1500	LB	2.37	FERTILIZER NITROGEN CONTENT	3555.00
700-9300	1000	SY	7.10	SOD	7100.00
702-9020	510	SY	3.62	MULCH	1846.20
710-9000	1000	SY	3.77	PERMANENT SOIL REINFORCING MAT	3770.00
716-2000	1000	SY	1.28	EROSION CONTROL MATS, SLOPES	1280.00
				Section Sub Total:	**$490,793.12**

Section Signing and Marking

Item Number	Quantity	Units	Unit Price	Item Description	Cost
636-1020	2000	SF	15.11	HIGHWAY SIGNS, TP 1 MATL, REFL SHEETING, TP 3	30220.00
636-1031	2200	SF	19.00	HIGHWAY SIGNS, TP 1 MATL, REFL SHEETING TP 6	41800.00
636-2070	600	LF	8.09	GALV STEEL POSTS, TP 7	4854.00
636-2080	10	LF	9.31	GALV STEEL POSTS, TP 8	93.10
636-2090	4	LF	8.65	GALV STEEL POSTS, TP 9	34.60
638-1006	Lump	LS	52000.00	STR SUPPORT FOR OVERHEAD SIGN, TP VI , STA -	52000.00
639-3003	6	EA	8925.33	STEEL STRAIN POLE, TP III	53551.98
639-3004	20	EA	10993.91	STEEL STRAIN POLE, TP IV	219878.20
652-0210	8	EA	64.50	PAVEMENT MARKING, WORD, TP 1	516.00
653-0110	30	EA	72.57	THERMOPLASTIC PVMT MARKING, ARROW, TP 1	2177.10
653-0120	100	EA	72.77	THERMOPLASTIC PVMT MARKING, ARROW, TP 2	7277.00
653-1501	45000	LF	0.69	THERMOPLASTIC SOLID TRAF STRIPE, 5 IN, WHITE	31050.00
653-1502	48000	LF	0.65	THERMOPLASTIC SOLID TRAF STRIPE, 5 IN, YELLOW	31200.00
653-1704	2200	LF	4.19	THERMOPLASTIC SOLID TRAF STRIPE, 24 IN, WHITE	9218.00
653-1804	7000	LF	2.11	THERMOPLASTIC SOLID TRAF STRIPE, 8 IN, WHITE	14770.00
653-3501	20000	GLF	0.56	THERMOPLASTIC SKIP TRAF STRIPE, 5 IN, WHITE	11200.00
653-6004	1800	SY	2.84	THERMOPLASTIC TRAF STRIPING, WHITE	5112.00
653-6006	200	SY	3.06	THERMOPLASTIC TRAF STRIPING, YELLOW	612.00

654-1001	2000	EA	3.12	RAISED PVMT MARKERS TP 1	6240.00
654-1003	2200	EA	3.66	RAISED PVMT MARKERS TP 3	8052.00
654-1010	2200	EA	38.10	RAISED PVMT MARKERS TP 10	83820.00
				Section Sub Total:	**$613,675.98**

Section Traffic Signal Items

Item Number	Quantity	Units	Unit Price	Item Description	Cost
615-1200	1600	LF	11.19	DIRECTIONAL BORE - 6 in.	17904.00
639-3004	5	EA	10993.91	STEEL STRAIN POLE, TP IV	54969.55
639-4004	20	EA	7226.82	STRAIN POLE, TP IV	144536.40
647-1000	Lump	LS	65000.00	TRAFFIC SIGNAL INSTALLATION NO - 1	65000.00
647-1000	Lump	LS	80000.00	TRAFFIC SIGNAL INSTALLATION NO - 2	80000.00
647-1000	Lump	LS	80000.00	TRAFFIC SIGNAL INSTALLATION NO - 3	80000.00
647-1000	Lump	LS	80000.00	TRAFFIC SIGNAL INSTALLATION NO - 4	80000.00
647-1000	Lump	LS	80000.00	TRAFFIC SIGNAL INSTALLATION NO - 5	80000.00
647-1000	Lump	LS	80000.00	TRAFFIC SIGNAL INSTALLATION NO - 6	80000.00
647-1000	Lump	LS	80000.00	TRAFFIC SIGNAL INSTALLATION NO - 7	80000.00
647-1000	Lump	LS	80000.00	TRAFFIC SIGNAL INSTALLATION NO - 8	80000.00
647-2150	25	EA	1826.20	PULL BOX, PB-5	45655.00
647-2170	2	EA	1282.99	PULL BOX, PB-7	2565.98
				Section Sub Total:	**$890,630.93**

Total Estimated Cost: $12,539,116.99

Subtotal Construction Cost	**$12,539,116.99**
E&C Rate 10.0 %	$1,253,911.70
Inflation Rate 0.0 % @ 0.0 Years	$0.00
Total Construction Cost	**$13,793,028.69**
Right Of Way	$25,521,000.00
ReImb. Utilities	$1,281,000.00
Grand Total Project Cost	**$40,595,028.69**

Department of Transportation
State of Georgia

Interdepartmental Correspondence

FILE	Preliminary R/W Cost Estimate	**OFFICE**	R/W
		DATE	July 24, 2007
FROM	Phil Copeland, Right of Way Administrator		
TO	Mickie McJunkin Wilbur Smith Associates		

SUBJECT **Preliminary Right of Way Cost Estimate**
Project: STP-065-2(13)
P.I. No.:621490
Description: SR 53 from SR 515 APD to CR 243 / Industrial Blvd.

Per your request, we have reviewed the Preliminary Right of Way Cost Estimate on the above referenced project.

Please note the Cost Estimate does conform to our current guidelines.

If you have any questions, please contact Jerry Milligan at District 7 Right of Way Office at (770) 986-1541.

PC:GAM
Attachments
Cc: Wes Brock, Chief of Appraisal & Review
File

Revised Right of Way Cost Estimate

Date:	July 17, 2007 - **REVISED**		
Project:	STP-065-2(13) Pickens	**P.I. Number:**	621490
Existing/Required R/W:	Varies/Varies	**No.Parcels:**	39
Project Termini:	SR 53 from SR 515/APD to CR 243/Industrial Boulevard		
Project Description:	Widening with a 20' Concrete Median		

Land:

Commercial

Required R/W	13.77 Ac X $ 350,000	= $ 4,819,500
Permanent Easement	0.536 Ac X $ 350,000 X .50	= $ 93,800
Total		= **$ 4,913,300**

Improvements:

3 Commercial Buildings (and out buildings), 1 church, 2 houses, 1 mobile home, curbing, paving, signs, light fixtures, fencing, trade fixtures and site improvements

$ 1,682,000

Relocation:

3 Commercial Displacees @ $ 25,000 / parcel = $ 75,000

$ 75,000

Damages:

Consequential - 2 Parcels	$ 500,000		
Cost To Cure - 5 Parcels	$ 180,000		
		$ 680,000	
			$ 7,350,300

Net Cost		$ 7,350,300
Scheduling Contingency	55 %	$ 4,042,665
Adm/Court Cost	60 %	$ 6,835,779
Inflation Factor	40 %	$ 7,291,497
		$ 25,520,241

Total Cost $ 25,521,000

Prepared By : Mickie McJunkin 7-17-07
Wilbur Smith Associates

Approved : Jerry Milligan
GDOT R/W

COST ESIMATE BACKUP

PROJECT: **SR 53 - PICKENS**

Parcel Owner	Req'd R/W SF	*Perm Ease SF	H&B Use	Unit Value ($SF)	R/W Value ($)	Improv Affected	Improv Value	Damages Or Cost to Cure	Total ($)
INGLES	13137	0	*C	8.03	105,490				105,490
CAROLINA PIZZA	6691	0	C	8.03	53,729			CONSEQ. $250K	303,729
MCDONALDS	7440	0	C	8.03	59,743			CONSEQ. $250K	309,743
INGLES 2	17006	0	C	8.03	136,558				136,558
PICKENS BANK	18039	0	C	8.03	144,853				144,853
AUTOZONE	8634	0	C	8.03	69,331				69,331
INNOVATIVE CAPITOL	9771	0	C	8.03	78,461			PARKING 30K	108,461
E. OF INNOVATIVE CAPITOL	4079	0	C	8.03	32,754				32,754
BURGER KING	15357	0	C	8.03	123,317				123,317
COMMUNITY BANK	11695	2502	C	8.03	103,957			PARKING $50K	153,957
W. 53RD LLC	9100	13557	C	8.03	127,504				127,504
BW 1206 N. LLC	4220	457	C	8.03	35,722				35,722
GENEVA EVANS	0	752	C	8.03	3,019				3,019
MELBA REYNOLDS	51976	0	C	8.03	417,367				417,367
RAYMOND TILLEY *RELOCATION	20301	4714	C	8.03		1100 sf res. 12'x64' MH 4000 sf metal bldg	$150K $100K $400K		646,944

COST ESIMATE BACKUP – Pg 2

PROJECT: **SR 53 - PICKENS**

Parcel Owner	Req'd R/W SF	*Perm Ease SF	H&B Use	Unit Value ($SF)	R/W Value ($)	Improv Affected	Improv Value	Damages Or Cost to Cure	Total ($)
HAROLD TOWERY	0	173	C	8.03	695				695
DEER PARK TABERNACLE RELOCATION	45283	1155	C	8.03	393,259	2 bldgs – 4500 sf	$900K		1,168,25
ANIL YADIV	1623	199	C	8.03	13,832				13,832
GORDON RD LLC	3071	0	C	8.03	24,660				24,660
DOLGENCORP INC	2098	0	C	8.03	16,847				16,847
BROCK SUPPLY CO. RELOCATION	45302	0	C	8.03	363,775	4500 sf bldg Storage bldgs	$343K $100K		740,775
ELIZABETH BROCK	3052	0	C	8.03	24,508				24,508
FORREST HAMM	765	0	C	8.03	6,143				6,143
AL LAWSON	16864	0	C	8.03	135,418				135,418
E. OF LAWSON	7856	0	C	8.03	63,084				63,084
DENNEY KELLER INVEST.	2478	0	C	8.03	19,898				19,898
53 WEST, INC	3425	0	C	8.03	27,503			PARKING $25K	52,503
53 WEST, INC	2243	0	C	8.03	18,011			PARKING $25K	43,011
A.W. LAWSON	228,871	0	C	8.03	1,837,834				1,837,83
LUKE WIGINGTON #12	720	0	C	8.03	5,782				5,782
MIKE MOSLEY	3969	0	C	8.03	31,871				31,871
LUKE WIGINGTON #530	348	0	C	8.03	2,794				2,794
PICKENS COUNTY	289	0	C	8.03	2,321				2,321
DELBERT THOMAS	318	0	C	8.03	2,554				2,554

