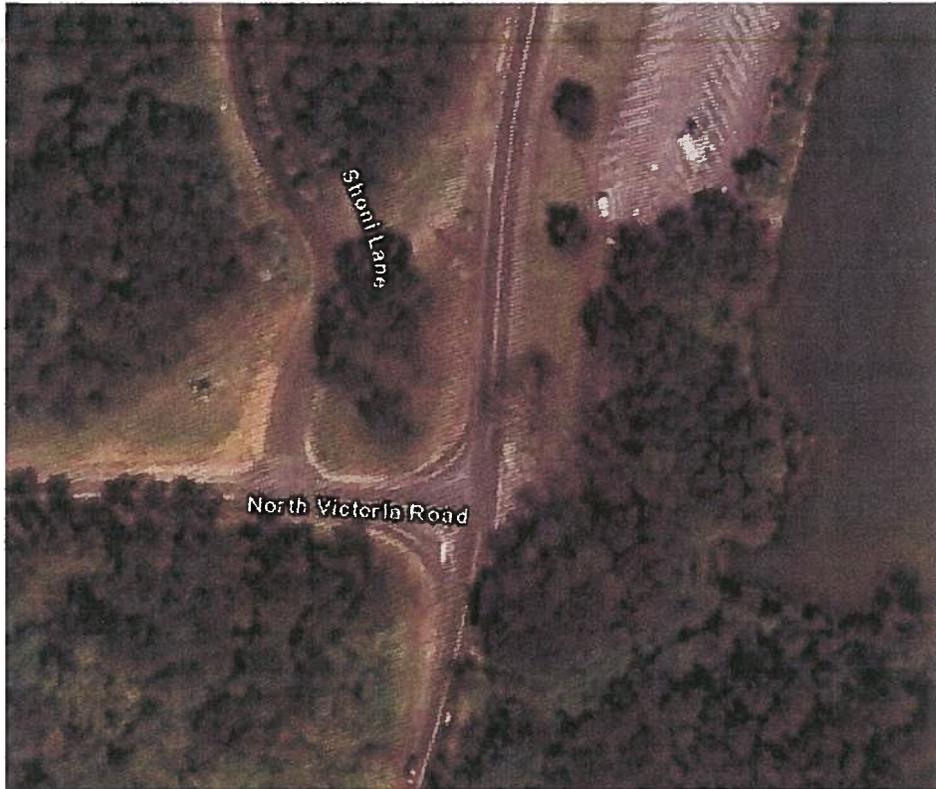


# Value Engineering Study Report

*Project – STP-1375(5)*

*P.I. No. –630977*

*Bells Ferry Road Widening and Improvements  
Cherokee County*



**Value Management Team**



**Design Team**

**Delon Hampton & Associates**

November 2007



November 14, 2007

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

RE: Submittal of the final Value Engineering Report  
Project – STP-1375(5)  
Cherokee County  
P.I. No. – 630977  
Bells Ferry Road Widening and Improvements  
PBS&J Project Task Order No. 21

Dear Ms. Myers:

Please find enclosed four (4) hard copies and a CD of our final Value Engineering Report for the Bells Ferry Road Widening and Improvements Cherokee County, as referenced above.

This Value Engineering Study, which was performed during the period October 29 through November 1, 2007, identified **22 Alternative Ideas**, of which **11 are recommended for implementation**. The VE Team also identified **5 Design Suggestion Ideas** which are recommended for the Engineer to consider in his final design. We believe that the **11 Alternative Ideas** recommended may have a significant positive affect on the project.

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

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

Yours truly,  
**PBS&J**

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

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

# ***Value Engineering Study Report***

***Project – STP-1375(5)***

***P.I. No. –630977***

***Bells Ferry Road Widening and Improvements  
Cherokee 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 and conclusions by the PBS&J Value Engineering workshop team as they performed a VE study during the period of October 29 – November 1, 2007 in Atlanta, at the office of the Georgia Department of Transportation. The subject of the Value Engineering study was Project – STP-1375(5), Cherokee County, P.I. No. – 630977 Bells Ferry Road Widening and Improvements. The concept designs for the projects have been prepared by Delon Hampton & Associates. At the time of the workshop the plans had advanced to the concept design level.

### **PROJECT DESCRIPTION**

Bells Ferry Road widening, realignment and reconstruction is proposed to reduce congestion and enhance traffic flow, while improving the operational characteristics and general traffic safety along this corridor. The improvements to the intersection alignments and the addition of auxiliary lanes will also add to the enhanced operational and safety characteristics of the proposed roadway.

The current roadway is a two-lane facility with a winding, rolling alignment that in many areas presents a dangerous and hazardous condition for the amount and nature of the current and projected traffic volumes.

The southern terminus is at the existing 4-lane divided section just north of Kellogg Creek Road. The northern terminus will tie into a new bridge crossing at Little River which will be coordinated with this project.

The project estimated construction cost is \$30,262,000. The preliminary ROW acquisition cost is \$26,660,977.

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 projects:

- The existing roadway does not provide adequate line of sight.
- The cost of right of way acquisition appears to be significantly greater than the actual project construction costs. Therefore particular emphasis needs to be placed on controlling this cost.

- The existing roadway is heavily traveled. Particular attention needs to be given to maintaining a free flow of traffic during the construction period.

## 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 *22 Alternative Ideas* that appeared to hold potential for reducing the construction cost, improving the end product and/or reducing the difficulty and time of project construction.

After the evaluation phase was completed, *11 Alternative Ideas* and *5 Design Suggestions* remained for further consideration. These Alternative Ideas and Design Suggestions may be found, in their documented form, in the section of this report entitled *Study Results*. The following *Summary of Alternatives and Design Suggestions* coupled with the documentation of the developed alternatives should provide the reader with the information required to fully evaluate the merits of each of the alternatives.

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

# SUMMARY OF ALTERNATIVES & DESIGN SUGGESTIONS



Georgia Department of Transportation

Bells Ferry Road/STP-1375(5) P.I. No. 630977

Alternative Number	Description of Alternative	Initial Cost Savings
	<b>Roadway (RD)</b>	
RD-2	Use 11' lanes	\$3,142,696
RD-3	Use fuller slopes to minimize waste	DS
RD-6	Reduce side road ROW taking & minimize side roadwork @ MLROW tie	\$34,456
RD-7	Provide one additional signal at N. Victoria, delete all other non-signal intersection "U" turns	DS
RD-9	N. Victoria Road appears to be complete Realign with existing mainline alignment	\$595,485
RD-11	Rotate shift alignment between Sta. 140+00 and Sta. 147+00 to reduce conflicts during construction	DS
RD-13	Provide right turn lane on Othello Road	DS
RD-14	Delete left turn bays at Fire Station Drive	\$46,224
RD-15	Delete right turn northbound into Fire Station Drive	\$252,019
RD-16	Delete left turns to side streets provide mid block "U turns"	DS
	<b>Drainage (DR)</b>	
DR-1	Modify cross drains @ intermittent streams 223+00 225+70	\$2,865
DR-2	At 149+90 move drop inlet on west side and reroute pipe	\$10,150
DR-3	Delete curb and gutter from side roads	\$174,768
DR-4	Eliminate existing structure at Sta. 219+29	\$4,677
	<b>Earthwork (EW)</b>	
EW-1	From Sta. 200+00 to Sta. 206+00 raise grade to reduce earthwork	\$146,663
EW-2	Adjust profile to reduce earthwork and ROW	\$298,276

---

## ***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

Bells Ferry Road/STP-1375(5) P.I. No. 630977

Alternative Number	Description of Alternative	Initial Cost Savings
	<b>Roadway (RD)</b>	
RD-2	Use 11' lanes	\$3,142,696
RD-3	Use fuller slopes to minimize waste	DS
RD-6	Reduce side road ROW taking & minimize side roadwork @ MLROW tie	\$34,456
RD-7	Provide one additional signal at N. Victoria, delete all other non-signal intersection "U" turns	DS
RD-9	N. Victoria Road appears to be complete Realign with existing mainline alignment	\$595,485
RD-11	Rotate shift alignment between Sta. 140+00 and Sta. 147+00 to reduce conflicts during construction	DS
RD-13	Provide right turn lane on Othello Road	DS
RD-14	Delete left turn bays at Fire Station Drive	\$46,224
RD-15	Delete right turn northbound into Fire Station Drive	\$252,019
RD-16	Delete left turns to side streets provide mid block "U turns"	DS
	<b>Drainage (DR)</b>	
DR-1	Modify cross drains @ intermittent streams 223+00 225+70	\$2,865
DR-2	At 149+90 move drop inlet on west side and reroute pipe	\$10,150
DR-3	Delete curb and gutter from side roads	\$174,768
DR-4	Eliminate existing structure at Sta. 219+29	\$4,677
	<b>Earthwork (EW)</b>	
EW-1	From Sta. 200+00 to Sta. 206+00 raise grade to reduce earthwork	\$146,663
EW-2	Adjust profile to reduce earthwork and ROW	\$298,276

# Value Analysis Design Alternative



PROJECT: Georgia Department of Transportation  
 STP-1375(5) – P.I. No. 630977  
 Bells Ferry Road-Widening & Improvements-Cherokee

ALTERNATIVE NO.:

**RD-2**

DESCRIPTION: USE 11'-0" TRAVEL LANES.

SHEET NO.: 1 of 4

**Original Design:**

The original design calls for a 12'-0" travel lanes.

**Alternative:**

The alternative design calls for reducing the travel lanes to 11'-0.

**Opportunities:**

- Reduction in pavement costs.
- Reduction in earthwork costs.
- Reduction in right of way costs.

**Risks:**

- Moderate design impacts.
- Requires an exception to GDOT policy.

**Technical Discussion:**

Reduction of width of travel lanes throughout the project would result in 4' of full build-up widening that would not have to be constructed, resulting in significant cost savings. Although 11' lanes would require an exception to GDOT policy, AASHTO's "Policy on Geometric Design of Highways 2004" states that 11' lanes are permissible. It also states that under interrupted-flow operating conditions at low speeds (45 mph or less), narrower lanes are normally adequate and have some advantages. (See Pages 472-473).

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 59,017,724	\$	\$ 59,017,724
ALTERNATIVE	\$ 55,875,028	\$	\$ 55,875,028
SAVINGS	\$ 3,142.696	\$	\$ 3,142.696

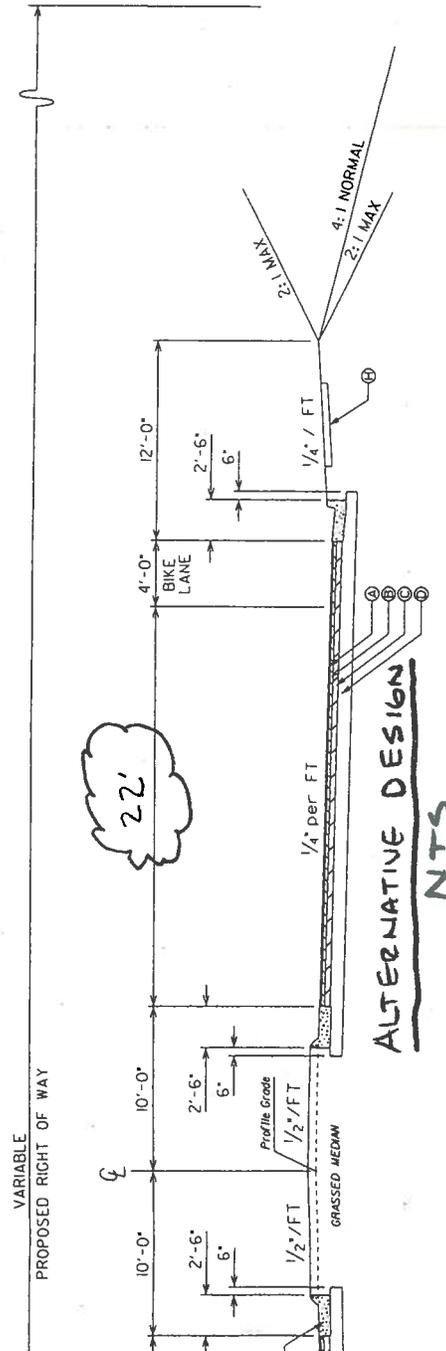
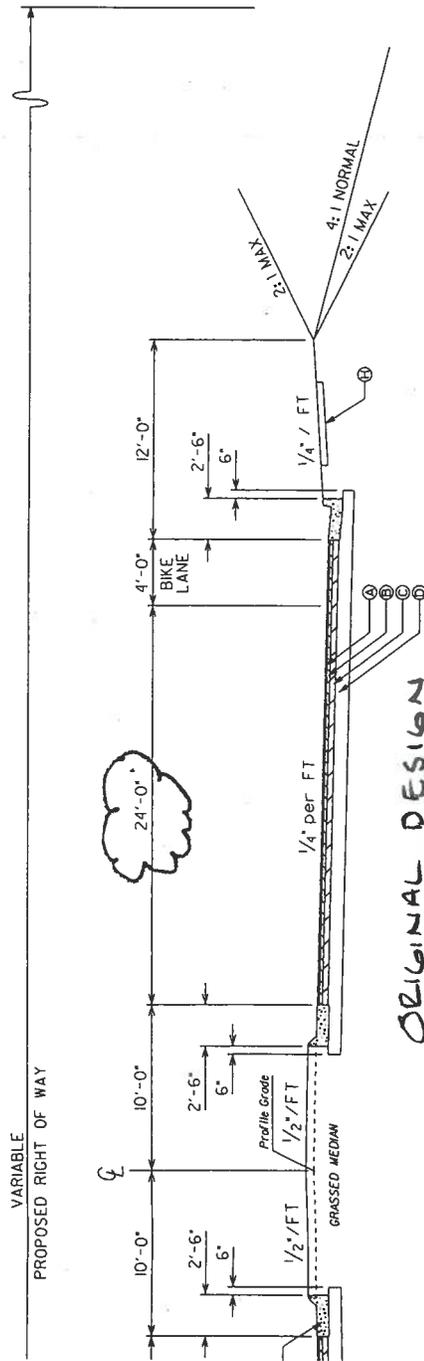
PROJECT: **Georgia Department of Transportation  
STP-1375(5) – P.I. No. 630977  
Bells Ferry Road-Widening & Improvements-Cherokee County**

ALTERNATIVE NO.:

**RD-2**

DESCRIPTION: **USE 11'-0" TRAVEL LANES.**

SHEET NO.: 2 of 4



# Calculations



PROJECT: **Georgia Department of Transportation**  
**STP-1375(5) – P.I. No. 630977**  
**Bells Ferry Road-Widening & Improvements-Cherokee County**

ALTERNATIVE NO.:

**RD-2**

DESCRIPTION: **USE 11'-0" TRAVEL LANES.**

SHEET NO.: 3 of 4

Area of paving: (Station 85+00 to Station 235+00)=15,000 lf x 4'=60,000sf / (9sf/sy) => 6667 sy

Earthwork: Assume 1.5' depth x 4.0' width x 15,000' / (27cy/cf) => 3333 cy

Right of way  
4' x 15,000' => 60,000 sf

## AFFECTED PAY ITEMS:

### Original:

Earthwork(cut): 271163 cy  
8" GAB- 66900 tons  
9.5 mm Superpave- 13919 tons  
19.0 mm Superpave- 18289 tons  
25.0 mm Superpave- 37118 tons

### Alternative:

#### Change in Quantity-

Earthwork: From above => -3333 cy  
8" GAB- (60,000 sf) x (8"/12")x(135#/cf) / (2000#/ton) => -2700 tons  
12.5 mm Superpave- (6667 sy) x (165#/sy) / (2000#/ton) => -550 tons  
19.0 mm Superpave- (6667 sy) x (220#/sy) / (2000#/ton) => -733 tons  
25.0 mm Superpave- (6667 sy) x (440#/sy) / (2000#/ton) => -1467 tons

Easements: Net cost 60,000 sf x \$15.00 = \$900,000.00  
Scheduling @ 55% = \$495,000.00  
Court cost @ 60% = \$540,000.00  
Inflation @ 65% = \$585,000.00  
Total = \$2,520,000.00

### Total-

Earthwork(fill): 77718 cy -3333 cy => 74385 cy  
8" GAB- 66900 tons - 2700 tons => 64,200 tons  
9.5 mm Superpave- 13919 tons - 550 tons => 13369 tons  
19.0 mm Superpave- 18289 tons -733 tons => 17561 tons  
25.0 mm Superpave- 37118 tons - 1467 tons => 35651 tons  
Easements: \$45,242,870.00 - \$2,520,000.00= \$42,722,870.00



# Value Analysis Design Suggestion



PROJECT: **Georgia Department of Transportation**  
**STP-1375(5) – P.I. No. 630977**  
**Bells Ferry Road-Widening & Improvements-Cherokee County**

ALTERNATIVE NO.:

**RD-3**

DESCRIPTION: **USE FULLER SLOPES TO MINIMIZE WASTE.**

SHEET NO.: 1 of 1

## Original Design:

The estimated quantities show 271,162 CY of soil excavation, and 77,718 CY of local embankment to be utilized, resulting in 193,444 CY of waste.

## Alternative:

Use fuller slopes and/or identify waste areas adjacent to the project to minimize the amount of waste created by the excavation/embankment imbalance.

## Opportunities:

- Reduction in construction time
- Likely reduction in bid prices for excavation

## Risks:

- Minimal design impacts

## Technical Discussion:

The use of fuller slopes (i.e. construct foreslopes at 4:1 instead of 3:1) would be an opportunity to keep the waste onsite, resulting in a likely decrease in construction time, as well as a likely decrease in bids for excavation since hauling offsite may be minimized or eliminated altogether. Identification of local waste areas on or near the project may also have the same effect.

# Value Analysis Design Alternative



<b>PROJECT:</b> Georgia Department of Transportation STP-1375(5) – P.I. No. 630977 Bells Ferry Road-Widening & Improvements-Cherokee County	<b>ALTERNATIVE NO.:</b>  <b>RD-6</b>
<b>DESCRIPTION:</b> REDUCE ACQUISITION OF R.O.W. ON SIDE STREETS.	<b>SHEET NO.:</b> 1 of 4

**Original Design:**

The original design shows R.O.W. acquisition for a substantial distance on side streets throughout the project.

**Alternative:**

The alternative proposes fewer improvements on side streets, resulting in acquisition of less R.O.W. on the side street alignments throughout the project. Adjust centerline profile on the mainline reduce side street construction and acquisition of R.O.W. where possible.

**Opportunities:**

- Reduced R.O.W. costs
- Reduced construction costs by constructing fewer side street improvements
- Reduces construction time

**Risks:**

- Drainage and horizontal/vertical alignment problems may make the alternative undesirable at some locations

**Technical Discussion:**

On many of the side streets throughout the project, R.O.W. acquisition is shown for improvements a significant distance away from the mainline alignment. Absent drainage issues, or horizontal/vertical alignment problems, work should be limited on the side streets as much as is practicable. Adjustments in the centerline profile of the proposed roadway may be adjusted to minimize side street impacts for construction and R.O.W. acquisition.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 29,622,516	\$	\$ 29,622,516
ALTERNATIVE	\$ 29,588,059	\$	\$ 29,588,059
SAVINGS	\$ 34,456	\$	\$ 34,456

# Illustrations



PROJECT: Georgia Department of Transportation  
STP-1375(5) – P.I. No. 630977  
Bells Ferry Road-Widening & Improvements-Cherokee County

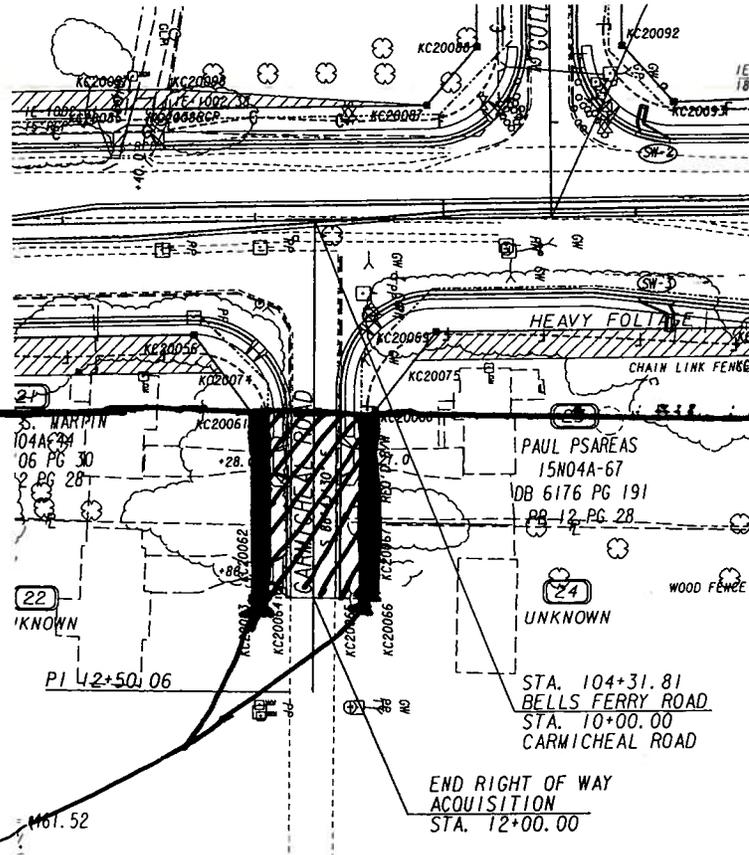
ALTERNATIVE NO.:  
**RD-6**

DESCRIPTION: REDUCE ACQUISITION OF R.O.W. ON SIDE STREETS.

SHEET NO.: 2 of 4

Limit  
CONSTRUCTION  
ON SIDE  
Streets  
absent  
problems  
with  
drainage  
or horizontal/  
VERTICAL  
ALIGNMENT.

Shaded areas -  
R.O.W.  
Potential  
SAVINGS



Example:  
11+20  
END R.O.W.  
ACQUISITION  
AT THIS  
POINT.  
Construct  
NO FURTHER  
IMPROVEMENTS.

Evaluate E profile of mainline roadway  
to minimize impacts to side street ties.

# Calculations



PROJECT: **Georgia Department of Transportation**  
**STP-1375(5) – P.I. No. 630977**  
**Bells Ferry Road-Widening & Improvements-Cherokee County**

ALTERNATIVE NO.:

**RD-6**

DESCRIPTION: **REDUCE ACQUISITION OF R.O.W. ON SIDE STREETS.**

SHEET NO.: 3 of 4

## **EXAMPLE INTERSECTION COST SAVINGS:**

Carmichael Road- Sta. 104+31.81 Bells Ferry Road (See attached illustration)

**R.O.W.-** Stop improvements at STA. 11+20 Carmichael Road alignment-  
80 LF RT./80LF LT. @ 10 LF ROW acquisition  
80'L x 10' W= 800 SF per side  
800 SF + 800 SF= 1,600 SF @ \$15/SF = **\$24,000**

**Curb and Gutter, Type II-** 80 LF RT. Plus 80 LF LT.= 160 LF @ \$39.00/LF= **\$6,240**

**9.5 mm Superpave(overlay)-** 80 LF x 24' W=1920 SF/9=213.33SY x  
120LB/SY=25599.6LB/2000LB/SY=12.79 tons  
12.79 tons @ \$90/ton= **\$1,151.10**

**Total potential savings for this example: \$31,391.10**

There are 22 intersections throughout the project that could be reviewed for potential savings in construction and R.O.W. acquisition.



# Value Analysis Design Suggestion



**PROJECT: Georgia Department of Transportation  
STP-1375(5) – P.I. No. 630977  
Bells Ferry Road-Widening & Improvements-Cherokee County**

ALTERNATIVE NO.:

**RD-7**

**DESCRIPTION: PROVIDE SIGNAL FOR NORTH VICTORIA  
ROAD/BELLS FERRY ROAD INTERSECTION. DELETE  
ALL OTHER NON-SIGNAL INTERSECTION U-TURNS.**

SHEET NO.: 1 of 1

## Original Design:

Original design does not signalize the intersection of North Victoria/Bell's Ferry Road. U-turn locations are shown at signalized and non-signalized areas throughout the project.

## Alternative:

Signalize the intersection of North Victoria and Bell's Ferry Road. Delete all u-turns at non-signalized intersections.

## Opportunities:

- Improved traffic operations.
- Create uniformity on u-turn locations.

## Risks:

- Minimal design impacts.

## Technical Discussion:

Adding signals to the intersection of North Victoria/Bell's Ferry Road interchange would provide four signalized intersections to the project, spaced approximately equidistantly. The alternative would allow u-turns at each of the signalized intersections, while deleting the remainder of the u-turns shown at non-signalized intersections. With the signalized intersections each being approximately 0.5 miles apart, this should allow for improved traffic operations by creating fewer median crossings, as well as cost savings by reducing pavement "eyebrows".

# Value Analysis Design Alternative



PROJECT:	Georgia Department of Transportation STP-1375(5) – P.I. No. 630977 Bells Ferry Road-Widening & Improvements-Cherokee County	ALTERNATIVE NO.:	RD-9
DESCRIPTION:	REALIGN MAINLINE WITH EXISTING NEAR N.VICTORIA ROAD	SHEET NO.:	1 of 4

**Original Design:**

The original design moves the existing alignment of Bells Ferry Road to the west, and shows a major intersection realignment at Bells Ferry Road/N. Victoria Road.

**Alternative:**

The alternative proposes that the mainline not be shifted west. It appears that the planned intersection realignment has been completed by others. The intersection realignment as it exists now can be utilized in its current condition if no realignment takes place.

**Opportunities:**

- Construction cost/time savings
- Improved traffic operations during construction sequencing

**Risks:**

- Minor design impacts

**Technical Discussion:**

The existing alignment could be utilized in place of the proposed shifting of the alignment to the west. This would allow more existing roadway to be used, and would take advantage of the intersection realignment currently in place, built by others.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 35,081,162	\$	\$ 35,081,162
ALTERNATIVE	\$ 34,485,677	\$	\$ 34,485,677
SAVINGS	\$ 595,485	\$	\$ 595,485

# Illustrations



PROJECT: Georgia Department of Transportation  
STP-1375(5) – P.I. No. 630977  
Bells Ferry Road-Widening & Improvements-Cherokee County

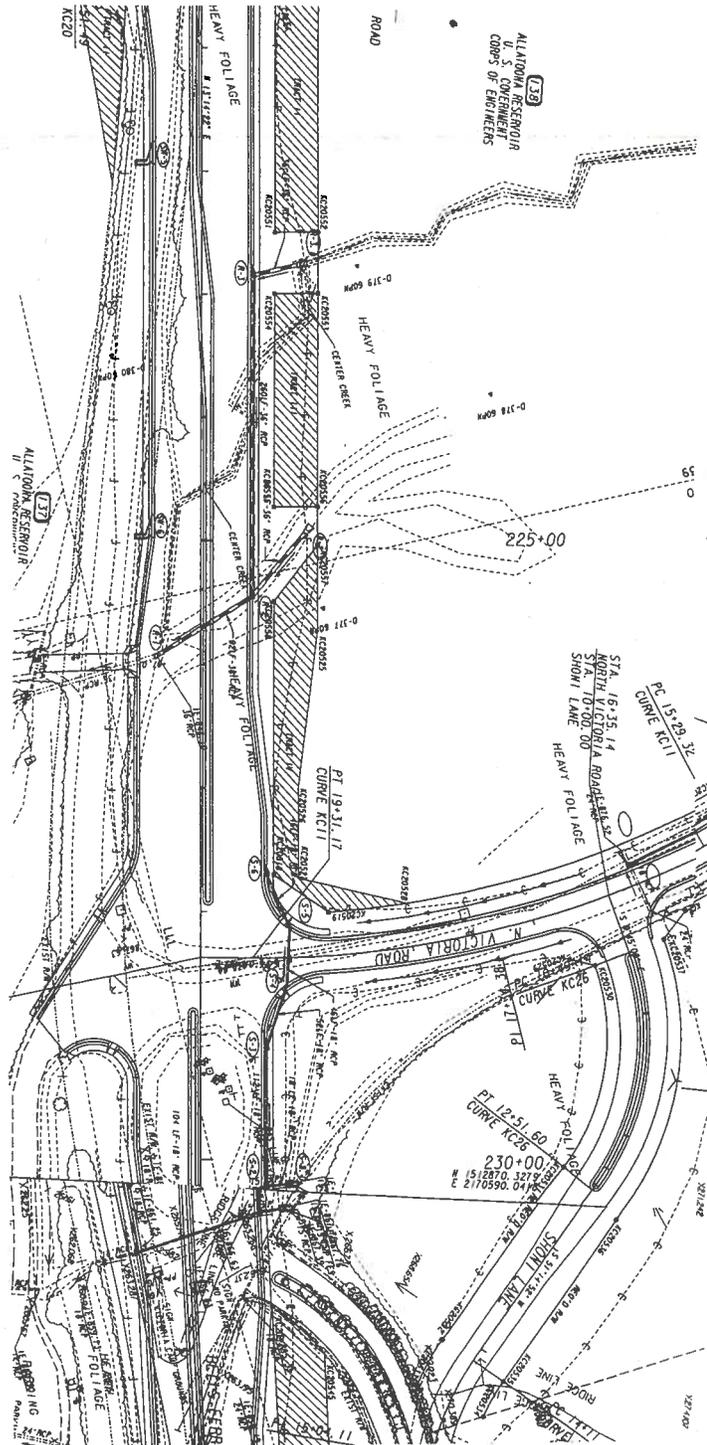
ALTERNATIVE NO.:

RD-9

DESCRIPTION: REALIGN MAINLINE WITH EXISTING NEAR N. VICTORIA ROAD

SHEET NO.: 2 of 4

EXISTING



- PROPOSED -

# Calculations



PROJECT: **Georgia Department of Transportation**  
**STP-1375(5) – P.I. No. 630977**  
**Bells Ferry Road-Widening & Improvements-Cherokee County**

ALTERNATIVE NO.:

**RD-9**

DESCRIPTION: **REALIGN MAINLINE WITH EXISTING NEAR N. VICTORIA ROAD**

SHEET NO.: 3 of 4

-Keep existing pavement in place from STA. 220+00 to STA. 235+00= 1,500LF

-75% utilization of existing pavement in that area. (Discounting for tapers and transitions at tie points on either end)

-1,500 LF x 0.75 Utilization=1,125 LF

-1,125 LF x 24/9=3,000 SY.

-ROW-1,125' x 24'=27,000 SF @ \$15/SF=**\$405,000**

-G.A.B.- 900lb/sy x 3,000 SY/2000lb/sy= 1,350 tons @ \$18.50/ton= **\$24,975**

-25 mm Superpave-440lb/SYx 3,000 SY/2000lb/sy= 660 tons @ \$90/ton= **\$59,400**

-19 mm Superpave- 220lb/SY x 3,000SY/2000lb/sy= 330 tons @ \$90/ton=**\$29,700**

-9.5 mm Superpave- 165lb/sy x 3,000 SY/2,000lb/sy= 247.5 tons @ \$90/ton=**\$22,275**

**\$541,350 +**

10%Markup=

**\$595,485 total**



# Value Analysis Design Suggestion



PROJECT: Georgia Department of Transportation  
STP-1375(5) – P.I. No. 630977  
Bells Ferry Road-Widening & Improvements-Cherokee County

ALTERNATIVE NO.:

**RD-11**

DESCRIPTION: ROTATE ALIGNMENT FROM STA. 140+00 TO STA.  
147+00 TO REDUCE TRAFFIC CONFLICTS DURING  
CONSTRUCTION.