COST ESTIMATE BACKUP – Pg 3

PROJECT: **SR 53 - PICKENS**

Parcel Owner	Req'd R/W SF	*Perm Ease SF	H&B Use	Unit Value ($SF)	R/W Value ($)	Improv Affected	Improv Value	Damages Or Cost to Cure	Total ($)
CHARLES PAYNE	624	0	C	8.03	5,011				5,011
JASPER MIDDLE SCHOOL	506	0	C	8.03	4,063				4,063
KIDS AHEAD INC	879	0	C	8.03	7,058				7,058
JASPER UNITED METHODIST	51378	0	C	8.03	412,565			$50K TO REMAINDER	462,565
A.W LAWSON	3853	0	C	8.03	30,940				30,940

Relocation adds $25K per parcel
C=Commercial
Permanent Easement valued at 50% FMV or Unit Value

Pickens County Land Sales

Highest & Best Use	Size (acres)	Value/ac	Sales price
Commercial	1Ac	$363,000	$363,000
	0.952Ac	$285,000	$285,000
	3.48 Ac	$287,356	$1,000,000
	28.3 Ac	$40,636	$1,150,000

07-17-07

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA
OFFICE OF URBAN DESIGN

PROJECT CONCEPT REPORT

STP-065-2(13)
Pickens County
P. I. Number: 621490

Federal Route Number: N/A
State Route Number: SR 53 Business

SR 53 Business from SR 515/APD to CR 243/Industrial Boulevard

Recommendation for approval:

DATE _____ _____
Project Manager

DATE _____ _____
State Program Delivery & Consultant Design Engineer

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

DATE_____ _____
State Transportation Planning Administrator

DATE_____ _____
State Transportation Financial Management Administrator

DATE_____ _____
State Environmental/Location Engineer

DATE_____ _____
State Traffic Safety and Design Engineer

DATE_____ _____
District 6 Engineer

DATE_____ _____
Project Review Engineer

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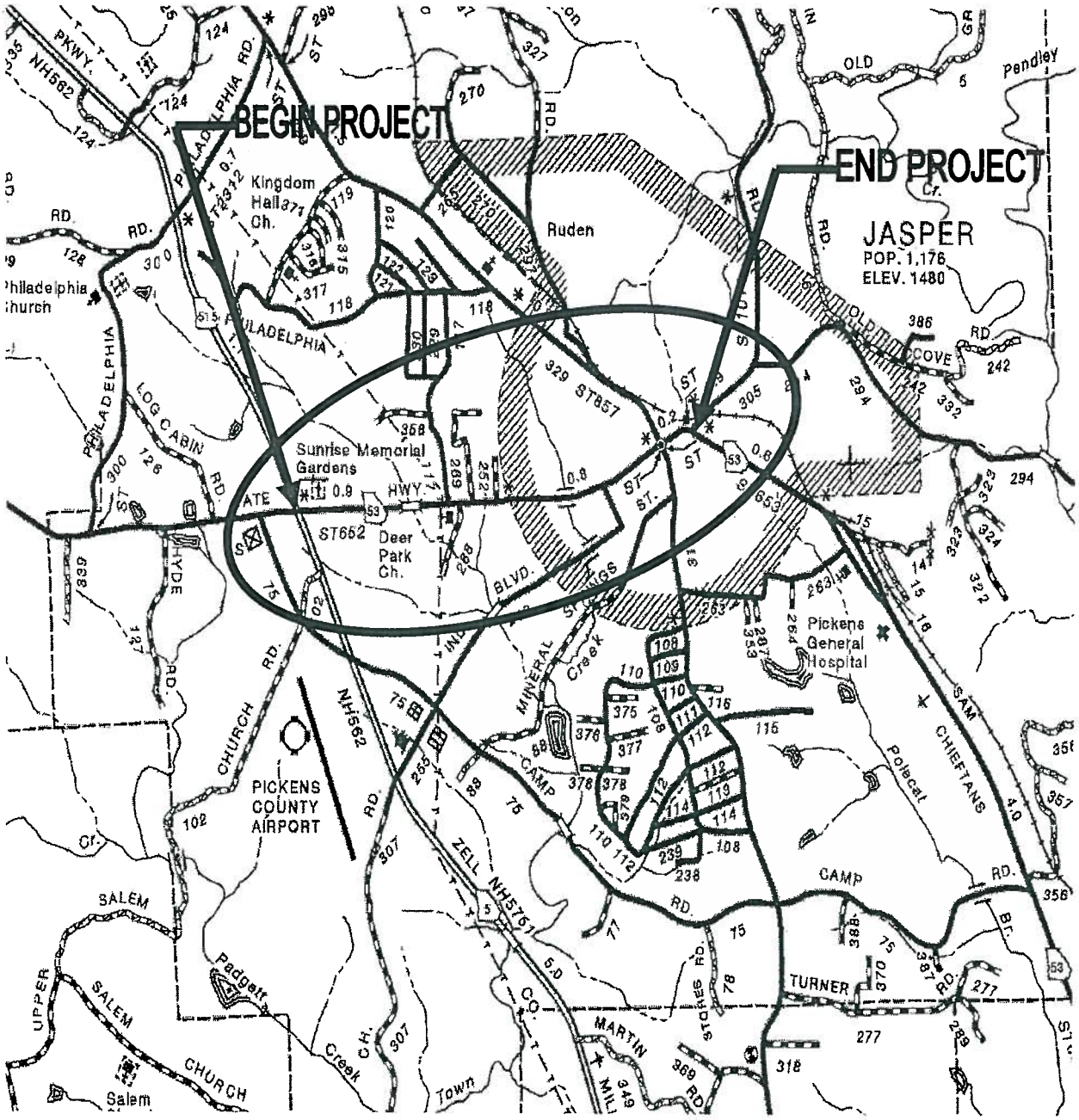

Location Map

Project: STP-065-2(13), Pickens Co., P.I. No. 621490

Description: SR 53 Business from SR 515/APD to CR 243/Industrial Boulevard

Need and Purpose: Eastern Pickens County is a mixed use area consisting of commercial, residential and industrial land uses with a need for improved east-west connectivity. Project STP-065-2(13) consists of the widening and reconstruction of SR 53 Business (BU) in Pickens County. The project begins at the intersection of SR 515 and SR 53 BU and continues to the intersection of CR 243/Industrial Boulevard and Burnt Mountain Road. The total project distance is approximately 2.6 miles, including a one-way pair section. The project consists of widening SR 53 BU from the existing two lane facility to four 12-foot lanes with a 20-foot raised median and urban shoulders from the intersection of SR 515 to the intersection of Summit Street. The project continues eastward and splits into one-way pairs with one portion following the existing alignment and the other section following a new location from Summit Street to the intersection of CR 243/Industrial Boulevard and Burnt Mountain Road. The one way pair sections are proposed as two 12-foot lanes in each direction with urban shoulders.

The need for the project is driven by the amount of current traffic and the projected traffic growth in the project area. The purpose of the project is to relieve congestion by widening SR 53 BU and institute operational improvements at signalized intersections. Several years ago, this route was re-designated from SR 53 to SR 53 Business to lower the amount of truck traffic entering downtown Jasper. Although truck traffic is down 1% since the change in designation, actual truck traffic numbers have increased for single unit trucks. Current conditions are over saturated with traffic Levels of Service (LOS) of F, failing. Each of the signalized intersections and most of the stop controlled intersections are currently over design capacity. Traffic approach delays under existing conditions result in failing arterial LOS as well as failing intersection LOS at all of the signalized intersections within Jasper, especially at SR 53 BU and Main Street. Stopped time delay studies, measuring the average stopped delay per vehicle per approach at SR 53 BU at Main Street, SR 53 BU at SR 515, and Main Street at Spring Street substantiated these delay times. Traffic at these signalized intersections is over design capacity. Future design year 2014 traffic volumes are estimated to be approximately 26,475 Vehicles per Day (VPD) along SR 53 BU and design year 2034 volumes are expected to increase to approximately 37,725 VPD.

Existing traffic (2007) for the SR 53 BU corridor is 16,200 VPD with 6% truck traffic. These existing volumes create current Arterial Levels of Service of: a LOS of F from SR 515 to the access drive for the Ingles shopping complex, a LOS of D from the Ingles drive to Holly Street, a LOS of F from Holly Street to Main Street, and a LOS of F from Main Street to the proposed end of the project at Burnt Mountain Road. Also, these traffic numbers result in Approach LOS of F at most of the major intersection approaches. This results in over-capacity conditions at all of the signalized intersections and at most of the stop controlled intersections. Specifically, traffic conditions are currently failing at all of the signalized intersections within Jasper, especially at the SR 53 BU at Main Street intersection, with LOS of F at all approaches. Stopped time delay studies, measuring the average stopped delay per vehicle per approach at SR 53 BU at Main Street, SR 53 BU at SR 515, and Main Street at Spring Street revealed significant travel time delays. Future design year 2014 traffic volumes are estimated to be approximately 26,475 VPD along SR 53 BU and design year 2034 volumes are expected to increase to approximately 37,725 VPD. Maintaining the existing roadway footprint and intersection controls ("No-Build") will result in both Design (2014) and Future (2034) traffic conditions with an Arterial LOS of F along all corridors within the project limits, and Approach LOS of F at all approaches to the major intersections within the project limits.
The number of crashes for this section of State Route 53 BU in Pickens County has increased drastically over the last few years. In 2006 there were 58 crashes with 13 injuries giving a crash rate of 805.85 (crashes/100MVM) which is above the statewide average of 529. In 2005 there were 21

crashes with 13 injuries giving a crash rate of 254.61 (crashes/100MVM) which is above the statewide average of 253. Previous years had crash rates significantly lower which did not exceed the state wide average. From 2000-2006 there was one fatal crash on the route. The crashes are occurring most frequently at State Route 515, Gordon Road, East Street and Burnt Mountain Road. Secondary needs for the project include the implementation of pedestrian improvements, such as proposed sidewalk along both sides of SR 53 BU throughout the entire project, and pedestrian crosswalks with wheelchair ramps, pedestrian LED signal heads and push buttons compliant with ADA regulations at all signalized intersections. The Traffic Study also found that five (5) additional stop and go signals will be warranted within the project limits. The proposed location of the new stop and go signals are at the intersections of: SR 53 BU with the Ingles shopping complex access drive, SR 53 BU with Bryant Street, at both the eastbound and westbound intersections of SR 53 BU with Holly Street, and at the eastbound intersection of SR 53 BU with Main Street. This project is not on the Statewide Bicycle and Pedestrian Plan.