SHEET NO.: 1 of 1

## Original Design:

The original design shows a westward shift in the alignment from STA. 140+00 to STA 147+00 to straighten profile.

## Alternative:

The alternative proposal is to shift roadway section from STA.140+00-STA.145+00 a bit further to the west to keep proposed roadway separate from existing roadway if possible.

## Opportunities:

- Reduction of traffic conflicts during construction phase
- Reduced use of traffic control/traffic channelizing devices

## Risks:

- Moderate design impacts
- Modest increase in R.O.W. acquisition

## Technical Discussion:

By shifting the section from STA. 140+00-STA.145+00 a bit further to the west, it would reduce traffic conflicts during construction by having fewer encroachments by the proposed roadway into the existing roadway. Utilizing the further shift to the west could satisfy the intent to straighten the existing alignment. The proposed shift would result in utilizing less of the existing pavement, possibly offsetting gains realized by using fewer resources in traffic control/traffic channelizing devices.

# Value Analysis Design Suggestion



PROJECT: **Georgia Department of Transportation**  
**STP-1375(5) – P.I. No. 630977**  
**Bells Ferry Road-Widening & Improvements-Cherokee County**

ALTERNATIVE NO.:

**RD-13**

DESCRIPTION: **PROVIDE RIGHT TURN LANE FROM OTHELLO ROAD**  
**ONTO BELLS FERRY ROAD.**

SHEET NO.: 1 of 1

## Original Design:

The original plans have one lane in/one lane out on Othello Drive at the Bells Ferry Road intersection.

## Alternative:

The alternative would be to construct a right turn lane from Othello Drive onto Bells Ferry Road.

## Opportunities:

- Improved traffic operations

## Risks:

- Minor design impacts
- Additional costs incurred for construction

## Technical Discussion:

Building a right turn lane on Othello Drive to Bells Ferry Road would help improve traffic operations in the area. There appears to be substantial development on the west side of Bells Ferry Road near Othello Drive. Building a right turn lane in conjunction with the current widening project would appear to be beneficial. It appears there is enough R.O.W. currently acquired or scheduled to be acquired in this area, so that no further R.O.W. acquisitions appear to be necessary.

# Value Analysis Design Alternative



PROJECT:	<b>Georgia Department of Transportation STP-1375(5) – P.I. No. 630977 Bells Ferry Road-Widening &amp; Improvements-Cherokee County</b>	ALTERNATIVE NO.:	<b>RD-14</b>
DESCRIPTION:	<b>DELETE LEFT TURN BAYS AT THE FIRE STATION DRIVE</b>	SHEET NO.:	1 of 4

**Original Design:**

The original design has left turn bays for the median cut in front of the fire station drive.

**Alternative:**

The alternative design would eliminate the left turn bays, eliminate the associated eyebrow pavement, stripe out the median opening and sign it “for emergency vehicles only”.

**Opportunities:**

- Reduce paving costs
- Improve safety by eliminating non-emergency vehicles from the intersection

**Risks:**

- Minimal design effort

**Technical Discussion:**

The left turn bays in front of the fire station would serve very few vehicles accessing the facility and would attract vehicles wishing to U-turn. The vehicles executing a U-turn in front of the station would increase congestion in the vicinity. Fire trucks entering and exiting the station would have benefit of the emergency signal and would not require a turn bay. It would also provide an opportunity to increase the storage for southbound traffic turning onto Countryside Lane and prevent queues from blocking the fire station median opening.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 9,250,567.00	\$	\$ 9,250,567.00
ALTERNATIVE	\$ 9,204,342.00	\$	\$ 9,204,342.00
SAVINGS	\$ 46,224.00	\$	\$ 46,224.00

# Illustrations



PROJECT: **Georgia Department of Transportation  
STP-1375(5) – P.I. No. 630977  
Bells Ferry Road-Widening & Improvements-Cherokee County**

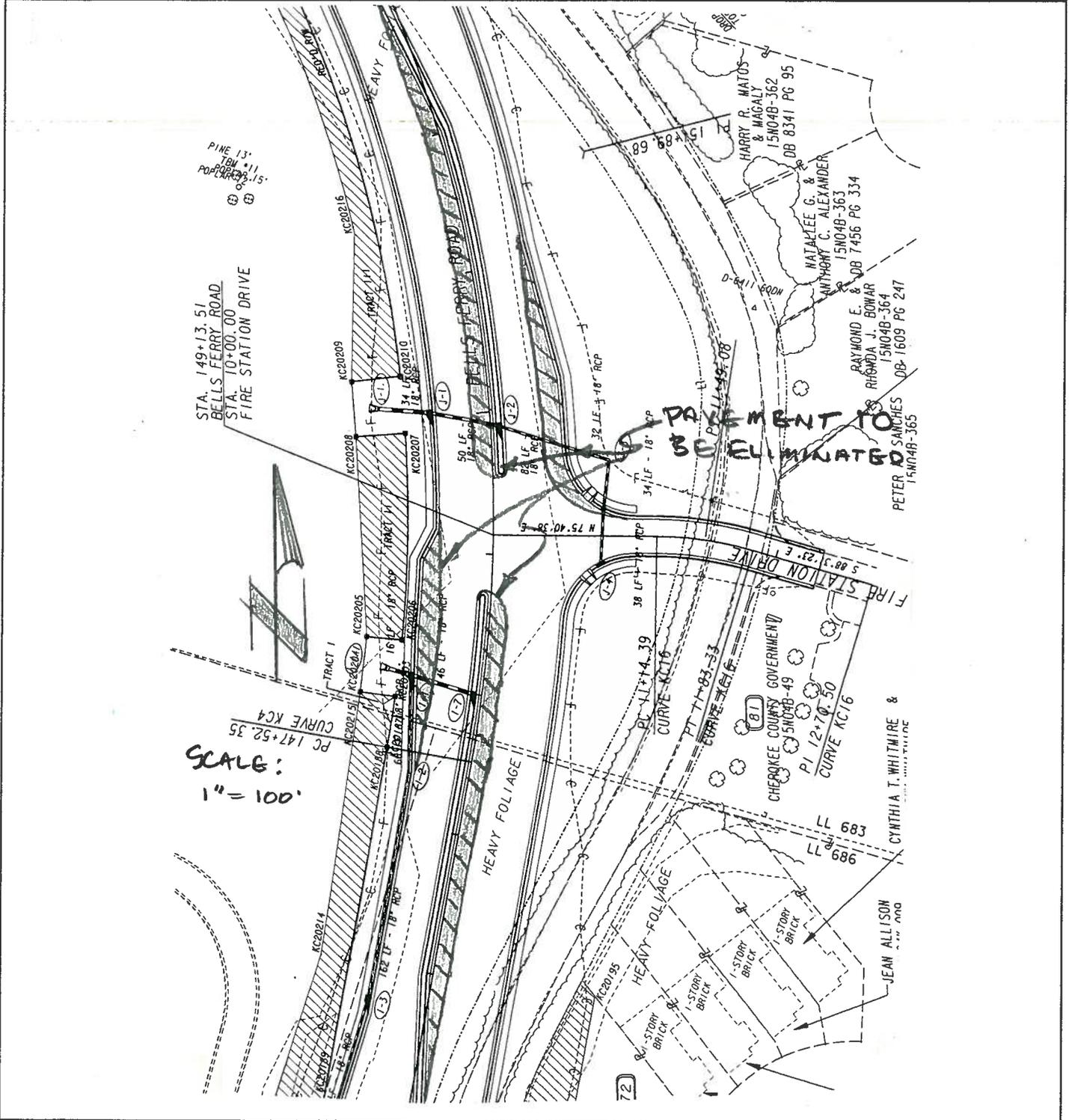
ALTERNATIVE NO.:

**RD-14**

DESCRIPTION: **DELETE LEFT TURN BAYS AT THE FIRE STATION DRIVE**

SHEET NO.:

2 of 4



# Calculations



PROJECT: **Georgia Department of Transportation**  
**STP-1375(5) – P.I. No. 630977**  
**Bells Ferry Road-Widening & Improvements-Cherokee County**

ALTERNATIVE NO.:

**RD-14**

DESCRIPTION: **DELETE LEFT TURN BAYS AT THE FIRE STATION DRIVE**

SHEET NO.:

3 of 4

Area of turn bay paving:

$$\text{NB- } (12' / 2 \times 85') + (12' \times 265') = 3690 \text{ sf}$$

$$\text{SB- } (12' / 2 \times 85') + (12' \times 245') = 3450 \text{ sf}$$

$$\text{Eyebrows- } 2 \times (12' / 2 \times 100') + (12' \times 60') = 2640 \text{ sf}$$

$$\text{Total} = (9780 \text{ sf}) / (9 \text{ sf/sy}) \Rightarrow 1087 \text{ sy}$$

$$\text{Earthwork: Assume } 1.5' \text{ depth } (1.5' / 3' / \text{yd}) \times 794 \text{ sy} \Rightarrow 544 \text{ cy}$$

## AFFECTED PAY ITEMS:

### Original:

Earthwork(fill): 77718 cy

8" GAB- 66900 tons

9.5 mm Superpave- 13919 tons

19.0 mm Superpave- 18289 tons

25.0 mm Superpave- 37118 tons

### Alternative:

Change in Quantity-

Earthwork: From above  $\Rightarrow +544 \text{ cy}$

$$8" \text{ GAB- } (9780 \text{ sf}) \times (8" / 12") \times (135 \# / \text{cf}) / (2000 \# / \text{ton}) \Rightarrow -440 \text{ tons}$$

$$12.5 \text{ mm Superpave- } (1087 \text{ sy}) \times (165 \# / \text{sy}) / (2000 \# / \text{ton}) \Rightarrow -90 \text{ tons}$$

$$19.0 \text{ mm Superpave- } (1087 \text{ sy}) \times (220 \# / \text{sy}) / (2000 \# / \text{ton}) \Rightarrow -120 \text{ tons}$$

$$25.0 \text{ mm Superpave- } (1087 \text{ sy}) \times (440 \# / \text{sy}) / (2000 \# / \text{ton}) \Rightarrow -239 \text{ tons}$$

Total-

$$\text{Earthwork(fill): } 77718 \text{ cy} + 544 \text{ cy} \Rightarrow 78262 \text{ cy}$$

$$8" \text{ GAB- } 66900 \text{ tons} - 440 \text{ tons} \Rightarrow 66460 \text{ tons}$$

$$9.5 \text{ mm Superpave- } 13919 \text{ tons} - 90 \text{ tons} \Rightarrow 13829 \text{ tons}$$

$$19.0 \text{ mm Superpave- } 18289 \text{ tons} - 120 \text{ tons} \Rightarrow 18169 \text{ tons}$$

$$25.0 \text{ mm Superpave- } 37118 \text{ tons} - 239 \text{ tons} \Rightarrow 36879 \text{ tons}$$



# Value Analysis Design Alternative



PROJECT:	<b>Georgia Department of Transportation</b> <b>STP-1375(5) – P.I. No. 630977</b> <b>Bells Ferry Road-Widening &amp; Improvements-Cherokee County</b>	ALTERNATIVE NO.:	<b>RD-15</b>
DESCRIPTION:	<b>DELETE THE RIGHT TURN NB INTO THE FIRE STATION</b>	SHEET NO.:	1 of 4

**Original Design:**

The original design has a channelized right turn for fire station drive.

**Alternative:**

The alternative design would eliminate the channelized right turn for the fire station.

**Opportunities:**

- Reduce paving costs
- Reduce earthwork
- Reduce easements
- 

**Risks:**

- Minimal design effort

**Technical Discussion:**

The channelized right turn in front of the fire station would serve very few vehicles accessing the facility. Fire trucks entering and exiting the station would have benefit of the emergency signal and would not require a turn bay.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 59,017,724.00	\$	\$ 59,017,724.00
ALTERNATIVE	\$ 58,765,704.00	\$	\$ 58,765,704.00
SAVINGS	\$ 252,019.00	\$	\$ 252,019.00



# Calculations



PROJECT: **Georgia Department of Transportation**  
**STP-1375(5) – P.I. No. 630977**  
**Bells Ferry Road-Widening & Improvements-Cherokee County**

ALTERNATIVE NO.:

**RD-15**

DESCRIPTION: **DELETE THE RIGHT TURN NB INTO THE FIRE STATION**

SHEET NO.: 3 of 4

Area of turn bay paving:

NB- (12' x 550') = 6600 sf

Earthwork: (Station 143+00 to Station 146+00)

Assume 6' depth x 40' width x 300' / (27cy/cf) => 2667 cy

Easements: (Station 143+00 to Station 146+00)

12' x 300' => 3960 sf

## AFFECTED PAY ITEMS:

### Original:

Earthwork(cut): 271163 cy

8" GAB- 66900 tons

9.5 mm Superpave- 13919 tons

19.0 mm Superpave- 18289 tons

25.0 mm Superpave- 37118 tons

### Alternative:

Change in Quantity-

Earthwork: From above => -2667 cy

8" GAB- (6600 sf) x (8"/12") x (135#/cf) / (2000#/ton) => -297 tons

12.5 mm Superpave- (440 sy) x (165#/sy) / (2000#/ton) => -36 tons

19.0 mm Superpave- (440sy) x (220#/sy) / (2000#/ton) => -48 tons

25.0 mm Superpave- (440sy) x (440#/sy) / (2000#/ton) => -97 tons

Easements: Net cost 3960 sf x \$15.00 = \$59,400.00

Scheduling @ 55% = \$32,670.00

Court cost @ 60% = \$35,640.00

Inflation @ 65% = \$38,610.00

Total = \$166,320.00

### Total-

Earthwork(fill): 77718 cy -2667 cy => 75051 cy

8" GAB- 66900 tons - 297 tons => 66603 tons

9.5 mm Superpave- 13919 tons - 36 tons => 13883 tons

19.0 mm Superpave- 18289 tons -48 tons => 18241 tons

25.0 mm Superpave- 37118 tons - 97 tons => 36921 tons

Easements: \$45,242,870.00 - \$166,320 = \$45,076,550.00



# Value Analysis Design Suggestion



PROJECT: **Georgia Department of Transportation**  
**STP-1375(5) – P.I. No. 630977**  
**Bells Ferry Road-Widening & Improvements-Cherokee County**

ALTERNATIVE NO.:

**RD-16**

DESCRIPTION: **DELETE LEFT TURNS TO SIDE STREETS, PROVIDE MID-BLOCK U-TURNS.**

SHEET NO.: 1 of 1

## Original Design:

Original design provides left turns onto side streets, and provides u-turn locations at various intersections.

## Alternative:

Delete left turns onto side streets, and provide mid-block u-turns to help promote traffic operations at intersections throughout the project.

## Opportunities:

- Reduce traffic conflicts at unsignalized intersections
- Reduce traffic load on signalized intersections by distributing u-turns
- Improve access management
- Reduce paving by eliminating some of the eyebrow paving and median crossovers

## Risks:

- Moderate design impacts

## Technical Discussion:

By eliminating the unsignalized left turns onto the side street it will reduce conflicts and will potentially improve overall operations and safety. It should also encourage backstreet circulation which will improve roadway operations. It also would provide the opportunity to reduce the amount of paving by reducing the number of median crossovers and required u-turn eyebrows.

# Value Analysis Design Alternative



<b>PROJECT: Georgia Department of Transportation</b> <b>STP-1375(5) – P.I. No. 630977</b> <b>Bells Ferry Road-Widening &amp; Improvements-Cherokee</b>	ALTERNATIVE NO.:  <b>DR-1</b>
<b>DESCRIPTION: MODIFY STRUCTURES AT INTERMITTANT STREAMS</b> <b>(STA.223+00 AND STA. 225+70)</b>	SHEET NO.: 1 of 4

**Original Design:**

The original design has a closed/longitudinal system from Station 223+00 to 225+70 and it eliminates approximately 370' of the existing natural streambed.

**Alternative:**

The alternative design would provide two perpendicular crossings for the outfalls and would re-establish +300' of the natural channel on the east side of the roadway

**Opportunities:**

- Reduction in drainage structure cost
- Reduction in net streambed impacts by re-establishing the natural channel
- Providing redundancy with two outfalls instead of one

**Risks:**

- Moderate design impacts
- Additional construction easements

**Technical Discussion:**

The proposed alternative provides a less complicated system that is also cheaper. It reduces the net streambed impacts by reestablishing the natural channel that is disturbed. It should be noted that no costs were included for additional construction easements but these cost could be balanced against potential mitigation cost for elimination of the natural streambed.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
<b>ORIGINAL DESIGN</b>	\$ 41,551	\$	\$ 41,551
<b>ALTERNATIVE</b>	\$ 38,686	\$	\$ 38,686
<b>SAVINGS</b>	\$ 2,865	\$	\$ 2,865

# Illustrations



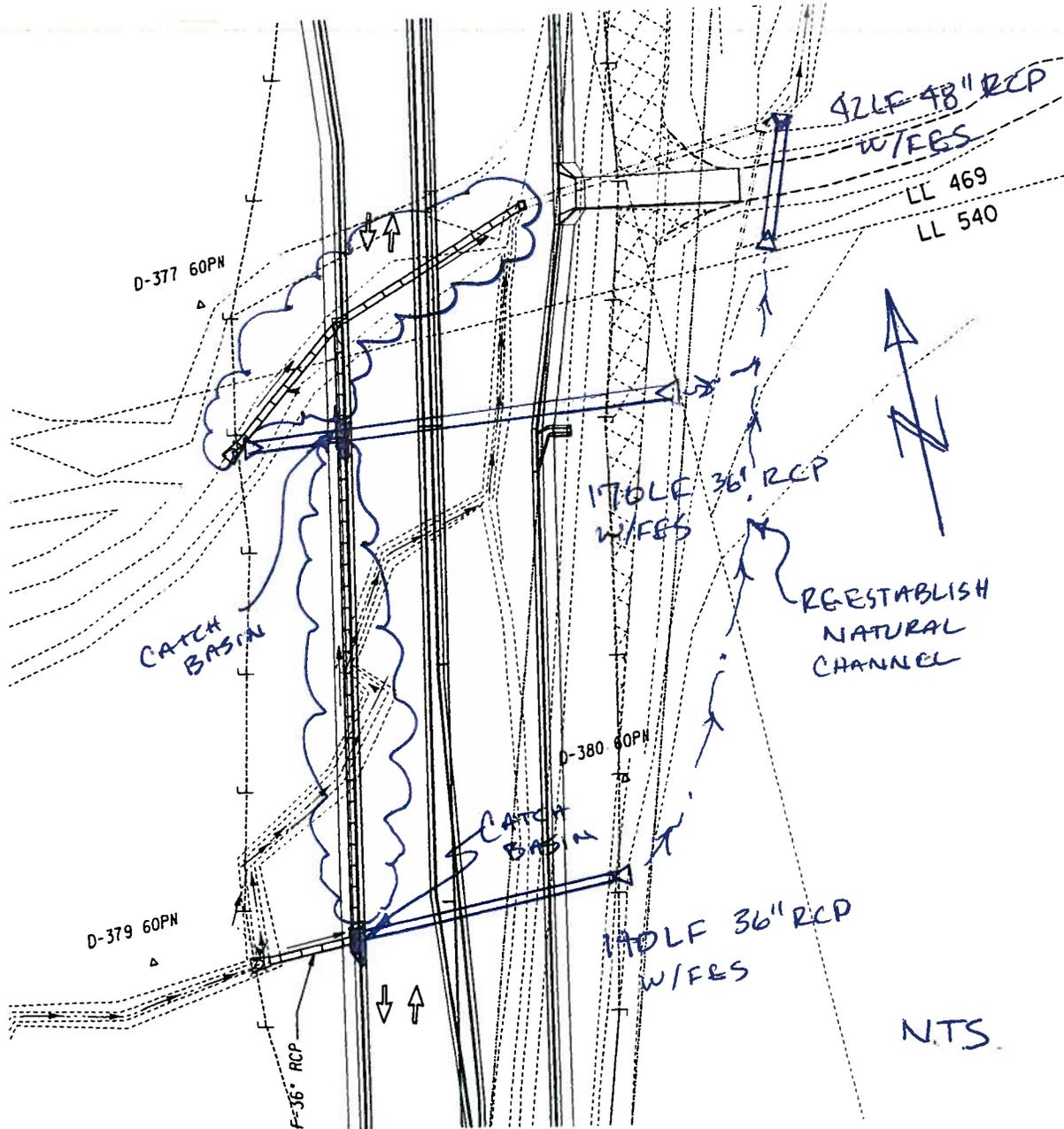
PROJECT: Georgia Department of Transportation  
STP-1375(5) - P.I. No. 630977  
Bells Ferry Road-Widening & Improvements-Cherokee County

ALTERNATIVE NO.:

DR-1

DESCRIPTION: MODIFY STRUCTURES AT INTERMITTANT STREAMS  
(STA.223+00 AND STA. 225+70)

SHEET NO.: 2 of 4



# Calculations



PROJECT: **Georgia Department of Transportation**  
**STP-1375(5) – P.I. No. 630977**  
**Bells Ferry Road-Widening & Improvements-Cherokee County**

ALTERNATIVE NO.:

**DR-1**

DESCRIPTION: **MODIFY STRUCTURES AT INTERMITTANT STREAMS**  
**(STA.223+00 AND STA. 225+70)**

SHEET NO.: 3 of 4

AFFECTED PAY ITEMS: Drainage structures from Station 223+00 and Station 225+70

Original:

36" RCP- 92'+66'+36'+ 260'	=>	454'
36" FES	=>	2 EACH
CATCH BASIN	=>	2 EACH
JUNCTION BOX	=>	1 EACH

Alternative

36" RCP- 140'+170'	=>	310'
48" RCP- 42'	=>	42'
36" FES	=>	4 EACH
48" FES	=>	2 EACH
CATCH BASIN	=>	2 EACH



# COST WORKSHEET

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

**STP-1375(5) – P.I. No. 630977 - Bells Ferry Road Widening & Improvements - Cherokee County**

DESCRIPTION: **MODIFY STRUCTURES AT INTERMITTANT STREAMS (STA.223+00 AND STA. 225+70)** 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
				\$ -			\$ -
36" RCP	LF	454	68.50	\$ 31,099	310	68.50	\$ 21,235
48" RCP	LF	0	83.24	\$ -	42	83.24	\$ 3,496
36" FES	EA	2	783.13	\$ 1,566	4	783.13	\$ 3,133
48" FES	EA	0	1,950.00	\$ -	2	1,950.00	\$ 3,900
JUNCTION BOX	EA	1	1,702.67	\$ 1,703	0	1,702.67	\$ -
CATCH BASIN	EA	2	1,702.67	\$ 3,405	2	1,702.67	\$ 3,405
				\$ -			\$ -
				\$ -			\$ -
				\$ -			\$ -
				\$ -			\$ -
				\$ -			\$ -
				\$ -			\$ -
				\$ -			\$ -
				\$ -			\$ -
				\$ -			\$ -
				\$ -			\$ -
				\$ -			\$ -
				\$ -			\$ -
				\$ -			\$ -
				\$ -			\$ -
				\$ -			\$ -
				\$ -			\$ -
<b>Sub-total</b>				<b>\$ 37,773</b>			<b>\$ 35,169</b>
<b>Mark-up at 10.00%</b>				<b>\$ 3,777</b>			<b>\$ 3,517</b>
<b>TOTAL</b>				<b>\$ 41,551</b>			<b>\$ 38,686</b>
Estimated Savings:							<b>\$2,865</b>

# Value Analysis Design Alternative



PROJECT: Georgia Department of Transportation STP-1375(5) – P.I. No. 630977 Bells Ferry Road-Widening & Improvements-Cherokee	ALTERNATIVE NO.:  <b>DR-2</b>
DESCRIPTION: <b>MODIFY STRUCTURE AT 149+90; MOVE INLETS NORTH, CUT SPECIAL DITCH AND REROUTE PIPE</b>	SHEET NO.: 1 of 4

**Original Design:**

The original design has a curb inlet on the median side of the northbound roadway at Station 149+90 and a drop inlet at Station 149+63.

**Alternative:**

The alternative design calls moving the median inlets at Stations 148+00 and 149+00 further to the north, eliminating the curb and curb inlets on the side street, installing a cross drain under Fire Station Drive and cutting ditches on the east side of the roadway.

**Opportunities:**

- Reduction in sheet flow from the side road
- Elimination of point flow at two locations
- Eliminate water trapped south of the Fire Station Drive

**Risks:**

- Moderate design impacts.
- Additional cost from extending pipe

**Technical Discussion:**

Relocating the inlet at Station 148+00 further north will intercept more water coming from down station and will lessen the “point flow” of water crossing the southbound roadway at ~Station 148+70. Adding a crossdrain under Fire Station Drive will eliminate trapping water on the south side of the road and will allow cutting special ditches that will intercept more water draining to the main roadway. Eliminating the curbs on Fire Station Drive will allow more water to drain to the special ditch and not spill onto the main roadway. Cutting a special ditch will also allow you the intercept the water that now drains north from the drop inlet at Station 149+63 to Station 152+00 that will spill over the curb onto the roadway.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 36,463	\$	\$ 36,463
ALTERNATIVE	\$ 26,313	\$	\$ 26,313
SAVINGS	\$ 10,150	\$	\$ 10,150

# Illustrations



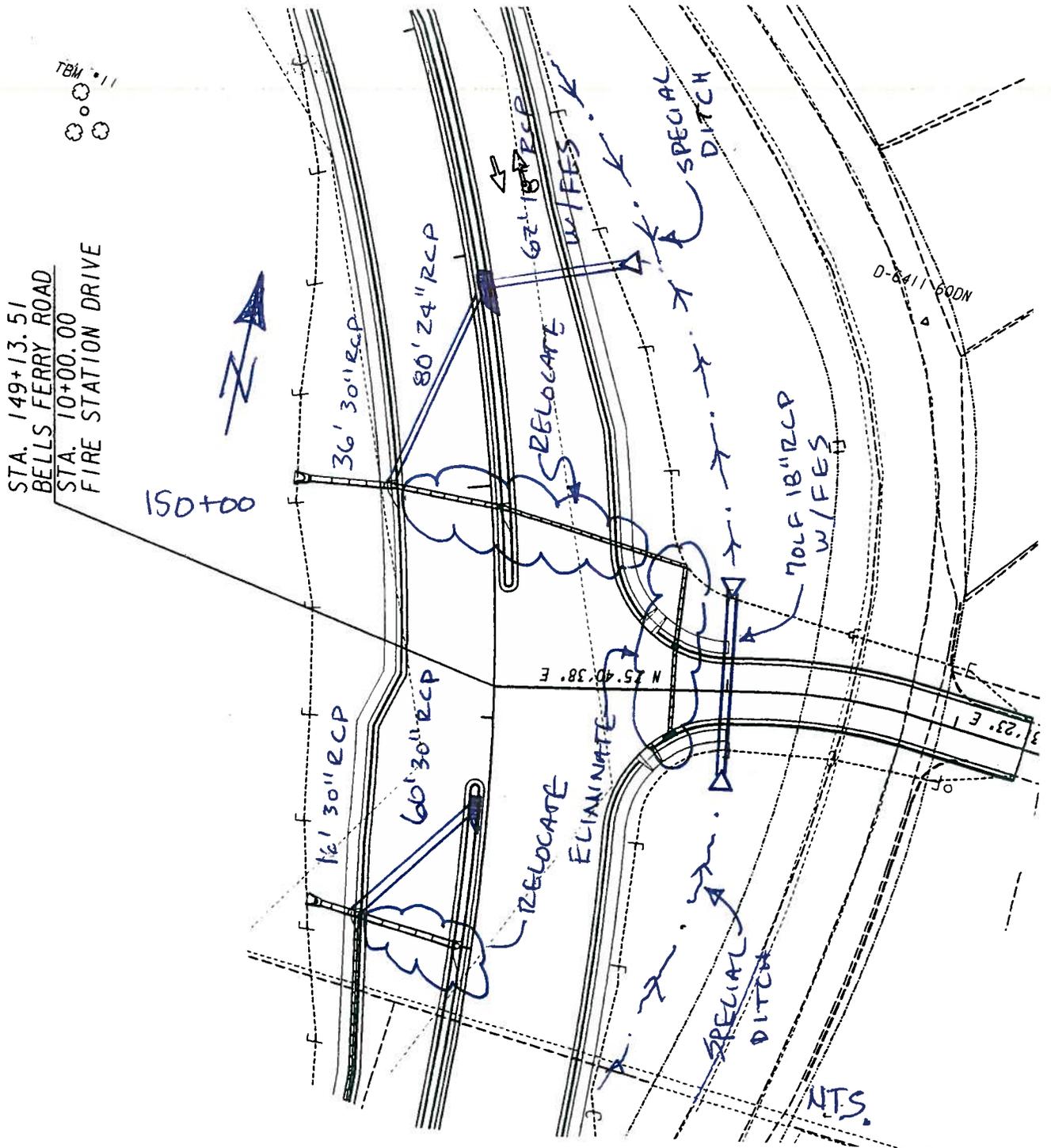
PROJECT: Georgia Department of Transportation  
STP-1375(5) - P.I. No. 630977  
Bells Ferry Road-Widening & Improvements-Cherokee County

ALTERNATIVE NO.:

DR-2

DESCRIPTION: MODIFY STRUCTURE AT 149+90; MOVE INLETS NORTH,  
CUT SPECIAL DITCH AND REROUTE PIPE

SHEET NO.: 2 of 4



# Calculations



PROJECT: **Georgia Department of Transportation  
STP-1375(5) – P.I. No. 630977  
Bells Ferry Road-Widening & Improvements-Cherokee County**

ALTERNATIVE NO.:

**DR-2**

DESCRIPTION: **MODIFY STRUCTURE AT 149+90; MOVE INLETS NORTH,  
CUT SPECIAL DITCH AND REROUTE PIPE**

SHEET NO.: 3 of 4

AFFECTED PAY ITEMS: Drainage structures at Station 148+00 and Station 149+91.66

Original:

18" RCP- 82'+38'+34'=>	154'
24" RCP- 50' =>	50'
30" RCP- 46'+16'+36'=>	98'
DROP INLET =>	1 EACH
30" FES =>	2 EACH
CATCH BASIN =>	4 EACH

Alternative

18" RCP- 70'+62' =>	132'
24" RCP- 80' =>	80'
30" RCP- 30'+16'+60'=>	112'
18" FES =>	3 EACH
30" FES =>	2 EACH
CATCH BASIN =>	2 EACH



# Value Analysis Design Alternative



PROJECT:	Georgia Department of Transportation STP-1375(5) – P.I. No. 630977 Bells Ferry Road-Widening & Improvements-Cherokee County	ALTERNATIVE NO.:	DR-3
DESCRIPTION:	DELETE CURB AND GUTTER FROM SIDE STREETS	SHEET NO.:	1 of 4

**Original Design:**

The original design shows constructing curb and gutter sections for almost all of the side streets for a substantial distance.

**Alternative:**

The alternative proposal is to eliminate the curb and gutter in the transition sections, stopping it where the radius return reaches tangency on the side street.