A cemetery limits conventional road widening of SR 53 BU on the west side of Jasper near SR 515. SR 53 BU cannot conceivably be widened through downtown Jasper without extensive right of way (ROW) impacts. As such, widening to a 4 lane divided highway with 12-foot lanes with a 20-foot raised median and urban shoulders to just west of Holly Street, and then going to separated one way east/westbound pairs is the current envisioned concept. The eastbound pairs are conceptualized to follow CR243/Industrial Boulevard's alignment loosely with a deviation across an open pasture between SR 53 BU and CR 243/Industrial Boulevard. The one way pairs were planned to minimize impacts to the eligible historic cemeteries and buildings that are adjacent to SR 53 BU as it nears downtown Jasper. Existing stop and go signals at SR 515 at SR 53 BU, SR 53 BU at Main Street, SR 53 BU at Burnt Mountain Road/Spring Street and at SR 53 BU at Mountainside Drive/Sammy McGee Road would be upgraded and a stop and go signal at the future SR 53 BU eastbound one way pair and Main Street is proposed (per recommendations in the concept) to be added as part of this project. Logical termini include SR 515 to the west (a major north south four lane divided roadway) and Burnt Mountain Road to the east. The proposed one way pair section through downtown Jasper has been conceptualized to end at the Burnt Mountain Road intersection (see attached diagram). These termini were chosen as the logical termini for the proposed roadway improvements since SR 515 (western termini) is a major multilane north/south transportation facility and Burnt Mountain Road (the eastern termini) is a two lane major connector to SR 136 to the north and is also the beginning/ending point for the proposed one way pair roadway section through Jasper. Existing traffic along SR 53 Business at the eastern termini is 14,663 AADT, while existing traffic on SR 53 Business at the western termini is 16904 AADT.

Project STP-065-2(13) will improve the LOS along the roadway by adding two additional lanes from the intersection of SR 515 to the proposed one way split at the intersection with Summit Street. The proposed improvements will allow each major intersection within the project limits to operate at the design year LOS. Project STP-065-2(13) will also improve vertical sight distance and provide for additional turn lanes, signal upgrades, and pedestrian improvements at intersections. Urban shoulders will be utilized for the entire project length. Pickens County needs improved east-west connectivity through Jasper. Project STP-065-2(13) will serve this need by widening SR 53 BU and reconfiguring the intersection and facilitating traffic flows to the east of Summit Street.

This project was originally programmed by GDOT in the early 1990s due to commercial growth in the area. Other projects in the area include the following:

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- **PI 0007931**, Widening and Reconstruction of SR 53 from 0.5 miles east of SR 136 connector to SR 515, CSSTP-0007-00(931)
- **PI 0006062**, Intersection Improvements at SR 53 at Mary Street and Holly Street, CSSTP-0006-00(062)
- **PI 0007665**, Widening and Reconstruction of SR 53 FM 0.25 miles south of CR 305/Burnt Mountain Road to CR 75/Camp Road, CSSTP-0007-00(665)

Description of the proposed project: This project is the widening and reconstruction of S.R. 53 Business (BU) in Pickens County. The project begins at the intersection of SR 515 and SR 53 BU and continues to the intersection of CR 243/Industrial Boulevard and Burnt Mountain Road. The total project distance is approximately 2.6 miles, including a one-way pair section. The project consists of widening SR 53 BU from the existing two lane facility to four 12-foot lanes with a 20-foot raised median and urban shoulders from the intersection of SR 515 to the intersection of Summit Street. The project continues eastward and splits into one-way pairs with one portion following the existing alignment and the other section on new location from Summit Street to the intersection of CR 243/Industrial Boulevard and Burnt Mountain Road. The one-way pair sections are proposed as two 12-foot lanes in each direction with urban shoulders.

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

PDP Classification: Major __X__ Minor ____

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

Functional Classification: SR 53 BU.....Rural Principal Arterial

U. S. Route Number(s) ___N/A___ **State Route Number:** __53 BU__

Traffic (AADT):

Roadway	Base Year: (2014)	Design Year: (2034)
SR 53 BU	26,475	37,725

Existing design features:

- Typical Sections: SR 53 BU consists of one 12-foot lane in each direction with variable width rural shoulders.

-

Roadway	Posted Speed	Min. Radius	Max. SE
SR 53 BU (from SR 515 to Bryant St.)	45 mph	10859 ft	4%
SR 53 BU (from Holly St. into downtown Jasper)	30 mph	250 ft	4%

- Maximum grade: 7.6% mainline, 11% sideroads, 10% driveways

- Width of right of way: Varies 50 ft. - 80 ft.

- Major structures:
  - Culverts: Existing triple barrel 6 X 6 culvert, existing 6 X 8 culvert

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- Major interchanges or intersections along the project: SR 53 BU at SR 515

- Existing Roadway Length: 1.82 miles

- Mile Point Reference:
  SR 53 BU (Pickens County).....MP 0.00 (SR 515) to MP 1.82 (Burnt Mount Road)

Proposed Design Features:
Proposed typical sections: Four 12-foot lanes with a 20-foot raised median and urban shoulders from the intersection of SR 515 to the intersection of Summit Street. The one-way pair sections are proposed as two 12-foot lanes in each direction with urban shoulders.

Roadway	Design Speed	Max. Grade	Max. Grade Allowable	Min. Radius	Allowable Min. Radius
SR 53 BU (SR 515 to Bryant St.)	45 mph	6.0%	6.0%	10859'	711'
SR 53 BU (Holly St. to Jasper)	30 mph	6.0%	6.0%	250'	250'

- Maximum Grade Side Streets: 11% Maximum Grade Allowable: 15%

- Maximum Grade Driveways: 11%

- Right of way : varies 50' to 470'

  - Easements: Temporary (X), Permanent (X), Utility ( ), Other ( ).
  - Type of access control: Full ( ), Partial ( ), By Permit (X), Other ( )
  - Number of parcels: 42
    Number of displacements:
    - Business: 2
    - Residences: 1
    - Mobile homes: None
    - Other: None

- Structures:
  - Bridges: None Anticipated
  - Culverts: The existing culvert will be extended to accommodate the widening.
  - Retaining Walls – Gravity walls may be utilized at various locations to minimize impacts to adjacent properties

- Major intersections and interchanges: SR 53 BU at SR 515

- Traffic control during construction: Staged construction with temporary lane closures. Any temporary lane closures will be structured to minimize disruption to traffic flow.

- Design Exceptions to controlling criteria anticipated:

	UNDETERMINED	YES	NO
HORIZONTAL ALIGNMENT:	( )	( )	(x)
ROADWAY WIDTH:	( )	( )	(x)
SHOULDER WIDTH:	( )	( )	(x)
VERTICAL GRADES:	( )	( )	(x)
CROSS SLOPES:	( )	( )	(x)

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STOPPING SIGHT DISTANCE:	( )	( )	(x)
SUPERELEVATION RATES:	( )	( )	(x)
HORIZONTAL CLEARANCE:	( )	( )	(x)
SPEED DESIGN:	( )	( )	(x)
VERTICAL CLEARANCE:	( )	( )	(x)
BRIDGE WIDTH:	( )	( )	(x)
BRIDGE STRUCTURAL CAPACITY:	( )	( )	(x)

- Design Variances: None Anticipated

- Environmental concerns:

  History:
  - There are no known previously recorded historic buildings in the immediate vicinity of the widening.
    - Eligible Historic Properties: -Downtown Jasper Historic District
      - Jasper United Methodist Cemetery
      - Railroad just east of intersection of SR 53 BU and Burnt Mountain Road, but outside project limits

  Archaeology:
  - There are no known previously recorded archaeological sites within the proposed widening.

  UST/Hazardous Waste Site:
  - There are 5 potential UST sites located along the project corridor.

  Natural Resources:
  - Surveys for suitable habitat for protected mussels and fish were conducted on 7/24/07 in 3 streams located on the project. No federally protected mussels or fish were collected or observed during the surveys.

  Permits:
  - It is anticipated that a nationwide permit will be required due to potential impacts to two streams (Town Creek and a tributary to Town Creek).

- Level of environmental analysis:
  - Are Time Savings Procedures appropriate? Yes ( ), No (X),
  - Categorical Exclusion ( ),
  - Environmental Assessment/Finding of No Significant Impact (X) FONSI (), or
  - Environmental Impact Statement (EIS) ( ).

- Utility involvements:
  - Atlanta Gas Light
  - Windstream Communications
  - Amicalola EMC
  - Ellijay Telephone
  - Georgia Power

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- City of Jasper Water

VE Study Required Yes (X), No ( )

Project responsibilities:

o Design:	Consultant Designer
o Right of Way Acquisition:	Consultant Designer
o Relocation of Utilities:	GDOT
o Letting to contract:	GDOT Contracts Office
o Supervision of construction:	GDOT Construction Office
o Providing material pits:	Contractor
o Providing detours:	Consultant Designer

Coordination

- Initial Concept Meeting: 7/30/07
- Concept meeting date and brief summary.
- P. A. R. Meetings: Not Required. It is anticipated that a nationwide permit will be required.
- FEMA, USCG, and/or TVA
- Public involvement: PIOH held 10/18/07 and Public Hearing to be held after Draft EA
- Local government comments:
- Other projects in the area:
  - **PI 0007931**, Widening and Reconstruction of SR 53 from 0.5 miles east of SR 136 connector to SR 515, CSSTP-0007-00(931)
  - **PI 0006062**, Intersection Improvements at SR 53 at Mary Street and Holly Street, CSSTP-0006-00(062)
  - **PI 0007665**, Widening and Reconstruction of SR 53 FM 0.25 miles south of CR 305/Burnt Mountain Road to CR 75/Camp Road, CSSTP-0007-00(665)
- Railroads: Railroad just east of intersection of SR 53 BU and Burnt Mountain Road, but outside project limits
- Other coordination to date: Meeting with public officials 2/28/07 & 6/22/07 (minutes attached)

Scheduling – Responsible Parties' Estimate

- Time to complete the environmental process: 15 Months.
- Time to complete preliminary construction plans: 17 Months.
- Time to complete right of way plans: 2 Months.
- Time to complete the Section 404 Permit: 3 Months.
- Time to complete final construction plans: 20 Months.
- Time to complete to purchase right of way: 17 Months.
- List other major items that will affect the project schedule: N/A Months.

Other alternates considered:

1. Widen existing SR 53 BU to four lanes with a 20-foot raised median from SR 515 to the intersection of Summit Street, with one-way pairs from Summit Street to the intersection of CR 243/Industrial Boulevard and Burnt Mountain Road.
2. Widen existing SR 53 BU to four lanes with a 20-foot raised median from SR 515 to Burnt Mountain Road.

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3. No Build.

Comments:

Comparison of Alternates Considered

1. Widen existing SR 53 BU to four lanes with a 20-foot raised median from SR 515 to the intersection of Summit Street, with one-way pairs from Summit Street to the intersection of CR 243/Industrial Boulevard and Burnt Mountain Road. This is the recommended alternative. The proposed four lane section is necessary to provide an adequate level of service under design year 2034 traffic projections and to minimize substantial impacts to the downtown Jasper area.
2. Widen existing SR 53 BU to four lanes with a 20-foot raised median from SR 515 to Burnt Mountain Road. This alternate is not recommended due to the substantial impacts to the downtown Jasper area and properties that are potentially eligible for the historical register.
3. No Build. This alternate is not recommended. Traffic projections indicate that the current two-lane facility along SR 53 BU will fail under future traffic conditions, providing an unacceptable level of service.