**Opportunities:**

- Cost savings for Type II curb and gutter
- Less disturbance to adjacent landowners during construction phase

**Risks:**

- Minor design impacts
- Alternative drainage features may be warranted in lieu of curb and gutter

**Technical Discussion:**

The original design carries curb and gutter for a substantial distance on the side street alignment. The alternative proposal is to carry curb and gutter sections on side streets only to where the radius return reaches a point of tangency. The attached calculations remove the excess curb and gutter shown beyond the point of radius return tangency. It should be noted that the drainage characteristics for each location may not allow removal of all portions shown in the calculations. The intent is to minimize the area on side streets drained by curb and gutter unless warranted. Please see attached calculations and illustration for further clarification.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 1,388,062	\$	\$ 1,388,062
ALTERNATIVE	\$ 1,195,818	\$	\$ 1,195,818
SAVINGS	\$ 192,244	\$	\$ 192,244

# Illustrations



PROJECT: Georgia Department of Transportation  
STP-1375(5) – P.I. No. 630977  
Bells Ferry Road-Widening & Improvements-Cherokee County

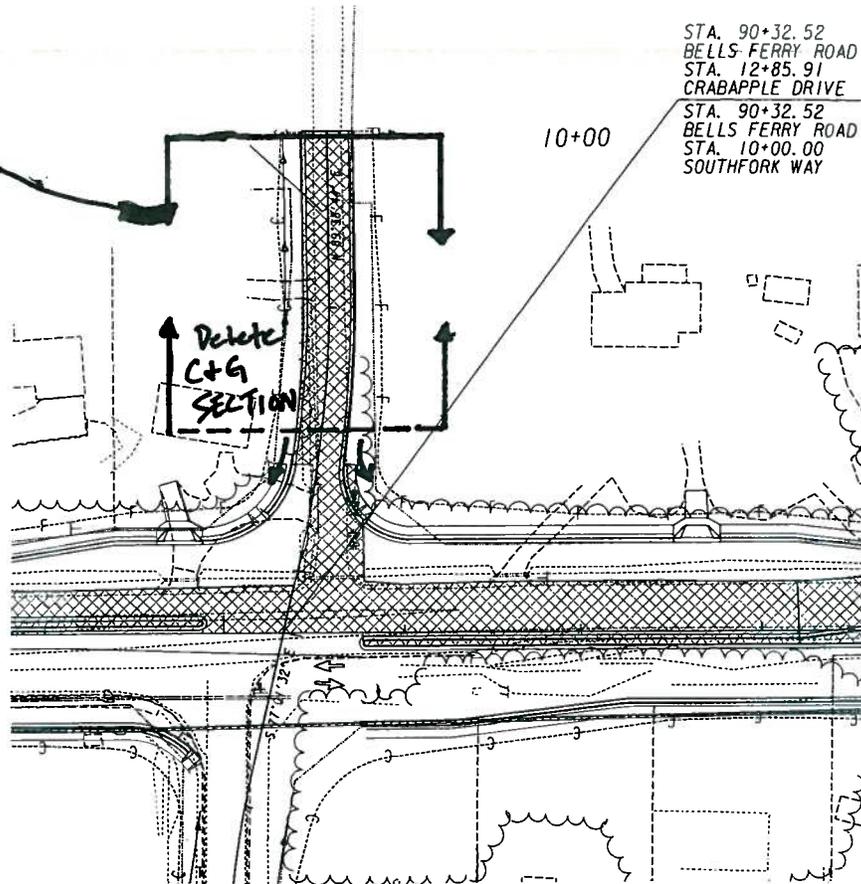
ALTERNATIVE NO.:

DR-3

DESCRIPTION: DELETE CURB AND GUTTER FROM SIDE STREETS.

SHEET NO.: 2 of 4

OMIT CURB +  
Gutter section  
FROM POINT  
OF RADIUS  
RETURN  
TANGENCY



TYPICAL;  
N.T.S.

# Calculations



PROJECT: Georgia Department of Transportation  
 STP-1375(5) – P.I. No. 630977  
 Bells Ferry Road-Widening & Improvements-Cherokee County

ALTERNATIVE NO.:

**DR-3**

DESCRIPTION: DELETE CURB AND GUTTER FROM SIDE STREETS.

SHEET NO.: 3 of 4

<u>SIDE STREET</u>	<u>REDUCTION</u>	<u>SIDE STREET</u>	<u>REDUCTION</u>
Commerce Dr. RT.	125 LF	Rel. Dockside Downs RT.	250 LF
Commerce Dr.LT.	125 LF	Rel. Dockside Downs LT.	250 LF
Crabapple Dr. RT.	150LF	Wyngate Pkwy RT.	150 LF
Crabapple Dr. LT	150 LF	Wyngate Pkwy LT.	150 LF
Southfork Way RT.	140 LF	Black Oak Trail RT.	80 LF
Southfork Way LT.	140 LF	Black Oak Trail LT.	80 LF
Lynford Lane RT.	130 LF	Surrey Drive RT.	80 LF
Lynford Lane LT.	130 LF	Surrey Drive LT.	100 LF
Carmichael Rd. RT.	80 LF	S. Victoria Rd. RT.	100 LF
Carmichael Rd. LT.	80 LF	S. Victoria Rd. LT.	100 LF
Golden Hills Dr. RT.	100 LF	Port Victoria Way RT.	250 LF
Golden Hills Dr. LT.	100 LF	Port Victoria Way LT.	250 LF
Othello Dr. RT.	90 LF	E. Bells Ferry Rd. RT.	200 LF
Othello Dr. LT.	90 LF	E. Bells Ferry Rd. LT.	200 LF
Towne Lake Pkwy RT.	50 LF		
Towne Lake Pkwy LT.	50 LF		
Regency Way RT.	100 LF		
Regency Way LT.	100 LF		
Ashfern Walk RT.	100 LF		
Ashfern Walk LT.	100 LF		
Victoria North RT.	80 LF		
Victoria North LT.	80 LF		

**Total- 4,530 LF**

4,530 LF @ \$38.58/LF(Type II)=

\$174,764.40



# Value Analysis Design Alternative



PROJECT:	<b>Georgia Department of Transportation STP-1375(5) – P.I. No. 630977 Bells Ferry Road-Widening &amp; Improvements-Cherokee</b>	ALTERNATIVE NO.:	<b>DR-4</b>
DESCRIPTION:	<b>ELIMINATE EXISTING STRUCTURE AT STATION 219+28.94</b>	SHEET NO.:	1 of 4

**Original Design:**

The original design extends an existing cross drain to tie together and outfall a drop inlet and a catch basin.

**Alternative:**

The alternative design proposes utilizing all new 18" RCP.

**Opportunities:**

- Reduction structure cost
- Elimination two manholes in the pavement
- Extend the life of the structure by using new pipe
- Improved hydraulic flow
- Reduced maintenance

**Risks:**

- Moderate design impacts

**Technical Discussion:**

Due to the small length of existing pipe and the fact that it is only 18' in diameter it is more expensive to retain it in the proposed structure than to replace it. In addition, retaining it introduces two manholes in the paving at the Bell's Ferry Road intersection which undesirable. It is possible to modify the design utilizing junction boxes to eliminate the manholes in the intersection however replacing all of the pipe is still less expensive and maintains all the other desirable characteristics.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 15,382	\$	\$ 15,382
ALTERNATIVE	\$ 10,704	\$	\$ 10,704
SAVINGS	\$ 4,677	\$	\$ 4,677

# Illustrations



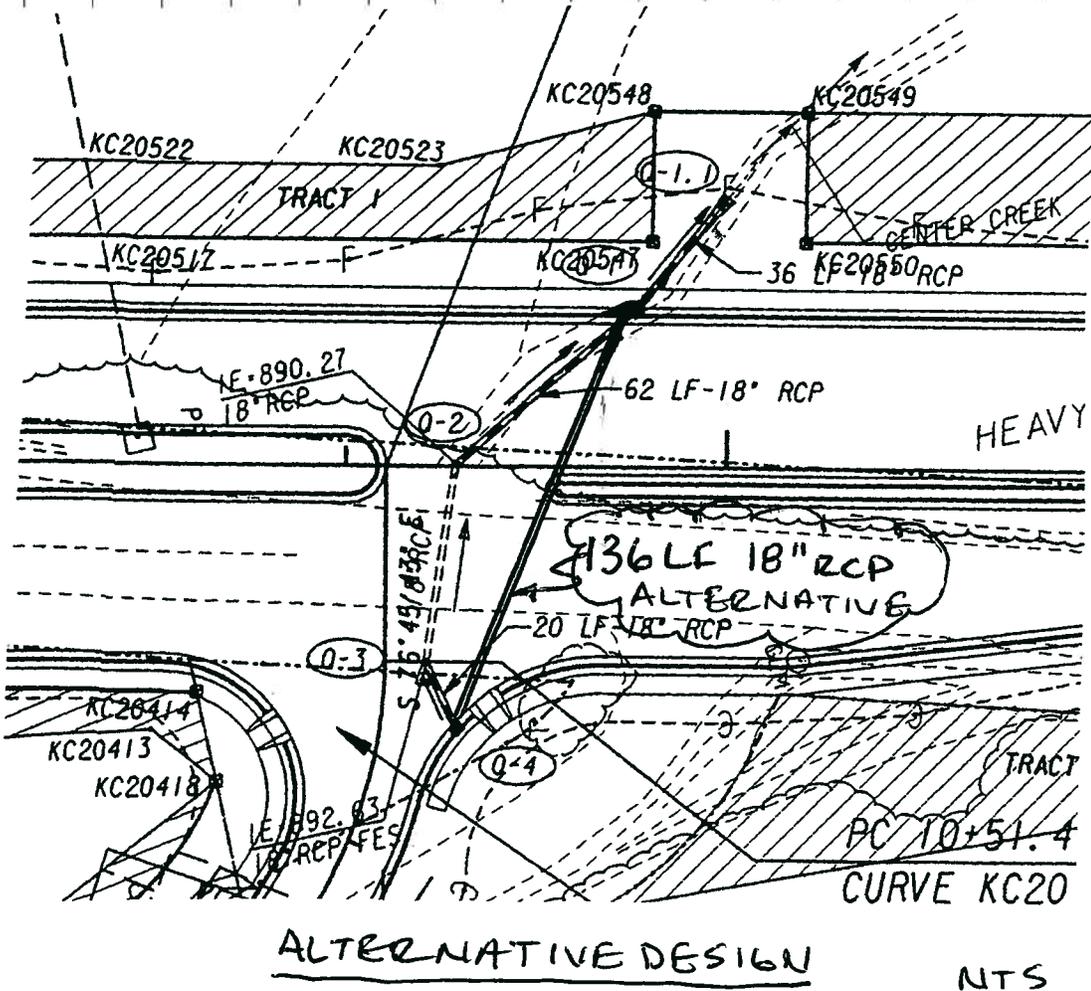
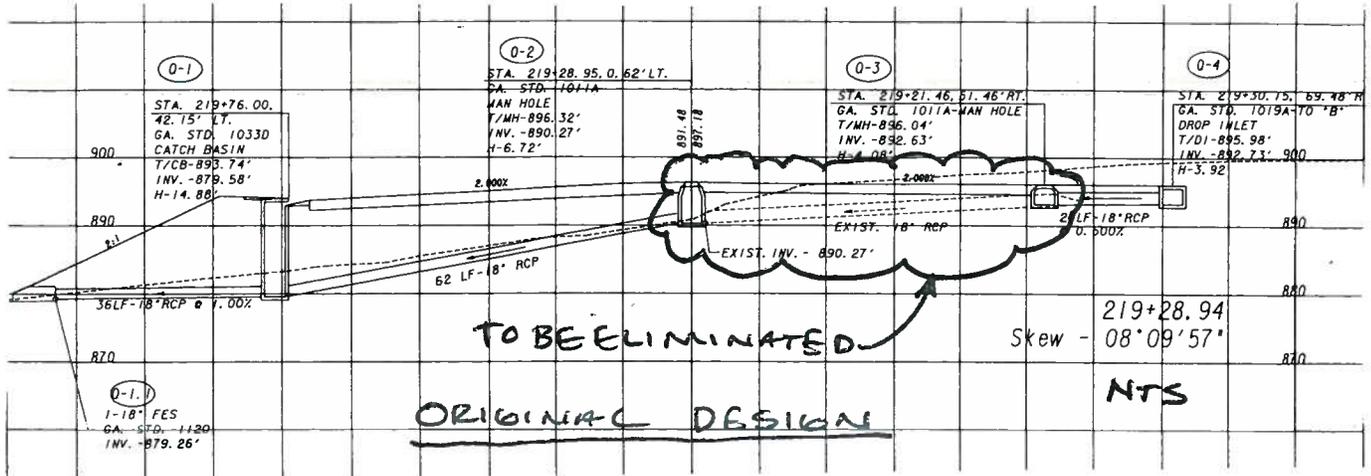
PROJECT: Georgia Department of Transportation  
 STP-1375(5) - P.I. No. 630977  
 Bells Ferry Road-Widening & Improvements-Cherokee County

ALTERNATIVE NO.:

DR-4

DESCRIPTION: ELIMINATE EXISTING STRUCTURE AT STATION  
 219+28.94

SHEET NO.: 2 of 4



# Calculations



PROJECT: **Georgia Department of Transportation**  
**STP-1375(5) – P.I. No. 630977**  
**Bells Ferry Road-Widening & Improvements-Cherokee County**

ALTERNATIVE NO.:  
**DR-4**

DESCRIPTION: **ELIMINATE EXISTING STRUCTURE AT STATION**  
**219+28.94**

SHEET NO.: 3 of 4

AFFECTED PAY ITEMS: Drainage structures @ Station 219+28.94

Original:

18" RCP- 62'+36'+20'	=>	118'
18" FES	=>	1 EACH
CATCH BASIN	=>	1 EACH
MANHOLE	=>	2EACH
DROP INLET	=>	1 EACH

Alternative

18" RCP- 136'	=>	136'
18" FES	=>	1 EACH
CATCH BASIN	=>	1 EACH
DROP INLET	=>	1 EACH



# Value Analysis Design Alternative



PROJECT:	Georgia Department of Transportation STP-1375(5) – P.I. No. 630977 Bells Ferry Road-Widening & Improvements-Cherokee County	ALTERNATIVE NO.:	EW-1
DESCRIPTION:	CONSIDER RAISING GRADE FROM STA. 200+00 TO STA. 206+00 TO REDUCE CUT VOLUME.	SHEET NO.:	1 of 4

**Original Design:**

Original profile shows an area from STA. 200+00 to STA. 206+00 that contains a cut varying from 1’ to 10’ across the entire roadway section.

**Alternative:**

Consider raising grades in this area to reduce roadway excavation.

**Opportunities:**

- Excavation cost savings.
- Reduces construction time.
- Improves earthwork balance.

**Risks:**

- Minimal design impacts
- Has the effect of increasing mainline roadway grades.

**Technical Discussion:**

From STA. 200+00 to STA. 206+00, grades may be able to be raised, allowing for savings in roadway excavation. This may cause the mainline roadway grades to exceed the maximum allowable 5%, which would require a design exception. This alternative could result in a reduction of 13,333 CY in this area based on an average width of 120’, and assuming an upward grade shift averaging 5’.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 2,982,782	\$	\$ 2,982,782
ALTERNATIVE	\$ 2,836,119	\$	\$ 2,836,119
SAVINGS	\$ 146,663	\$	\$ 146,663

PROJECT: Georgia Department of Transportation  
STP-1375(5) – P.I. No. 630977  
Bells Ferry Road-Widening & Improvements-Cherokee County

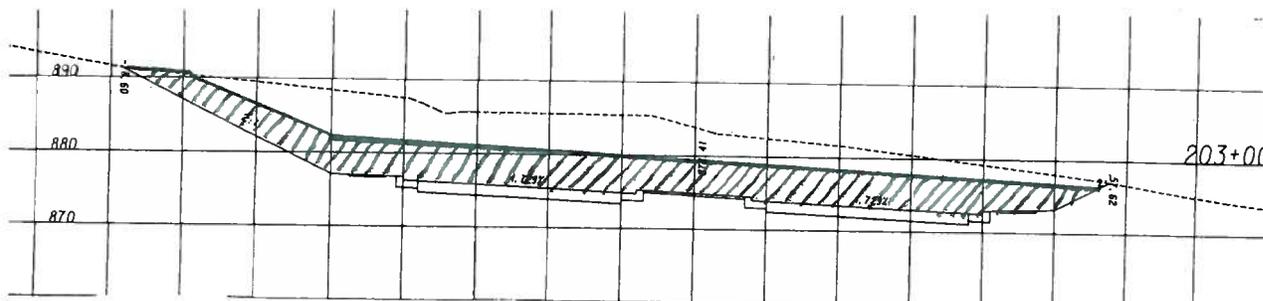
ALTERNATIVE NO.:

EW-1

DESCRIPTION: CONSIDER RAISING GRADES FROM STA. 200+00 TO  
STA. 206+00 TO REDUCE CUT VOLUME.

SHEET 2 of 4

## STA. 203+00 MODIFIED CROSS SECTION:



- The SHADED AREA REPRESENTS A 5' UPWARD SHIFT  
IN PROFILE GRADE TO MINIMIZE EXCAVATION, TO BE USED  
WHERE APPLICABLE.

# Calculations



PROJECT: **Georgia Department of Transportation**  
**STP-1375(5) – P.I. No. 630977**  
**Bells Ferry Road-Widening & Improvements-Cherokee County**

ALTERNATIVE NO.:

**EW-1**

DESCRIPTION: **CONSIDER RAISING GRADES FROM STA. 200+00 TO STA. 206+00 TO REDUCE CUT VOLUME.**

SHEET NO.: 3 of 4

LENGTH OF ROADWAY SECTION- 600 LF

AVG. WIDTH(TIE TO TIE)- 120'

PROPOSED AVG. GRADE CHANGE- 5'

$600' \times 120' \times 5' = 360,000/27 = 13,333.33 \text{ cy}$

SOIL EXCAVATION ESTIMATE= \$10.00/CY

$13,333\text{CY} \times \$10.00/\text{CY} = \$133,330 \text{ SAVINGS}$



# Value Analysis Design Alternative



PROJECT: **Georgia Department of Transportation**  
**STP-1375(5) – P.I. No. 630977**  
**Bells Ferry Road-Widening & Improvements-Cherokee County**

ALTERNATIVE NO.:  
**EW-2**

DESCRIPTION: **ADJUST PROFILE TO REDUCE EARTHWORK/R.O.W.** SHEET NO.: 1 of 4

**Original Design:**

The original design has numerous areas of cut and fill throughout the project.

**Alternative:**

The intent of the alternative is to ensure that no unnecessary excavation is required if profile grades may be adjusted while building the project within the applicable design standards.

**Opportunities:**

- Cost savings on excavation
- Time savings during construction phase by minimizing earthwork

**Risks:**

- May violate 5% maximum grade on mainline
- Moderate design impacts

**Technical Discussion:**

The fitting of the profile grade, utilizing the maximum mainline grade (5%) or greater with a design exception, if warranted, could result in cost savings on excavation throughout the project. The reduction of depth of cuts will make side slope ties shorter, resulting in cost savings on R.O.W. Excavation savings are estimated on 10%, R.O.W. savings are dependant on side slope steepness. See also EW-1 for another example in closer detail.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 2,982,782	\$	\$ 2,982,782
ALTERNATIVE	\$ 2,684,506	\$	\$ 2,684,506
SAVINGS	\$ 298,276	\$	\$ 298,276

# Illustrations



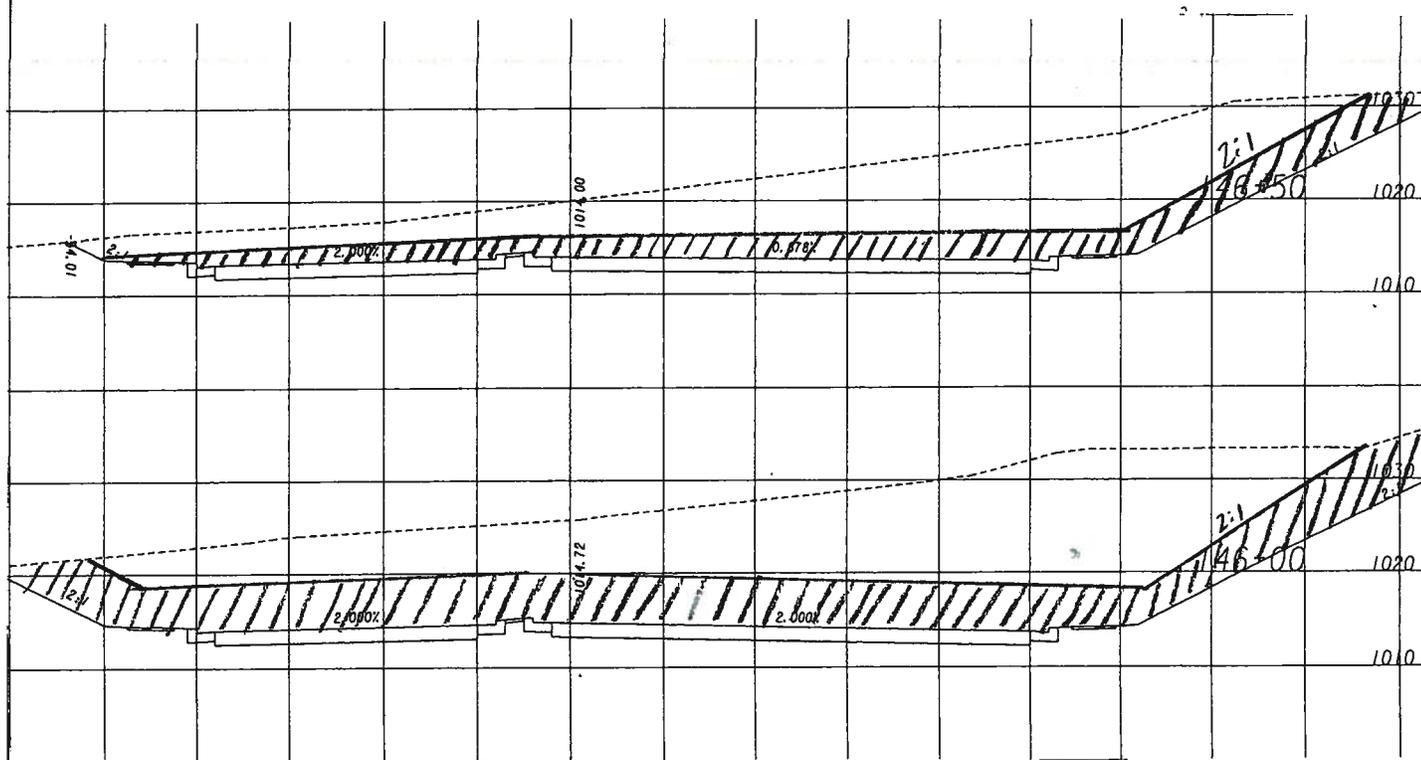
PROJECT: Georgia Department of Transportation  
STP-1375(5) - P.I. No. 630977  
Bells Ferry Road-Widening & Improvements-Cherokee County

ALTERNATIVE NO.:

EW-2

DESCRIPTION: ADJUST PROFILE TO REDUCE EARTHWORK/R.O.W.

SHEET NO.: 2 of 4



GRAPHIC SHOWN FOR ILLUSTRATIVE PURPOSE. DESIGN ALTERNATIVE SHOULD BE CONSIDERED THROUGHOUT THE PROJECT. SHADED AREAS ARE POTENTIAL SAVINGS THAT COULD BE REALIZED IN EXCAVATION BY ALTERING THE PROPOSED PROFILE GRADE.

# Calculations



PROJECT: <b>Georgia Department of Transportation</b> <b>STP-1375(5) – P.I. No. 630977</b> <b>Bells Ferry Road-Widening &amp; Improvements-Cherokee County</b>	ALTERNATIVE NO.:  <b>EW-2</b>
DESCRIPTION: <b>ADJUST PROFILE TO REDUCE EARTHWORK/R.O.W.</b>	SHEET NO.: <b>3 of 4</b>

Total excavation quantity- 271,162 CY @ \$10.00/CY= \$2,711,625

Estimated cost savings @ 10%of total excavation= 27,116 CY @ \$10.00/CY= \$271,165



---

## ***Project Description***

## **PROJECT DESCRIPTION**

Bells Ferry Road widening, realignment and reconstruction is proposed to reduce congestion and enhance traffic flow, while improving the operational characteristics and general traffic safety along this corridor. The improvements to the intersection alignments and the addition of auxiliary lanes will also add to the enhanced operational and safety characteristics of the proposed roadway.

The current roadway is a two-lane facility with a winding, rolling alignment that in many areas presents a dangerous and hazardous condition for the amount and nature of the current and projected traffic volumes.

The southern terminus is at the existing 4-lane divided section just north of Kellogg Creek Road. The northern terminus will tie into a new bridge crossing at Little River which will be coordinated with this project.

The project estimated construction cost is \$30,262,000. The preliminary ROW acquisition cost is \$26,660,977.

## **REPRESENTATIVE DOCUMENTS**

- Delon Hampton & Associates concept stage plans including plan and profiles, ROW estimate, BMP plans, staging plans and signing and marking plans. Also included are the project concept reports and construction cost estimate.

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

Representative documents follow:

**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA**

*Office of Consultant Design*

**REVISED PROJECT CONCEPT REPORT**

Project Number: STP – 1375(5)

County: Cherokee

P. I. Number: 630977

Bells Ferry Road

Widening, Realignment and Reconstruction

**Need and Purpose:** Bells Ferry Road throughout this area is a major north-south roadway providing a generally parallel corridor to nearby Interstate 575 from northern Cobb County to Canton in central Cherokee County and continuing further north. This corridor provides access to a very rapidly growing area that encompasses many residential communities, commercial and light industrial developments and public recreation facilities including parks and lake amenities.

The current roadway is a two-lane facility with a winding, rolling alignment that in many areas presents a dangerous and hazardous condition for the amount and nature of the current and projected traffic volumes. Due to the extensive commercial and residential growth in the area and the high volume of turning and side road traffic, the existing two-lane facility is severely undersized and dangerous. These conditions will likely worsen as rapid population and development continues.

The recent collision summary for this corridor that encompassed the period from January 2000 to March 2004 reveals that there have been 40 accidents within the corridor with 3 cases of reported injuries. The severity and nature of the accidents and injuries is unknown and not documented.

The proposed project improvements will reduce congestion and enhance traffic flow, while improving the operational characteristics and general traffic safety along this corridor of Bells Ferry Road. The improvements to the intersection alignments and the addition of auxiliary lanes will also add to the enhanced operational and safety characteristics of the proposed roadway.

The southern terminus of this project's proposed improvements will be at the existing 4-lane divided section just north of Kellogg Creek Road and provide a widened and improved roadway generally continuing along the existing corridor to the crossing at Little River. Improvements to both the horizontal and vertical alignments of the proposed roadway will be developed to ensure an adequate design speed and improve safety and operation of the roadway. The northern terminus will tie into a new bridge crossing and roadway improvement that is being designed at Little River by others and will be coordinated with this project's improvements.

The project concept report was originally approved on November 29, 1990. It was revised and

approved on October 3, 1996. Throughout the recent years, the project has been broken out into two sections; the southern section from Kellogg Creek Road to just north of Towne Lake Parkway, which Cherokee County has developed plans for, and the northern section from just north of Towne Lake Parkway to the Little River crossing. Recently, the projects have been again consolidated and this current concept represents the combined projects encompassing a total distance of 2.86 miles

**Description of proposed project:** The proposed project begins just north of the intersection of Kellogg Creek Road and has a northern terminus near the proposed GDOT Bridge Design Project crossing Little River/ Lake Allatoona in Cherokee County. The length of the project is 2.86 miles (15,100 feet) and goes from MP 3.4 to MP 6.3 (+/-). Please refer to the location map on the above sheet. The proposed Bells Ferry Road Project will widen the existing 2-lane facility to a four lane divided facility with a 20-foot concrete raised median with curb & gutter. There are proposed five-foot sidewalks on both sides of the proposed roadway with 4-foot bicycle lanes and a closed drainage system. The existing intersections are signalized and will be upgraded due to roadway improvements. New right-of-way will be required for both residential and commercial properties. A portion of federal property managed by the U.S. Army Corps of Engineers will be acquired for roadway construction and widening. There are two areas of the proposed project that will be on new location to improve geometry and increase safety.

**Is the project located in a Non-attainment area?** X Yes \_\_\_No.

The proposed project begins north of Kellogg Creek Road and continues north until termination before the GDOT Bridge Design Project at Little River/Lake Allatoona. The project provides improved horizontal and vertical alignments to provide a more safe travel way. The existing roadway has limited sight distances and narrow travel lanes that make for uncomfortable travel through the corridor. The roadway improvement will provide 2 through lanes in a northerly and southerly travel direction. This project is scheduled to be open for traffic in 2011.

**PDP Classification:** Major X Minor \_\_\_

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

**Functional Classification:** Urban Minor Arterial

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

**County Route Number(s):** 770

**Traffic (AADT) as shown in Revised Concept Report (April 10, 1998):**

Current Year: (1999) AADT – 20,000 Design Year: (2019) AADT– 35,000

**Existing design features:**

- Typical Section: 2 lanes with 5 ft wide grassed shoulders and open ditch drainage, no median
- Posted speed: 40 / 35 mph Maximum degree of curvature: 17.5 , R = 325'
- Maximum grade: 10%
- Width of right of way: varies – 60 - 100 ft.

- Major structures: None
- Major interchanges or intersections along the project: None
- Existing length of roadway: 2.95 miles

**Proposed features to be revised:**

The approved concept for STP-1375 (5) in Cherokee County will widen, realign and reconstruct the roadway facility from just north of the intersection of Kellogg Creek Road to the new crossing at Little River, a distance of 2.86 miles, 15,100 feet, from MP 3.4 to MP 6.3 (+/-). The improvements will consist of widening the existing two-lane roadway to a 4-lane, divided road with a 20-foot wide raised, grassed median. Each lane will be 12 feet wide. The improvements will also consist of median openings, left turn lanes, improved intersection alignments and a bicycle lane/shoulder.

The widening will generally follow the existing roadway corridor however; it will significantly realign the existing curved roadway to greatly improve both the horizontal and vertical alignments while minimizing the detrimental effects to the adjacent property owners.

The typical section will be four lanes with a 20-foot concrete raised median, curb & gutter and a closed drainage system. It will also include 4-foot bicycle lanes and 5-foot sidewalks along both sides of the road. Existing right of way varies between 60-feet and 100-feet. The proposed right of way will be 120 feet. There are three signalized intersections that will be upgraded. Access will be by permit along the existing realigned and widened roadway.

Air & Noise Studies have been performed for the revised project alignment. Results of the refined air quality modeling analysis shows that the existing roadway conditions are compliant with the CO NAAQS and that the proposed project will not cause a violation of the CO NAAQS. The construction of this project would result in a change in traffic-generated noise levels ranging from a high of +15 dBA at one residence to low or reduction of -5.5 dBA at another residence. The average increase at all residences was 3 dBA, with or without the new roadway. Noise abatement measures for the impacted sites were considered. However, no feasible and reasonable abatement measures were identified for the impacted sites.

**Description of Revised Features to be Approved:**

The proposed alignment will significantly realign the existing curved roadway to greatly improve both the horizontal and vertical alignments while minimizing the detrimental effects to the adjacent property owners. The project will incorporate various construction projects that have been constructed along the alignment associated with extensive development along the route.