Attachments:

A. Cost Estimates:
   a. Construction including E&C,
   b. Right of Way, and
   c. Utilities.
B. Typical Sections
C. Minutes of Initial Concept Meeting 7/30/07
D. Minutes of Concept Meeting
E. Minutes of Public Official Meetings 2/28/07 & 6/22/07
F. Traffic Diagrams

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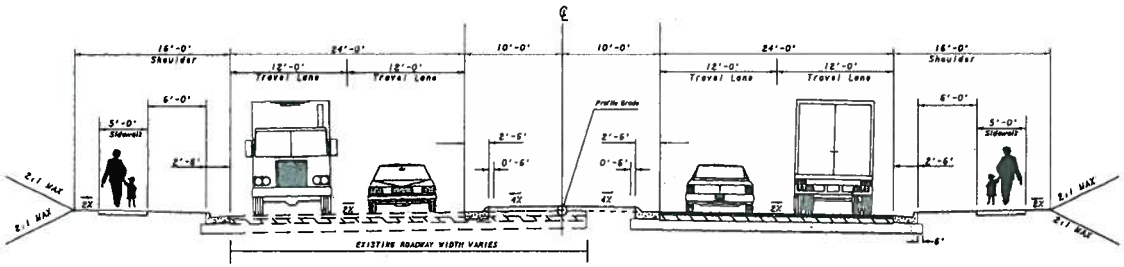
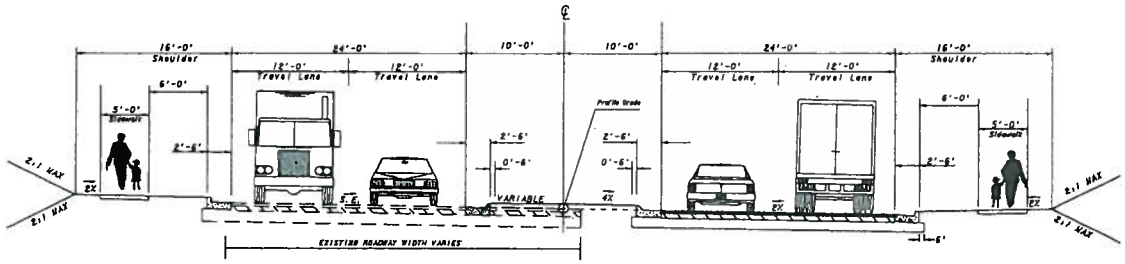
DATE>>>	TIME>>>	SPAN>	NOTE>	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
USER>		APPENTABLE>>		GA	681439		



SR 53 4-WAY DIVIDED TYPICAL

TANGENT SECTION



SR 53 4-WAY DIVIDED TYPICAL

SUPERELEVATED SECTION

CH2MHILL

7500 N. McDonough Street
Jonesboro, GA 30236
678-449-4000
678-579-6076 (Fax)

REVISION DATES

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

OFFICE:

TYPICAL SECTIONS

DRAWING No. 5-01

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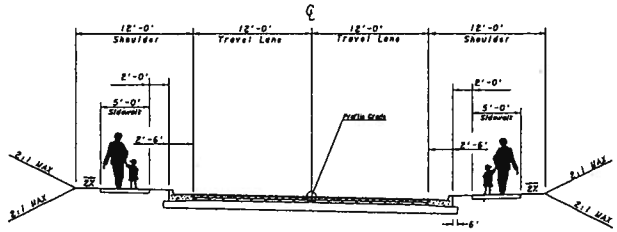
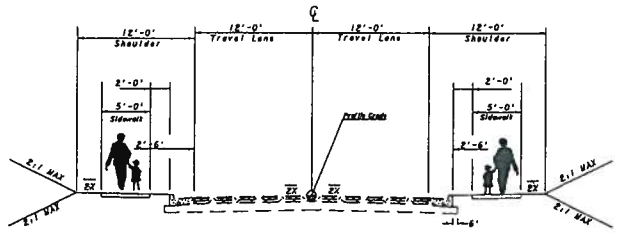


ONE WAY PAIR TYPICAL (NEW LOCATION)

SUPERELEVATED SECTION



ONE WAY PAIR TYPICAL (EXISTING ROADWAY)

TANGENT SECTION

CH2MHILL

7360 N. McDonough Street
Jonesboro, GA 30236
678-478-4603
678-473-8076 (Fax)

REVISION DATES

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

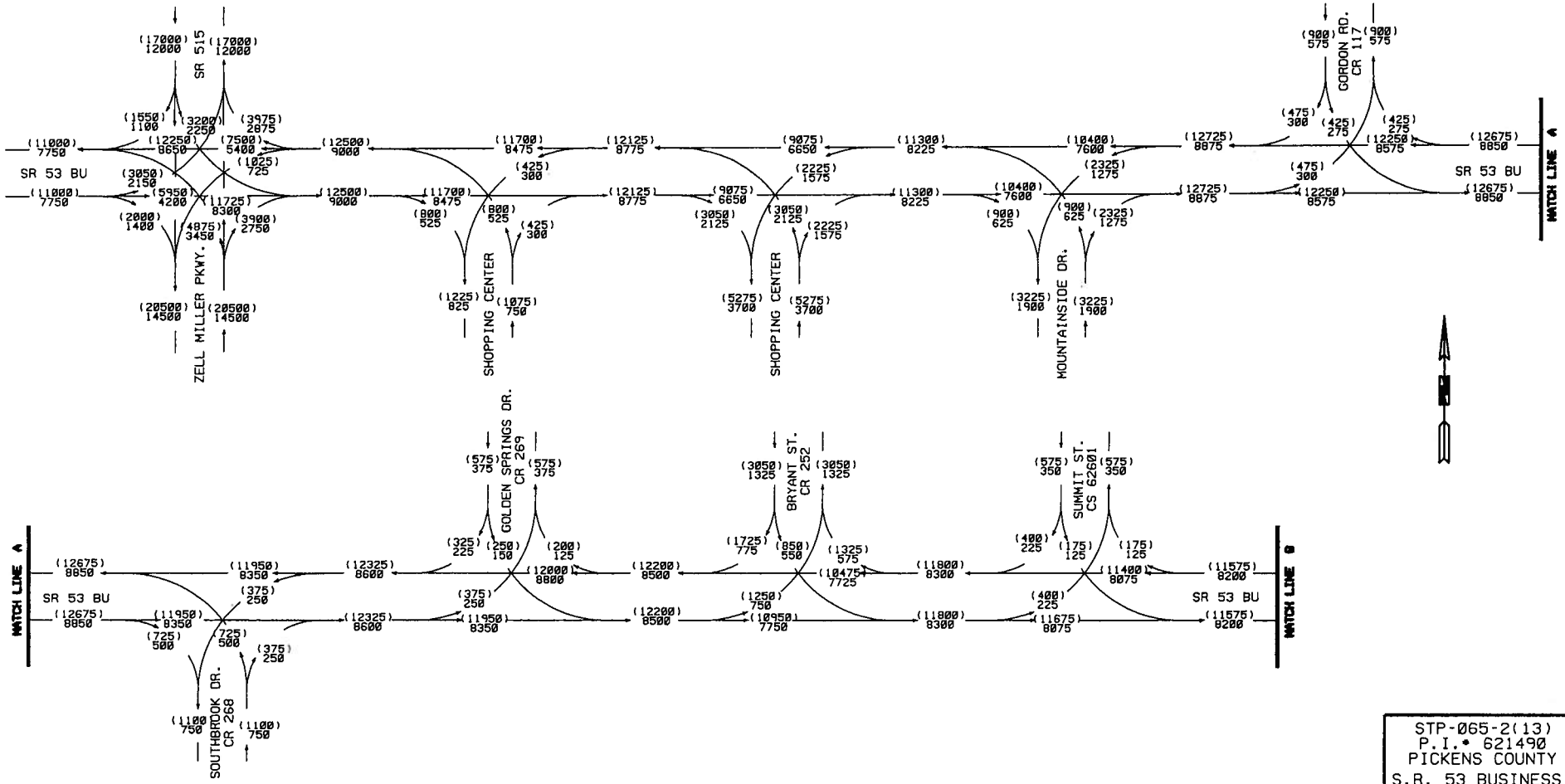
OFFICE:

TYPICAL SECTIONS

DRAWING No.
5- 02

SHEET 1 OF 8

GEORGIA DEPARTMENT OF TRANSPORTATION



STP-065-2(13)
P.I.# 621490
PICKENS COUNTY
S.R. 53 BUSINESS

2014 ADT - 000
2034 ADT - (000)

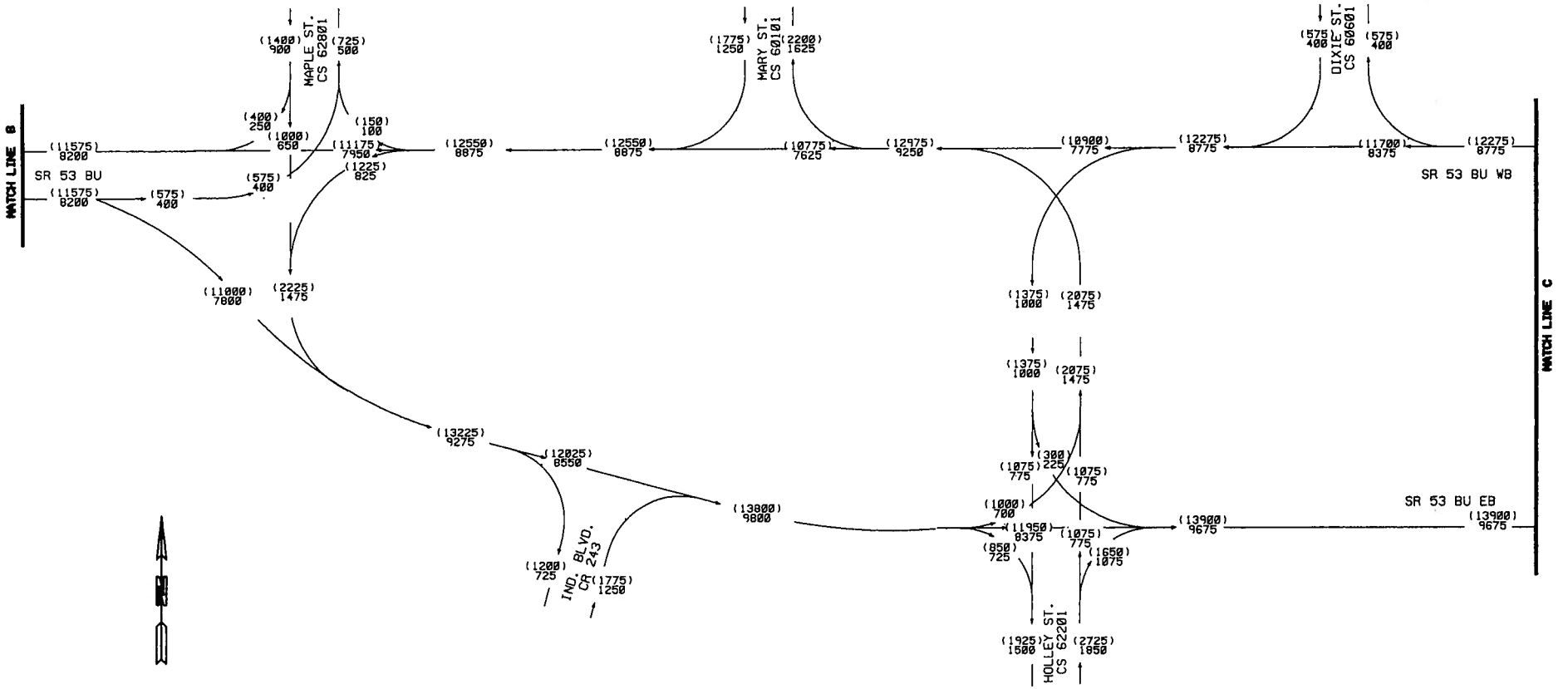
24 HR. T - 6%
S.U. - 5%
COMB. - 1%

JM
03/07

CH2M HILL
678-422-5992
1590 ADAMSON PARKWAY
SUITE 120
JONESBORO, GA 30260

SHEET 2 OF 8

GEORGIA DEPARTMENT OF TRANSPORTATION



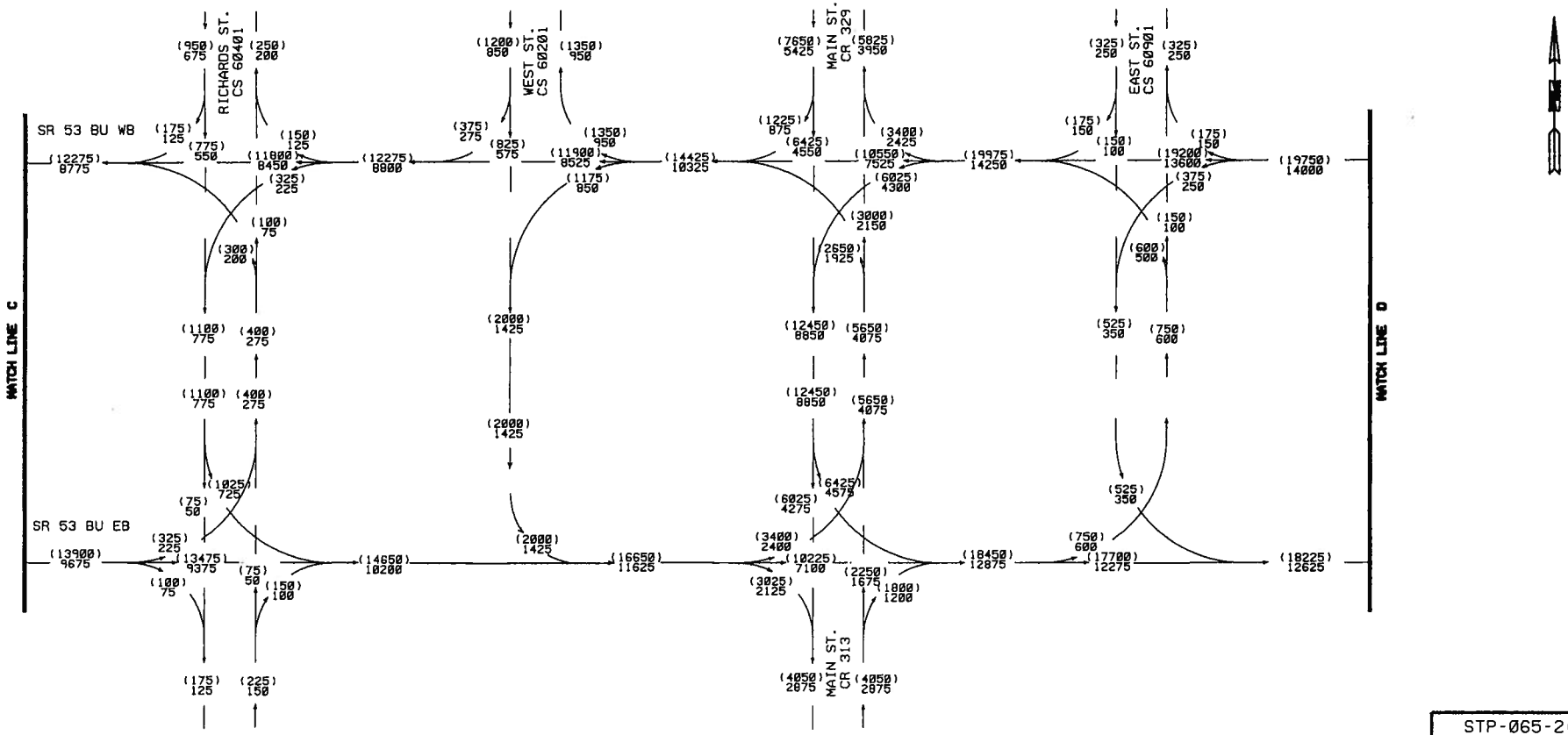
STP-065-2(13)
P.I.# 621490
PICKENS COUNTY
S.R. 53 BUSINESS
2014 ADT - 000
2034 ADT - (000)
24 HR. T - 6%
S.U. - 5%
COMB. - 1%

JM
03/07

CH2M HILL
678-422-5992
1590 ADAMSON PARKWAY
SUITE 120
JONESBORO, GA 30260

GEORGIA DEPARTMENT OF TRANSPORTATION

SHEET 3 OF 8



CH2M HILL
678-422-5992
1590 ADAMSON PARKWAY
SUITE 120
JONESBORO, GA 30260

STP-065-2(13)
P.I.# 621490
PICKENS COUNTY

S.R. 53 BUSINESS

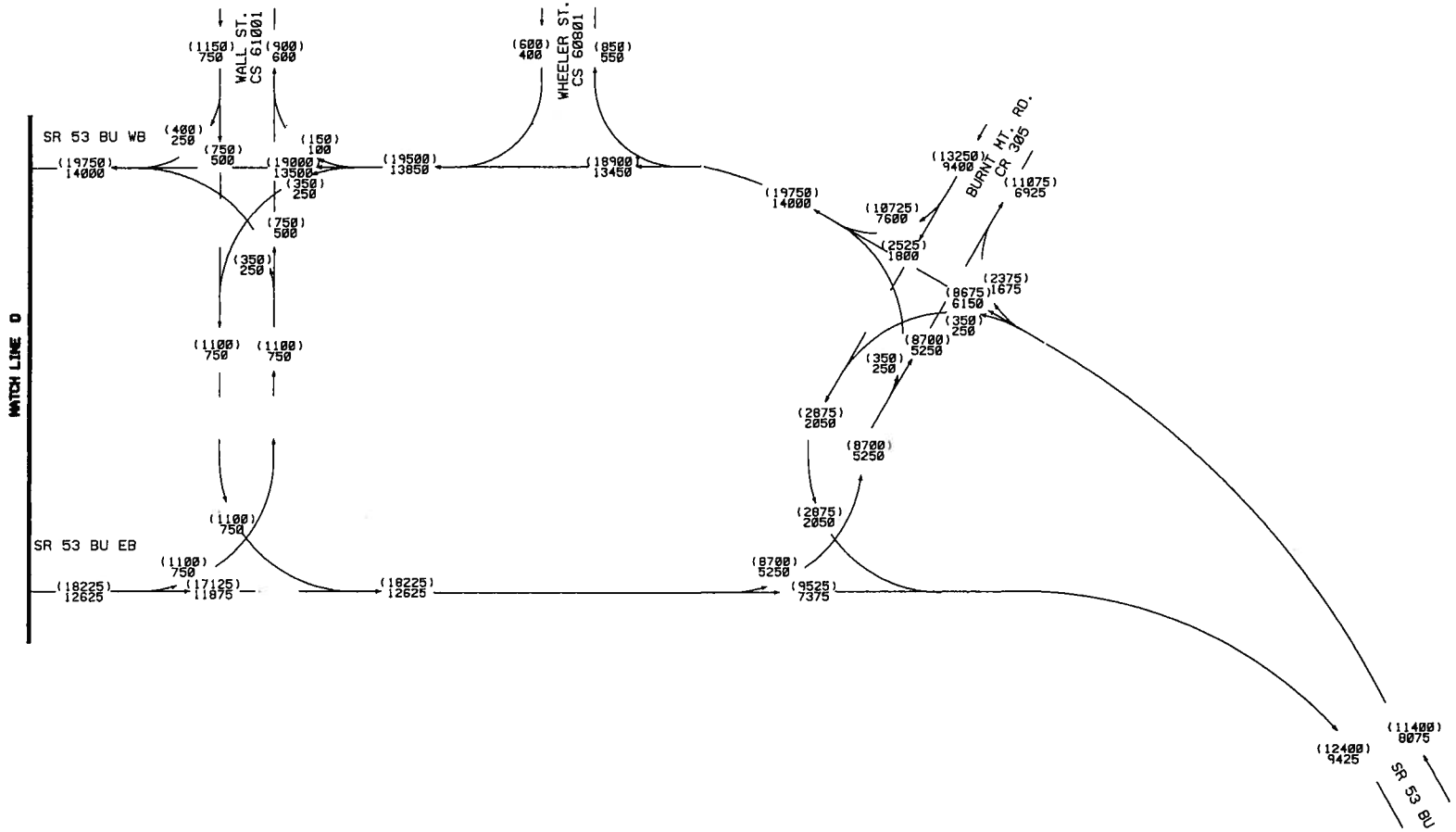
2014 ADT - 000
2034 ADT - (000)

24 HR. T - 6%
S.U. - 5%
COMB. - 1%

JM
03/07

SHEET 4 OF 8

GEORGIA DEPARTMENT OF TRANSPORTATION



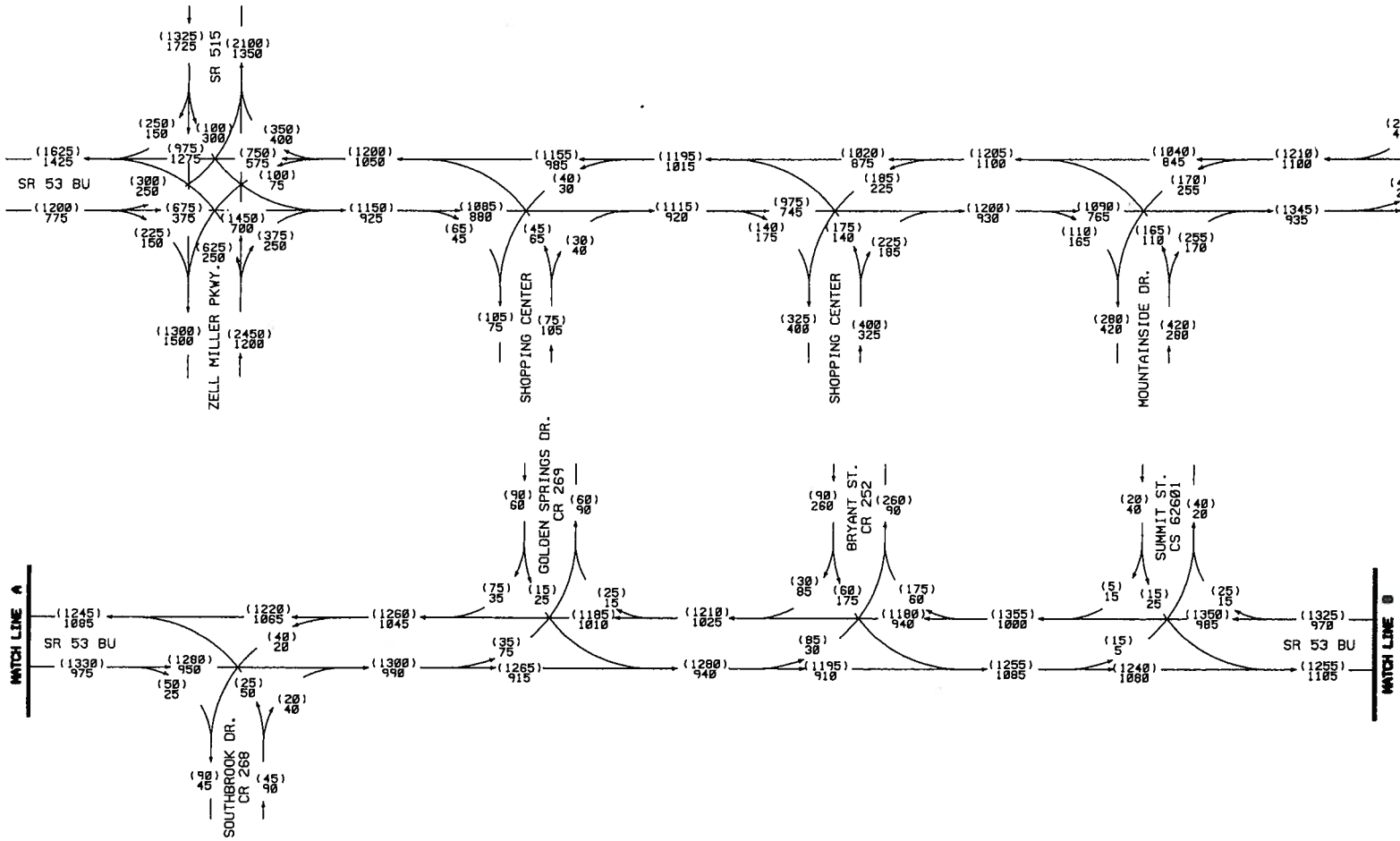
STP-065-2(13)
P.I.# 621490
PICKENS COUNTY
S.R. 53 BUSINESS
2014 ADT - 000
2034 ADT - (000)
24 HR. T - 6%
S.U. - 5%
COMB. - 1%