Project Concept Report page 4  
 Project Number: STP-1375 (5)  
 P. I. Number: 630977  
 County: Cherokee

**Updated Traffic Data (AADT):**

Current Year: (2006) AADT - 16250      Design Year: (2037) AADT- 24400

**Proposed Design Features:**

- Proposed typical section: 4 lanes with a 20 foot grassed median with curb and gutter and a closed drainage system.
- Proposed Design Speed Mainline 45 mph
- Proposed Maximum grade Mainline 5 %      Maximum grade allowable 5 %.
- Proposed Maximum grade Side Street 10.0 %      Maximum grade allowable 6 %.
- Proposed Maximum grade Driveway 13.0 % Maximum grade allowable 10 %
- Proposed Maximum degree of curve D= 8.0 deg, R=716, e=6%.
- Maximum degree allowable, D = 7.8 deg, R=730, e=4%.
- Right of way
  - Width - 120-feet, Minimum.
  - Easements: Temporary ( ), Permanent ( X ), Utility ( ), Other ( ).
  - Type of access control: Full ( ), Partial ( ), By Permit ( X ), Other ( ).
  - Number of parcels: 140      Number of displacements: 11
    - Businesses: 1
    - Residences: 10
- Structures: None
- Major intersections and interchanges: None
- Traffic control during construction: two-way traffic shall be maintained during construction using existing and newly constructed adjacent roadway. Due to the relationship of the proposed and existing horizontal and vertical alignments, special design consideration will be required to develop an acceptable sequencing plan while maintaining two-lane traffic.
- Design Exceptions to controlling criteria anticipated: None anticipated

	<u>UNDETERMINED</u>	<u>YES</u>	<u>NO</u>
HORIZONTAL ALIGNMENT:	( )	( )	(X)
ROADWAY WIDTH:	( )	( )	(X)
SHOULDER WIDTH:	( )	( )	(X)
VERTICAL GRADES:	( )	( )	(X)
CROSS SLOPES:	( )	( )	(X)
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: East Bells Ferry Road Intersection
- Environmental concerns: Preliminary cultural and historical resource investigations were initiated. No significant impacts at this time. Received responses from Georgia DNR – HPD. More detailed investigations including environmental, air and noise analyses will be conducted once the horizontal alignment is finalized. See attachment for further summary.
- Level of environmental analysis:
  - Environmental Assessment and 4F evaluation for Right-of-Way
  - Are Time Savings Procedures appropriate? Yes ( ), No ( X ).
- Utility involvement: Utility coordination ongoing.

**Project responsibilities:**

- Design - Delon Hampton & Associates, Chartered (DHA)
- Right of Way Acquisition – Cherokee County
- Relocation of Utilities – As required by respective utility companies.
- Letting to contract - GDOT
- Supervision of construction - GDOT
- Providing material pits – By Contractor.

**Coordination**

- The original concept meeting for the project was held on February 12, 1991. In support of the current design contract, a Concept Validation Meeting was held on June 10, 2005. See Attachments for copy of complete Meeting Minutes.
- Public involvement: Original public information meeting – July 11, 1991. Conducted PIOH Meeting March 9, 2006.
- Utility Coordination – GDOT District 6 Office.
- US Army Corps of Engineers: Cherokee County coordinate acquisition of property.
- Other projects in the area:
  - New crossing at Little River, BRS-STP-1375(6), PI No. 630975 – *In-House GDOT Design Project*. The bridge replacement project should be scheduled with the roadway project STP-1375 (5). The bridge Let date is scheduled Dec-09.
  - Northern project interface – This project is long range and is not on any current schedule.
  - Private development along and adjacent to the project corridor – Kingland Estates and McBride & Son Homes between Sta. 192+00 through Sta. 200+00 +/-.
- Cherokee County – Right-of-Way Acquisition

**Scheduling – Responsible Parties' Estimate**

- Time to complete environmental process: 8 Months
- Time to complete preliminary construction plans: 6 Months.
- Time to complete right of way plans: 4.5 Months.
- Time to complete final construction plans: 5 Months.
- Time to complete to purchase right of way: 24 Months (Cherokee County)
- Major items that will affect the project schedule: Proposed development. Project Land Use modification in the surrounding area. Cherokee County

**Other alternates considered: None**

Project Concept Report page 6

Project Number: STP-1375 (5)

P. I. Number: 630977

County: Cherokee

**Attachments:**

1. Sketch Location Map
2. Typical Sections
3. Cost Estimates
  - a. Construction including E&C
  - b. Right-of-Way
  - c. Utilities
4. Minutes of Revised Concept Validation Meeting

## SCORING RESULTS AS PER TOPPS 2440-2

<b>Project Number:</b>		<b>County:</b>		<b>PI No.:</b>	
<b>Report Date:</b>		<b>Concept By:</b>			
		DOT Office:			
<input type="checkbox"/> CONCEPT					
		Consultant:			
<b>Project Type:</b> Choose One From Each Column		<input type="checkbox"/> Major	<input type="checkbox"/> Urban	<input type="checkbox"/> ATMS	
		<input type="checkbox"/> Minor	<input type="checkbox"/> Rural	<input type="checkbox"/> Bridge	
				<input type="checkbox"/> Building	
				<input type="checkbox"/> Interchange	
				<input type="checkbox"/> Intersection	
				<input type="checkbox"/> Interstate	
				<input type="checkbox"/> New Location	
				<input type="checkbox"/> Widening & Reconstruction	
				<input type="checkbox"/> Miscellaneous	
<b>FOCUS AREAS</b>	<b>SCORE</b>	<b>RESULTS</b>			
<b>Presentation</b>					
<b>Judgement</b>					
<b>Environmental</b>					
<b>Right of Way</b>					
<b>Utility</b>					
<b>Constructability</b>					
<b>Schedule</b>					

LIST OF UTILITY COMPANY NAMES AND ADDRESSES  
FOR PROJECT: BELLS FERRY ROAD  
PROJECT LIMITS: FROM VICTORY DRIVE TO LITTLE RIVER BRIDGE  
PROJECT NO.: STP-1375 (5), CHEROKEE COUNTY  
P.I. NO.: 630977

Power: Mr. Terry Bryant  
Cobb EMC  
P.O. Box 369  
Marietta, Georgia 30061  
Phone: 678-355-3479

Power: Mr. Tony Pritchett  
Georgia Transmission Corporation  
Land Services Department  
2100 East Exchange Place  
Tucker, Georgia 30084-5336  
Phone: 770-270-7511

Water: Mr. Bill Graham  
Cherokee County Water & Sewerage Authority  
P.O. Box 5000  
391 West Main Street  
Canton, Georgia 30114  
Phone: 770-479-1813

Gas: Mr. Wayne Jacas or  
Mr. Rob Hembree  
Atlanta Gas Light  
P.O. Box 4569  
Atlanta, Georgia 30302-4569  
Phone: 404-584-3363

Telephone: Mr. Al McGee  
BellSouth  
400 Chastain Center Blvd.  
Suite 121  
Kennesaw, Georgia 30144  
Phone: 404-376-9858

Cable: Mr. John Pierno  
Comcast Cable  
697 Marietta Hwy.  
Canton, Georgia 30114  
Phone: 770-479-1704, Ext. 206



## SUE Utility Impact Rating Form

**Project / PI#: STP-1375(5) / 630977**

**Date: 03/27/07**

**Project Description: Widening of Bells Ferry from S. Fork to Victoria Rd**

<b>1- Low</b>	<b>Project minimally impacted by utility issues</b>
<b>2- Med</b>	<b>Project moderately impacted by utility issues</b>
<b>3- High</b>	<b>Project severely impacted by utility issues</b>

For each question below, double click on or manually check on the Rating to the right that best fits your opinion of the issue. Then match the Utility Impact Score with the corresponding Utility Impact Rating shown above.

Question	Rating		
<b>1. How many utilities are expected to be encountered on this project?</b>	Low <input type="checkbox"/> 0-2	Med <input type="checkbox"/> 3-4	High <input checked="" type="checkbox"/> >4
<b>2. Generally, for the type of work proposed, what is the probability for utility conflicts to be encountered on construction for this project?</b>	Low <input type="checkbox"/>	Med <input type="checkbox"/>	High <input checked="" type="checkbox"/>
<b>3. Which best describes the traffic volume (ADT) on this route?</b>	Low <input type="checkbox"/> ≤ 1500	Med <input type="checkbox"/> > 1500 and ≤ 6000	High <input checked="" type="checkbox"/> > 6000
<b>4. How can the area where this project is proposed best be described?</b>	Low <input type="checkbox"/> Rural	Med <input checked="" type="checkbox"/> Rural but Urbanizing	High <input type="checkbox"/> Urban
<b>5. How would the number of parcels affected by this project, relative to the total project length, best be characterized?</b>	Low <input type="checkbox"/> Few	Med <input type="checkbox"/> Average	High <input checked="" type="checkbox"/> Numerous
<b>6. How often have the utility owners in this area provided timely/accurate information regarding their facilities on previous projects?</b>	Low <input type="checkbox"/> Almost Always	Med <input checked="" type="checkbox"/> Occasionally	High <input type="checkbox"/> Seldom



## SUE Utility Impact Rating Form

Question	Rating		
7. Do you feel that the utility owners in this area will be able to accommodate the project's schedule in regards to accurately showing the location of their utility facilities on our plans (First submission)?	Low <input type="checkbox"/> Pretty Confident	Med <input type="checkbox"/> Unsure	High <input checked="" type="checkbox"/> Doubtful
8. Which best describes the utility relocation costs that are estimated for this project?	Low <input type="checkbox"/> < \$100,000	Med <input type="checkbox"/> > \$100,000 and < \$500,000	High <input checked="" type="checkbox"/> > \$500,000
9. What is the probability that existing utility installations can be retained to save relocation costs on this project?	Low <input type="checkbox"/>	Med <input checked="" type="checkbox"/>	High <input type="checkbox"/>
10. Please list any other special considerations and provide an associated utility impact rating (i.e. major energy pipelines, fiber optic cables exist within the project's limits). _____	Low <input type="checkbox"/>	Med <input checked="" type="checkbox"/>	High <input type="checkbox"/>

**Double click the chart below and input the total boxes checked for each rating.**

Utility Impact Score			
<b>Total Boxes Checked:</b>	5	4	1
<b>Utility Impact Score:</b>	2		

001 2 4 2006

**GDOT ARCHAEOLOGICAL REPORT SHORT FORM  
FOR NEGATIVE FINDINGS**

**Report Title** Addendum Report for Archaeological Survey for the Proposed Bells Ferry Road Widening Project,  
Cherokee County, Georgia, GDOT ; HPD Tracking # HP040

**Prime Consultant:** Delon Hampton & Associates

**GDOT Project No.** STP-1375(5)

**P.I. No.** 630977

**GA SHPO HP #** HP040603 ~061

**Draft Report Submitted on:** 10 / 18 / 2006

**Final Report Submitted on:**           /          /          

**PROJECT LOCATION AND AREA OF POTENTIAL EFFECT**

**County(ies)**

Cherokee

**USGS Quadrangle(s)**

South Canton, UTM Zone 16

**Project Description**

TRC recently carried out an additional cultural resource survey of approximately 1,700 feet of right-of-way for the proposed widening of Bells Ferry Road near the Little River crossing in Cherokee County, Georgia, as well as one residential property (Smith property on 102 Dockside Downs Drive, Woodstock, GA 30189) located within the APE. This document serves as an addendum to a previous cultural resource survey reports prepared by TRC for the road-widening project prior to changes in the design of the project (Carr and Holland 2004; Carr 2004). The tract is surrounded by residential properties and wooded areas. TRC's cultural resource investigations for this project are intended to assist the Georgia Department of Transportation comply with Section 106 of the National Historic Preservation Act, in advance of the road project's construction. This work was conducted through coordination with the U.S. Army Corps of Engineers, who owns the property.

**Area of Potential Effect**

The project corridor boundaries, which include a construction corridor for the road improvements, form the APE for this project. Surveys for historic structures already have been completed, and are not part of this addendum report. There are two project areas: U.S. Army Corps of Engineers (USACE) property beginning near Little River and running 1,700 feet to the south. The second portion of the project area is the Smith property at the northwest intersection of Bells Ferry Road and Dockside Downs Drive.

**SURVEY CONDITIONS**

**Soil Descriptions:**

Soils on USACE property: average of five cm of dark brown sandy clay loam underlain by red to dark reddish brown clay containing gravel and/or sizable chunks of quartz and schist. Smith property red clay beneath sod.

**Topography:**

The Corps of Engineers property consisted almost exclusively of wooded areas. These areas show little evidence of previous disturbances, with the exception of a small area near the junction of Bells Ferry Road and North Victoria Road. The Smith property is maintained as a residential yard, with a steep drop-off in rear of property.

**Land Use/Vegetation/Ground Cover**

See above

**Survey Limitations and Disturbance(s)**

Slope on the USACE property and erosion observed; also, existing road on property. Smith property also disturbed by residential construction activities.

**Survey Methods**

Shovel testing and visual inspection. Twelve shovel tests were excavated on USACE property; four on Smith property.

No. of STs: 16

No. of Transects: 2

**ARCHAEOLOGICAL BACKGROUND RESEARCH**

**Previously Recorded Sites**

None.

**Previous Surveys**

Other portions of Bells Ferry Road surveyed for this project. Carr, Jeffrey T., and Jeffrey L. Holland 2004 Archaeological Survey for the Proposed Bells Ferry Road Widening Project, Cherokee County, Georgia. TRC, Atlanta.

Ref: Addendum Report for Archaeological Survey for the Proposed Bells Ferry Road Widening Project, Cherokee County, Georgia, GDOT Project # STP-1375(5); P.I. # 630977; HPD Tracking # HP040603-001 (7/26/06).

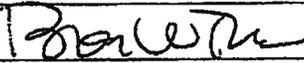
**CONSULTANT INFORMATION**

Archaeological Consultant: TRC

Address: 3772 Pleasantdale Road, Suite 200, Atlanta, GA 30340

Phone No.: 770-270-1192

Principal Investigator: Brian W. Thomas

PI Signature: 

Project Archaeologist: \_\_\_\_\_

PA Signature: \_\_\_\_\_

**ATTACHMENT CHECKLIST**

- 1. Project Location Map
- 2. USGS Topographic Map
- 3. References Cited
- 4. VITA
- 5. Photograph(s)

**CONSULTANT CERTIFICATION**

I, the Principal Investigator: Brian W. Thomas do hereby

certify that the Area of Potential Effect (as described on page 1 of this form) for GDOT

Project STP-1375(5)

has been thoroughly surveyed for archaeological resources and that no such resources were located or identified.

**Comments:**

**REVIEW**

GDOT Archaeologist: Eric Anthony Duff *EAD* Date: 10 / 20 / 06

**Comments:**

Copies of the project file, the report, field notes and other relevant documentation will be maintained at the Georgia Department of Transportation, Office of Environment/Location, 3993 Aviation Circle, Atlanta, Georgia, 30336. A copy of the Short Form report will be permanently curated at the Antonio J. Waring, Jr. Laboratory at the University of West Georgia.

Draft Accepted as Final

Concur: *Dr. W. Ray Luce* Date: 10/30/2006  
Dr. W. Ray Luce, Director and Deputy SHPO

HP# HP-040603-001

Cc: Alabama-Coushatta Tribe of Texas, Chickasaw Nation, Eastern Band of Cherokee Indians of North Carolina, Muscogee (Creek) Natio, Poarch Band of Creek Indians, Seminole Nation of Florida, Thlopthlocco Tribal Town, United Keetoowah Band of Indians  
Mr. Robert M. Callan, P.E., FHWA, (Attn: Katy Allen)  
Mr. Rusty Simmons, USCOE, Allatoona Lake Project

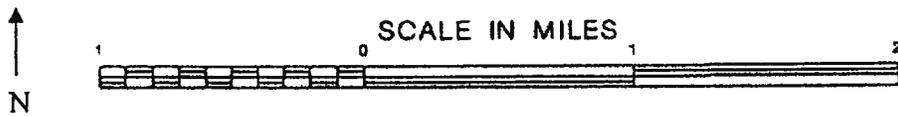


Figure 1. Georgia Department of Transportation map of Cherokee County, showing two general project location areas (Project # STP-1375(5); P.I. # 630977).