JM
03/07

CH2M HILL
678-422-5992
1590 ADAMSON PARKWAY
SUITE 120
JONESBORO, GA 30260

GEORGIA DEPARTMENT OF TRANSPORTATION

SHEET 5 OF 8



STP-065-2(13)
P.I.# 621490
PICKENS COUNTY
S.R. 53 BUSINESS

2034 AM DHV - 000
2034 PM DHV - (000)

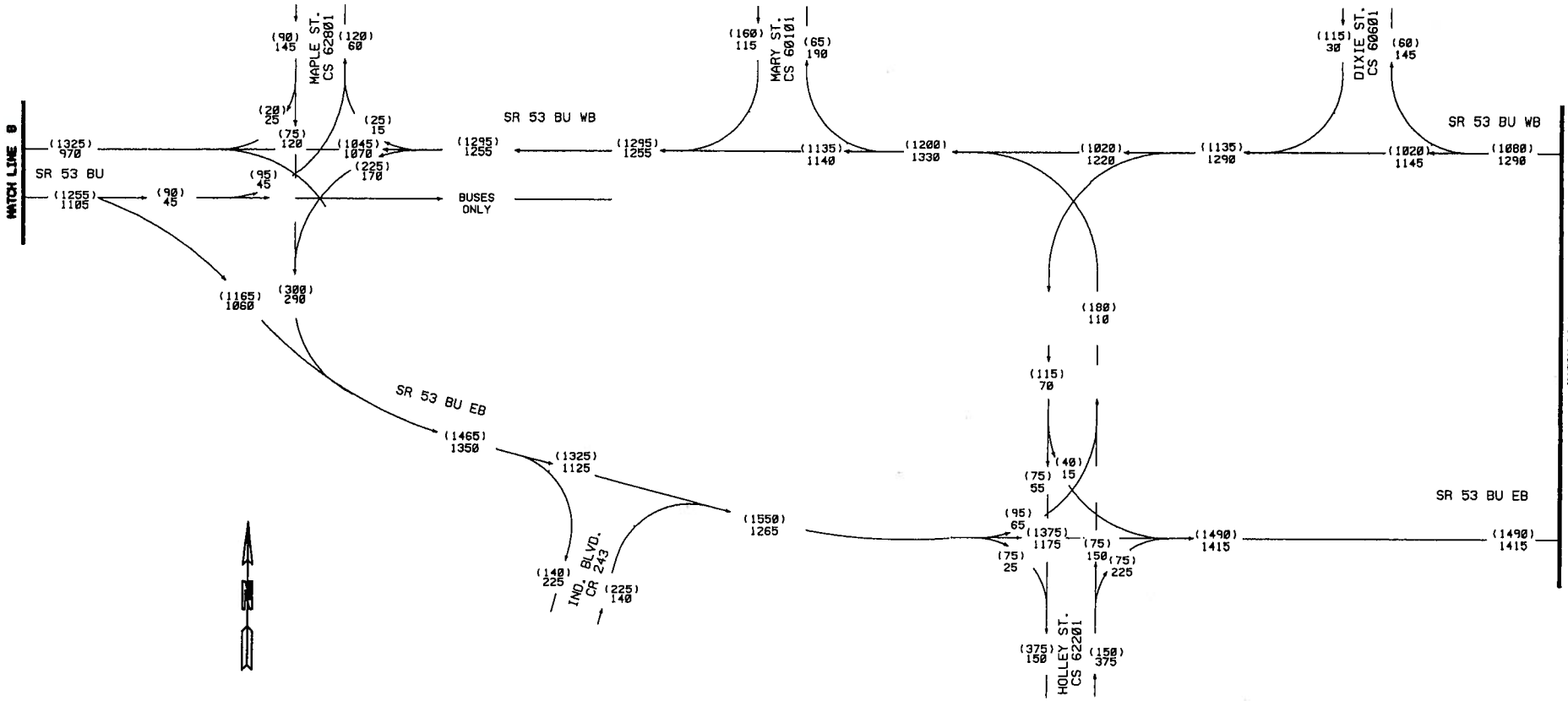
T - 5%

JM
03/07

CH2M HILL
678-422-5992
1590 ADAMSON PARKWAY
SUITE 120
JONESBORO, GA 30260

SHEET 6 OF 8

GEORGIA DEPARTMENT OF TRANSPORTATION



STP-065-2(13)
P.I.# 621490
PICKENS COUNTY
S.R. 53 BUSINESS

2034 AM DHV = 000
2034 PM DHV = (000)

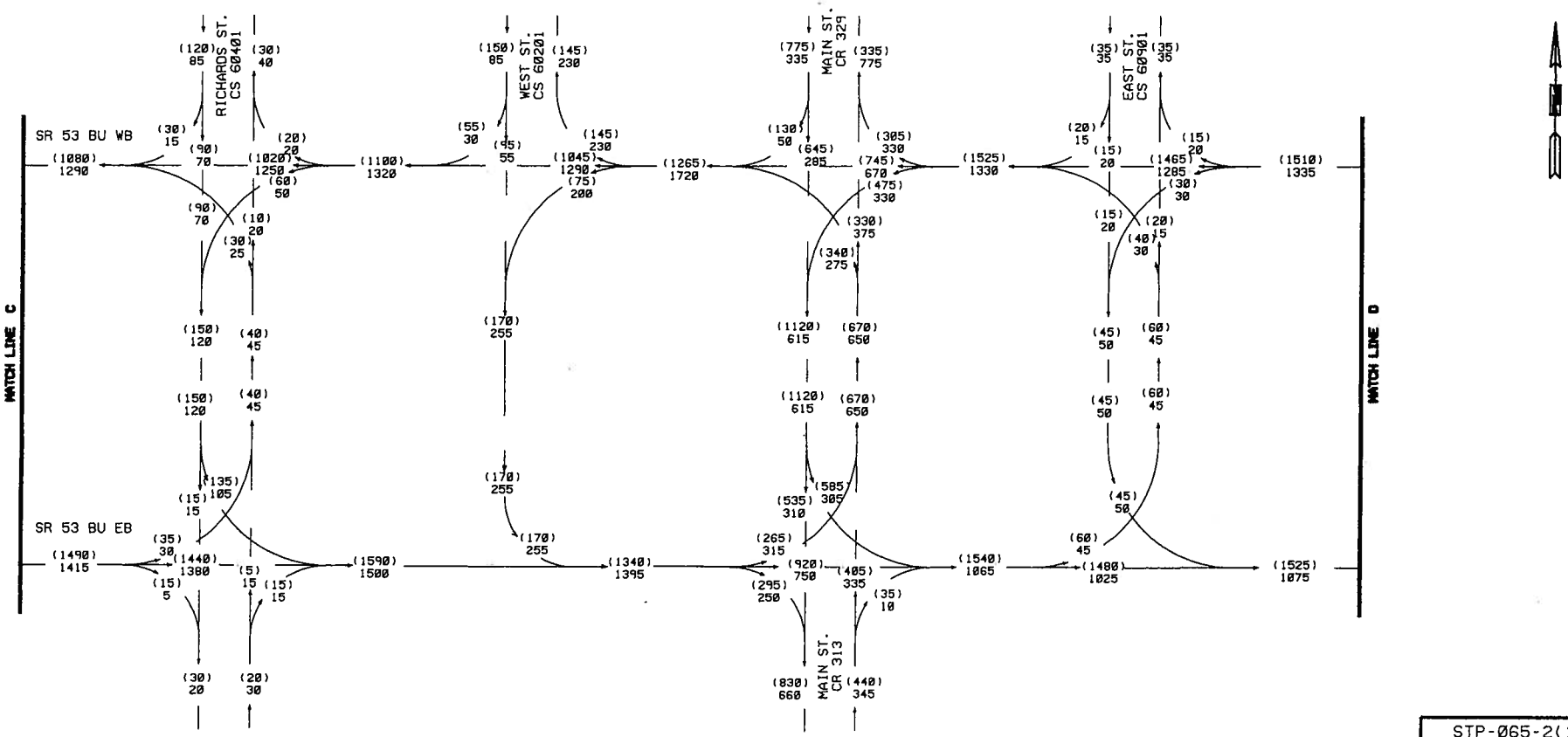
T = 5%

JM
03/07

CH2M HILL
678-422-5992
1590 ADAMSON PARKWAY
SUITE 120
JONESBORO, GA 30260

GEORGIA DEPARTMENT OF TRANSPORTATION

SHEET 7 OF 8



STP-065-2(13)
P.I.# 621490
PICKENS COUNTY
S.R. 53 BUSINESS

2034 AM DHV = 000
2034 PM DHV = (000)

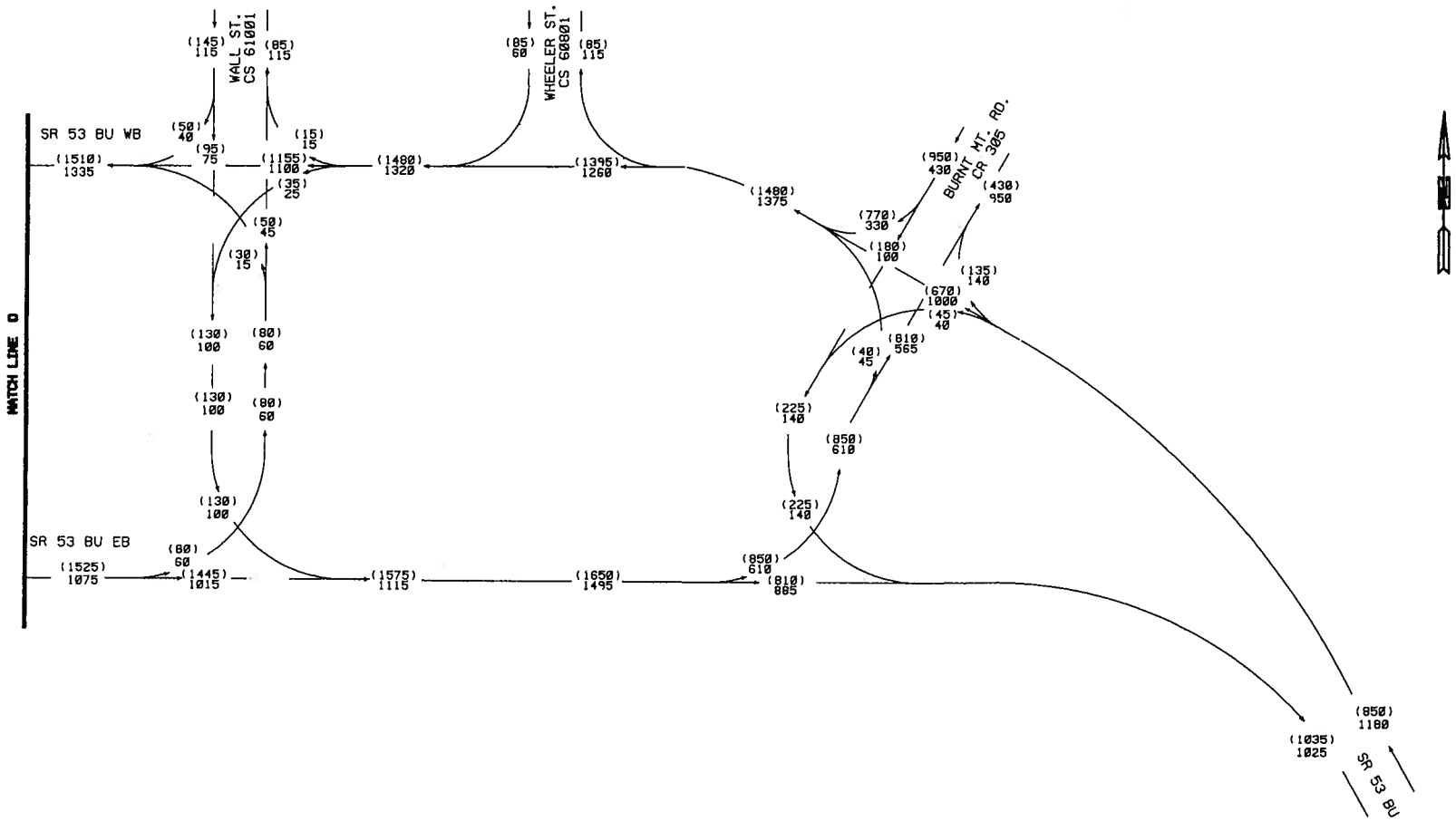
T = 5%

JM
03/07

CH2M HILL
678-422-5992
1590 ADAMSON PARKWAY
SUITE 120
JONESBORO, GA 30260

SHEET 8 OF 8

GEORGIA DEPARTMENT OF TRANSPORTATION



CH2M HILL
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STP-065-2(13)
P.I.# 621490
PICKENS COUNTY
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Value Engineering Process

VALUE ENGINEERING PROCESS

Introduction

This report summarizes the analysis and conclusions by the PBS&J Value Engineering team as they performed a VE Study during the period of Feb. 11 – Feb. 14, 2008 in Atlanta, Georgia, for the Georgia Department of Transportation.

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

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

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

- **Investigation/Information Phase** – during this phase of the VE Team's work, the team received a briefing from the Georgia Department of Transportation (GDOT) design team and staff. This briefing included discussions of the design intent behind the project, the cost concerns, the physical project limitations. In the working session that followed, the VE Team developed cost models from the cost data provided by the designers and familiarized themselves with the construction drawings and other data that was available to the team. Some of the representative project information (concept report, cost estimate, and special provisions) may be found in the tabbed section of this report entitled ***Project Description***. Following this current narrative the reader will also find a cost model done in the Pareto fashion, i.e., identifying the highest costs down to the lowest costs for the larger construction cost elements. This cost model, developed by the VE Team, was used by the VE Team to help focus their week of work. The headings on the Pareto Chart also were used as headings for creative phase activities.

- **Analysis Phase** – during this phase the VE Team determined the "**Functions**" of the project. This was accomplished by reviewing the project from the simplest format in asking the questions of "What is the project suppose to do?", and "How is it suppose to accomplish this purpose? In the Value Engineering vernacular, the answers to these questions are cast in the form of active verbs and measurable nouns. These verb/noun pairs form the basis of the function analysis which distinguishes a Value Engineering effort from a potentially damaging cost cutting exercise.

- The important functions of the project were identified as follows:

    - **Project Objective/Goals**
        - **Improve Level of Service**
        - **Increase Capacity**
        - **Separate Traffic**
        - **Provide for future growth**

    - **Project Basic Functions**
        - **Construct Additional Traffic Lanes**
        - **Construction Additional Turn Lanes**
        - **Provide Separation of Traffic**
        - **Provide "U" Turn Lanes**
        - **Provide Traffic Controls**

- **Speculation Phase -** The VE team performed a brainstorming session to identify ideas that might help meet the project objectives:

    - Improve Level of Service
    - Improve Safety
    - Increase Capacity
    - Reduce construction and life cycle costs
    - Reduce the time of construction

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

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

- Following that selection process, the VE Team used the following values as measures of whether or not an alternative had enough merit to be carried forward in the VE process:

    - Construction Cost Savings
    - Maintainability
    - Ability to Implement the Idea
    - General Acceptability of the Alternatives
    - Constructability

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

- **Development Phase** – During this phase, the VE Team developed each of the selected design alternatives. This effort included a detailed explanation of the idea with sketches as appropriate to clarify the idea from the original concept, advantages and disadvantages, a technical explanation and an estimation of the cost and resultant savings if implemented. (see the tabbed section – Study Results)

- **Recommendation Phase** – During this phase the VE Team reviews the alternative ideas to confirm which ones are appropriate for the project, have an opportunity for success and which will improve the value of the project if implemented.

- **Presentation Phase** – As noted earlier, the team made an informal "out-briefing" on the last day of the workshop, designed to inform the Owners and the Designers of the initial findings of the VE Study. This written report is intended to formalize those findings.

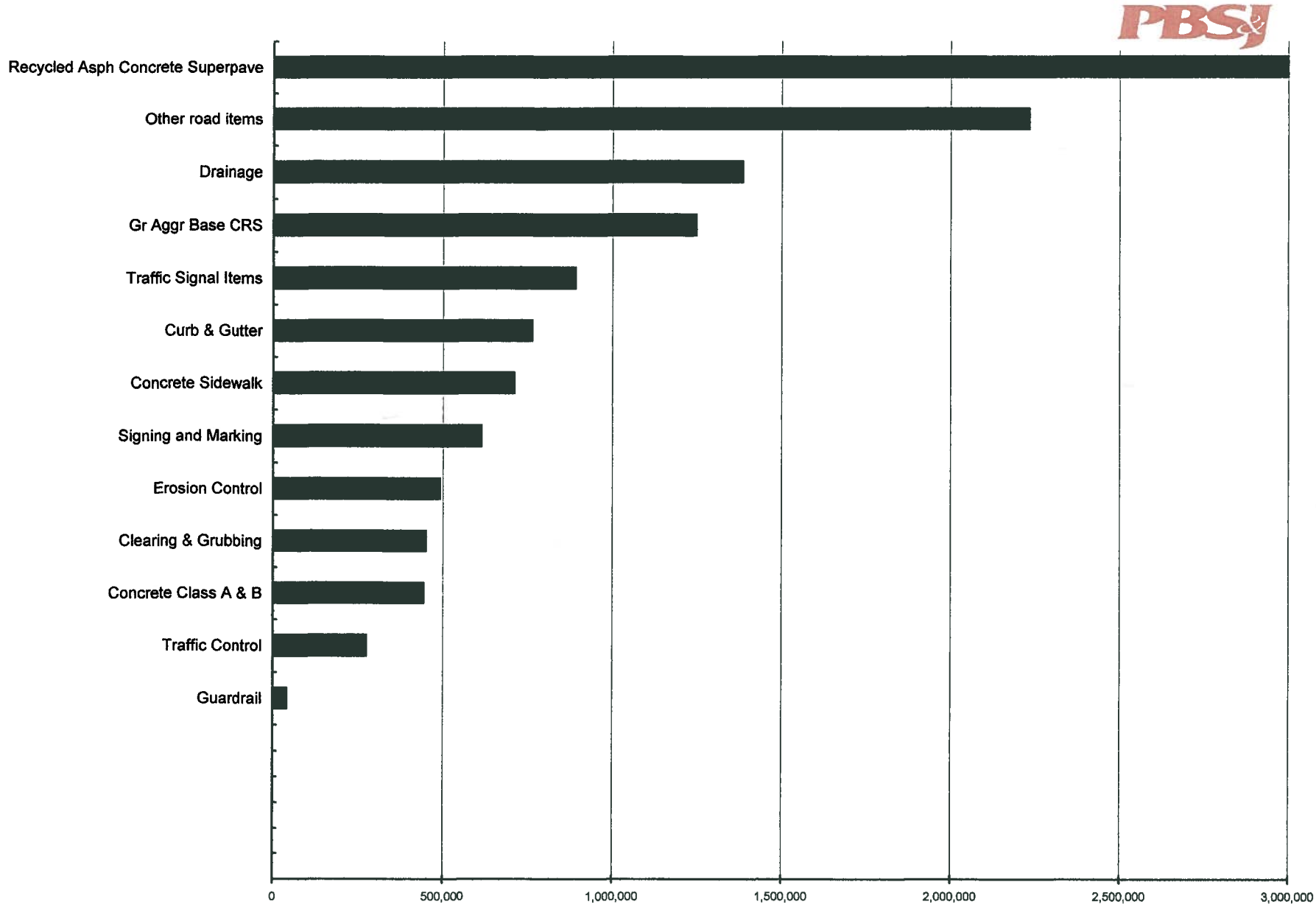
The following **Function – Worth - Cost** Analysis, was utilized to focus the team and stimulate brainstorming; a copy of the **Attendance Sheets** is also attached so that the reader can be informed about who participated in the Study proceedings.

PARETO CHART - COST HISTOGRAM

PBSJ

PROJECT STP-065-2(13) State Route 53 from SR 515/APD to CR 243/In				
Pickens County, Georgia				
				CUM.
PROJECT ELEMENT		COST	PERCENT	PERCENT
Recycled Asph Concrete Superpave		2,999,584	23.92%	23.92%
Other road items		2,232,029	17.80%	41.72%
Drainage		1,384,124	11.04%	52.76%
Gr Aggr Base CRS		1,247,230	9.95%	62.71%
Traffic Signal Items		890,631	7.10%	69.81%
Curb & Gutter		763,030	6.09%	75.90%
Concrete Sidewalk		709,864	5.66%	81.56%
Signing and Marking		613,676	4.89%	86.45%
Erosion Control		490,793	3.91%	90.36%
Clearing & Grubbing		450,000	3.59%	93.95%
Concrete Class A & B		442,975	3.53%	97.49%
Traffic Control		274,457	2.19%	99.68%
Guardrail		40,724	0.32%	100.00%
Subtotal not including ROW costs		**$ 12,539,117**	**76.08%**	
E & C Rate @ 10%	**INCL**	**$ 1,253,912**		
Subtotal =		**$ 13,793,029**		
Total Construction Cost =		**$ 13,793,029**		
Right-of-Way =		**$ 25,521,000.00**		
Reimb. Utilities =		**$ 1,281,000.00**		
	TOTAL	**$ 40,595,029**	**Comp Mark-up:**	224%

STP-065-2(13)
P.I. No. 621490
Pickens County



FUNCTION ANALYSIS AND COST-WORTH

PBSJ

PROJECT: **Georgia Department of Transportation**
STP-065-2(13)
State Route 53 Business from SR 515/APD to CR 243/Industrial Boulevard Pickens County

SHEET NO.: **1 of 3**

NO.	ELEMENT	FUNCTION			COST (000)	WORTH (000)	COMMENTS
		VERB	NOUN	KIND			
1	**OVERALL PROJECT**	Increase	Traffic Capacity	B	40,595	38,000	C/W = 1.07
		Facilitate	Access	B			
		Enhance	Safety	S			
2	**ROW**	Accommodate	Widening	B	25,521	22,000	C/W = 1.16
		Facilitate	Utilities	RS			
		Accommodate	Amenities	S			
3	**ASPHALT PAVING**	Create	Lanes	B	2999	2700	C/W = 1.11
		Increase	Capacity	B			
		Enhance	Safety	RS			
		Connect	Points	B			
4	**CONCRETE PAVEMENT**	Support	Traffic	B	442	442	C/W = 1.0

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

PBSJ

PROJECT **Georgia Department of Transportation**
STP -065-2(13)
State Route 53 Bus from SR 515/APD to CR 243/Industrial Blvd Pickens County

SHEET NO.: **2 of 3**

NO.	ELEMENT	FUNCTION			COST (000)	WORTH (000)	COMMENTS
		VERB	NOUN	KIND			
5	**TRAFFIC CONTROL**	Facilitate	Safe Construction	S	274	274	C/W = 1.0
		Enhance	Safety	RS			
6	**AGGREGATE BASE**	Support	Wearing Course	B	1247	1,147	C/W= 1.08
7	**DRAINAGE (DR)**	Convey	Storm Water	B	1384	1,384	C/W =1.0
		Facilitate	Utilities	S			
		Enhance	Safety	RS			
8	**TRAFFIC SIGNAL ITEMS**	Enhance	Safety	S	890	890	C/W=1.0
		Control	Traffic	B			
9	**SIGNING & MARKING**	Enhance	Directions	S	613	613	C/W =1.0
		Channelize	Traffic	S			
10	**EROSION CONTROL**	Stabilize	Earthwork	S	490	490	C/W =1.0
		Protect	Environment	RS			
		Connect	Points	B			

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

PROJECT **Georgia Department of Transportation**
STP -065-2(13)
State Route 53 Bus from SR 515/APD to CR 243/Industrial Blvd Pickens County

SHEET NO.: **3 of 3**

NO.	ELEMENT	FUNCTION			COST (000)	WORTH (000)	COMMENTS
		VERB	NOUN	KIND			
11	**CURB & GUTTER**	Convey	Stormwater	RS	763	763	C/W=1.0
12	**GUARDRAILS**	Enhance	Safety	B	40	40	C/W=1.0
13	**SIDEWALKS**	Move	Pedestrians	S	709	709	C/W=1.0

Function defined as: **Action Verb**
Measurable Noun

Kind: B = Basic; S = Secondary; RS = Required Secondary; HO = Higher Order; LO = Lower Order

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

DESIGNER PRESENTATION

MEETING PARTICIPANTS

Geogia Department of Transportation **February 11, 2008**

STP-065-2(13) - P.I. No.621490 County: Pickens

NAME		ORGANIZATION & TITLE	E-MAIL	PHONE
Lisa Myers		GDOT - Engineering Services	lmyers@dot.ga.gov	404-651-7468
Ron Wishon		Engineering Services	rwishon@dot.ga.gov	404-651-7470
Steve Adeware		GDOT - OCD	steve.adeware@dot.state.ga.us	404-463-5291
Katherine Russett		GDOT - OEL	krussett@dot.ga.gov	404-699-6882
Patrick Allen		GDOT - TS&D	paalen@dot.ga.gov	404-635-8138
Stanley Hill		GDOT - OCD	sthill@dot.ga.gov	404-656-6109
Kenny Beckworth		GDOT - District 6	kbeckworth@dot.ga.gov.v	770-387-3609
Jerry Milligan		GDOT - R/W	jmilligan@dot.ga.gov	770-986-1541
Les Thomas		PBS&J	lmthomas@pbsj.com	678-677-6420
Luke Clarke		PBS&J - Highway/Roadway Design	lwclarke@pbsj.com	205-969-3776
Randy Thomas		PBS&J	rsthomas@pbsj.com	770-883-1545
David Lighthall		PBS&J	dwlighthall@pbsj.com	704 - 651-7653
Craig Thomas		PBS&J	csthomas@pbsj.com	404-313-5437
Daveitta Jenkins		CH2M Hill	daveitta.jenkins@ch2m.comm	678-422-5992 ext.201

VE TEAM PRESENTATION

MEETING PARTICIPANTS

Geogia Department of Transportation **February 14, 2008**

STP-065-2(13) - P.I. No.621490 County: Pickens

NAME		ORGANIZATION & TITLE	E-MAIL	PHONE
Lisa Myers		GDOT - Engineering Services	lmyers@dot.ga.gov	404-651-7468
Steve Adeware		GDOT - OCD	steve.adeware@dot.state.ga.us	404-463-5291
Stanley Hill		GDOT - OCD	sthill@dot.ga.gov	404-656-6109
Les Thomas		PBS&J	lmthomas@pbsj.com	678-677-6420
Luke Clarke		PBS&J - Highway/Roadway Design	lwclarke@pbsj.com	205-969-3776
Daveitta Jenkins		CH2M Hill	daveitta.jenkins@ch2m.comm	678-422-5992 ext.201
David Lighthall		PBS&J	dwlighthall@pbsj.com	704 - 651-7653

CREATIVE IDEA LISTING & EVALUATION

PBSJ

PROJECT: **Georgia Department of Transportation**
STP- 065-2(13) - P.I. 621490
SR 53 Bus. From SR 515/APD to CR 243/Ind. Blvd. - Pickens Co

SHEET NO.: 1 of 2

NO.	IDEA DESCRIPTION	RATING
	ROADWAY (RD)	
RD – 1	Use 14' flush median	4
RD – 2	Use 12' shoulders in 4 lane section	5
RD -3	Use 11' lanes	2
RD – 4	Limit work on West Spring Road	5
RD– 5	Utilize more of the R/W on Industrial Blvd.	4
RD – 6	Use "ConSpan" for cattle crossing	1
RD – 7	Delete west bound left at Bryant Street	4
RD– 8	Use pre-fab box culverts	2
RD – 9	Reduce R/W at Mike Hosley tract	5
RD– 10	Use one way pairs downtown	2
RD – 11	Use raised islands at SR 53/Burnt Mountain Interchange	2
RD – 12	Provide sidewalk on one side only	1
RD – 13	Right in Right out to serve McDonalds, Pizza, Shopping Center; Delete raised median	2
RD – 14	Extend R/W to SR 515 to accommodate future project	3
RD – 15	4 lane to Holly Street ; 2-lane one way on Holly/ &West Spring	2
RD – 16	Construct by-pass now; delete project	1
RD – 17	Improve turning radii at SR 53/Burnt Mountain Road; (Combine with RD -11)	2
RD – 18	Relocate alignment north beginning at Pickens County Bank at Bryant Street	3
RD – 19	Construct 4 lanes intact	1
RD – 20	One way westerly – resurface and stripe away.	4
RD – 21	Use single sidewalk on one way pair	4
RD – 22	Relocate eastbound 2 lane to the east adjacent to creek	4
RD – 23	Relocate right turn lane at McDonalds easterly past Pickens Bank, then construct return to McDonalds and other businesses; reduce median as necessary	4

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