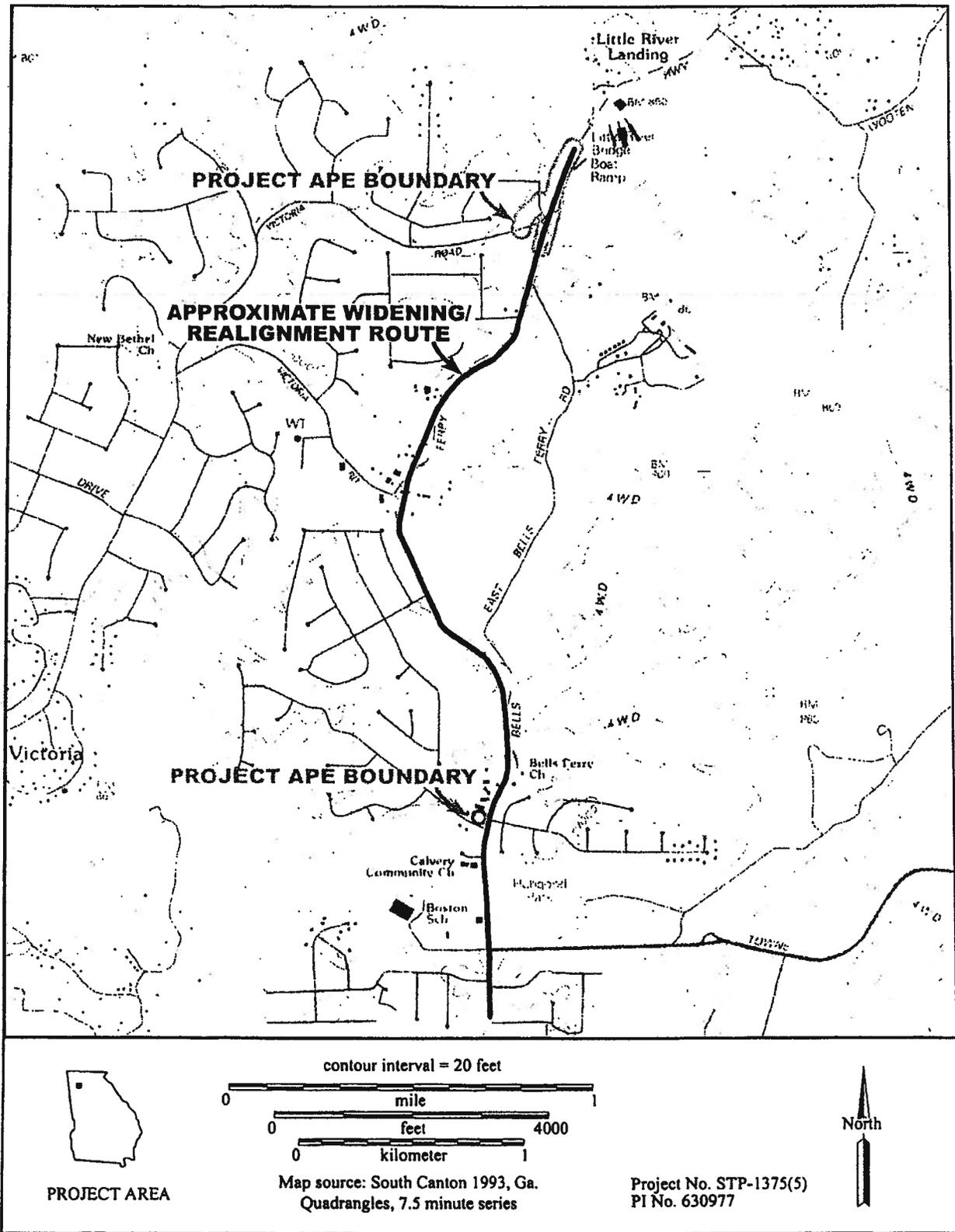


Figure 2. USGS topographic map of project area.

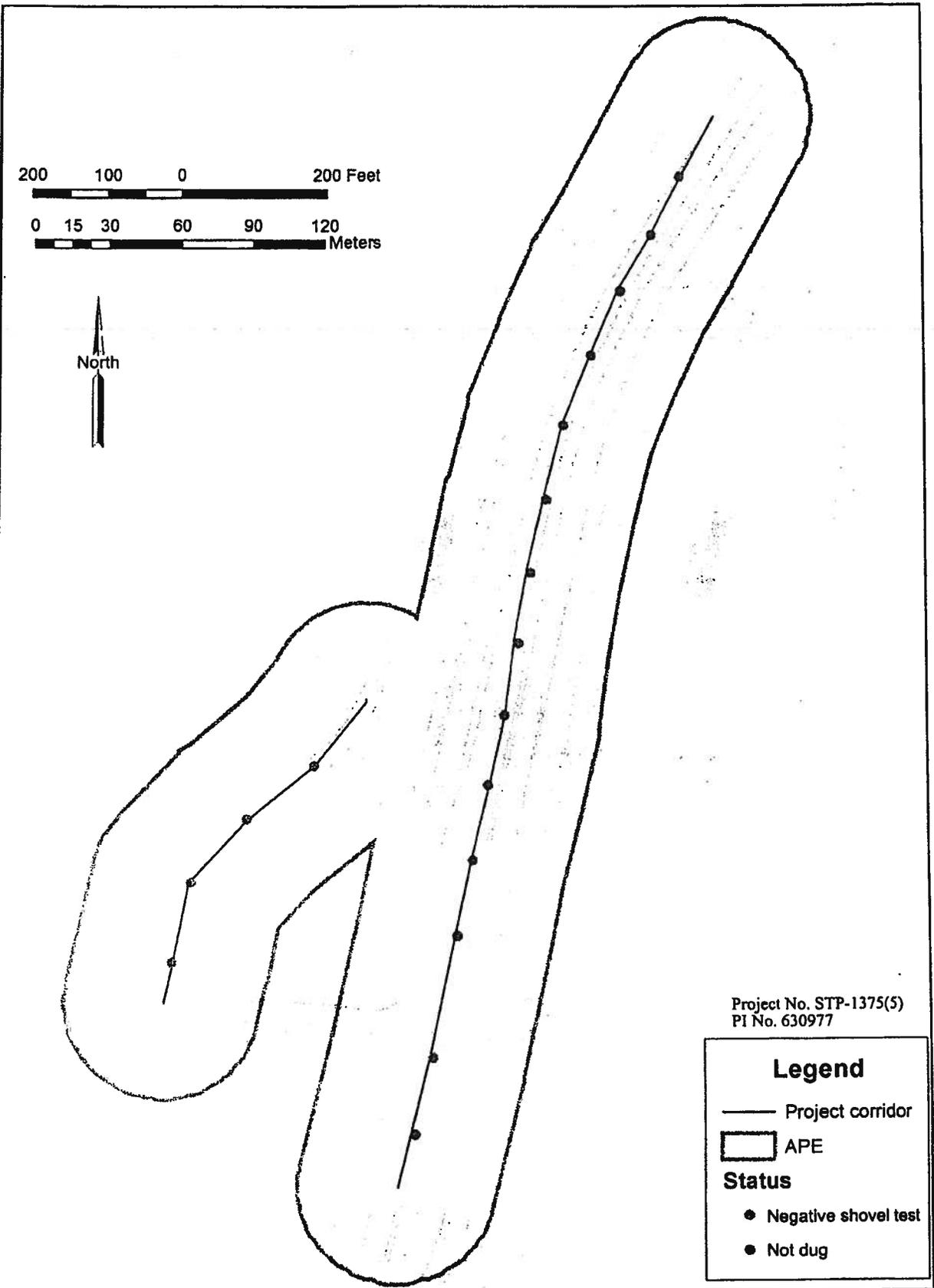


Figure 3. Location of shovel tests on USACE property.

## References Cited

Carr, Jeffrey T.

2004 *Historic Resources Survey Report, Proposed Bells Ferry Road Project, Cherokee County, Georgia.* TRC, Atlanta.

Carr, Jeffrey T., and Jeffrey L. Holland

2004 *Archaeological Survey for the Proposed Bells Ferry Road Widening Project, Cherokee County, Georgia.* TRC, Atlanta.

Thomas, Brian W.

2006 Addendum Report for Archaeological Survey for the Proposed Bells Ferry Road Widening Project, Cherokee County, Georgia, GDOT Project # STP-1375(5); P.I. # 630977; HPD Tracking # HP040603-001. TRC Letter addendum report provided to Delon Hampton & Associates, July 26, 2006.

**BRIAN W. THOMAS, Ph.D.**

**EDUCATION**

Ph.D., Anthropology, State University of New York at Binghamton, 1995

M.A., Anthropology, Wake Forest University, 1991

B.A., History and Philosophy, Wofford College (South Carolina), 1983

**PROFESSIONAL REGISTRATIONS/CERTIFICATIONS**

Register of Professional Archaeologists, 1999

**TECHNICAL SPECIALTIES**

- Project Management
- Historical Archaeology
- Prehistoric Archaeology
- Cultural Resource Surveys
- Historical Research

**REPRESENTATIVE EXPERIENCE**

Dr. Thomas leads TRC's Southeastern cultural resources practice, which includes five offices offering cultural resources services across the region and beyond. He also serves as Project Manager for complex cultural resource projects. Dr. Thomas has a range of experience in cultural resource management, including directing archaeological survey, testing, and data recovery projects, reviewing the quality of cultural resource investigations, as well as work as a Staff Archaeologist with the National Park Service. He has conducted and/or managed projects in the Midwest, Northeast, Southeast, and Caribbean, and has worked in West Africa as well. He has prepared Resource Report 4 for FERC-regulated pipeline projects, as well as prepared 3<sup>rd</sup> party Environmental Impact Statement (EIS) for cultural resources for FERC-regulated projects.

*CenterPoint Energy North Louisiana Expansion Project, Louisiana.* Serving as Cultural Resources Task Manager for this 170-mile project in Texas and Louisiana. Responsibilities include overseeing fieldwork, analysis, reporting, tribal consultation, and FERC Resource Reports.

*Line H Replacement Project, Union Parish, Louisiana.* Served as Project Manager and Principal Investigator for cultural resources survey of a 20-mile natural gas line replacement project.

*Texas Eastern Gas Pipeline in White County, Arkansas.* Served as Principal Investigator for archaeological inspection and monitoring of two pipeline maintenance locations for Duke Energy's Texas Eastern pipeline.

*Cultural Affiliation Study, U.S. Army Kelly Facility, Pennsylvania.* Served as Project Manager and Principal Investigator for intensive study of Native American historic presence in the project vicinity. Project involves coordination with Pennsylvania Bureau for Historic Preservation and U.S. Army, historical research, and ethnographic studies associated with contemporary Native Americans who had historical ties to the region.

*Dominion Greenbrier Pipeline 3<sup>rd</sup> Party EIS, West Virginia, Virginia, and North Carolina.* Served as Task Manager with responsibility over Cultural Resources for a third-party Environmental Impact Statement for the proposed Greenbrier Pipeline project. Responsibilities included reviewing Resource Report 4 and cultural resource reports that support it. Project is on-going.

***Level (3) Fiber Optics Line, Jacksonville, Florida, to Atlanta, Georgia.*** Served as Principal Investigator for an archaeological survey of just under 290 miles of a fiber optic line corridor running from the Georgia-Florida border in Charlton County to the City of Atlanta. Due to the extensive and sometimes protected environmental areas crossed by the corridor, coordination with the Georgia State Archaeologist, the U.S. Fish and Wildlife Service, and the U.S. Forest Service was necessary. The project was completed under budget within a short five-week time frame using up to five crews.

***Tenaska/Central Alabama Water Supply Corp Power Plant, Autauga County, Alabama.*** Served as Project Manager for cultural resources survey, testing, and data recovery for this complex project in Central Alabama. Project involved surveys for plant site, water pipeline, transmission line, and water intake facility. Close coordination was necessary with client, Alabama Historical Commission, and the Mobile District, U.S. Army Corps of Engineers. Project was completed within short time frames.

***Wawayanda Project, Orange County, New York, and Sussex County, New Jersey.*** Conducted background and literature search for the New Jersey portion of a planned 53-acre power plant site in Orange County, New York, and associated gas transmission pipeline in New York and New Jersey. Conducted initial consultation and literature/records search with the New Jersey Historic Preservation Office, and the Bureau of Archaeology and Ethnology, New Jersey State Museum, for this proposed natural gas pipeline project.

***East Tennessee Natural Gas AGL Challenge, Hamilton County, Tennessee.*** Principal Investigator for Phase I archaeological survey of three facilities for East Tennessee Natural Gas (ETNG), as part of ETNG's Atlanta Gas Light (AGL) Challenge. Author of Resource Report 4 for proposed FERC Section 7c filing for this project. The facilities included the ETNG Compressor Station 3214, the East Brainerd Meter Station, and the AGL Meter Station, all located in Hamilton County, Tennessee. The project was accomplished under contract with El Paso Energy.

***Archaeological Survey of Michoud Facility, New Orleans, Louisiana.*** Principal Investigator for archaeological survey of the Michoud Facility, a NASA site operated by Lockheed-Martin in New Orleans.

***Improvements to U.S. Highway 412, Missouri Department of Transportation.*** Served as Principal Investigator and report author for this project, which involved test excavations of 16 historic-period archaeological sites (several with prehistoric components). The sites were located along the Highway 412 expansion corridor in Dunklin and Pemiscot counties, Missouri. The project was conducted for the Missouri Department of Transportation (MoDOT), and involved close coordination with MoDOT archaeological and planning staff and the Historic Preservation Program, Missouri Department of National Resources.

***Bo Wood Recreation Area Testing Project, Illinois, St. Louis District, U.S. Army Corps of Engineers.*** Served as Principal Investigator and senior author. Conducted archaeological testing of one historic (late nineteenth century) and two prehistoric (Middle Woodland) sites along the shore of Lake Shelbyville, in Moultrie County, for the U.S. Army Corps of Engineers, St. Louis District.

#### **PROFESSIONAL HONORS/AFFILIATIONS**

Georgia National Register Review Board, Member, 2001–present  
Georgia Council of Professional Archaeology, President (2002–2004)  
Representative, Georgia House of Representatives (2005–present)  
Society for Georgia Archaeology, Newsletter Editor (2002–present)  
Society for Historical Archaeology, Member  
Southeastern Archaeological Conference, Member



DEPARTMENT OF THE ARMY  
MOBILE DISTRICT, CORPS OF ENGINEERS  
ALLATOONA PROJECT MANAGEMENT OFFICE  
P. O. BOX 487, CARTERSVILLE, GEORGIA 30120  
TELEPHONE: 678/721-8700 FAX: 770/388-6768

January 31, 2006

REPLY TO  
ATTENTION OF  
Land Management Section

Mr. Robert Reid, Jr.  
Georgia Department of Transportation  
Office of Consultant Design, 4<sup>th</sup> Floor  
No. 2 Capitol Square, SW  
Atlanta, Georgia 30334-1002

Dear Mr. Reid:

We refer to Mr. Brian Thomas' request to conduct environmental studies on portions of Federal property on the Allatoona Lake Project. We understand that the work is in conjunction with the proposed Bells Ferry Road widening project. We grant permission to perform the work as requested.

Enclosed is Mr. Thomas' letter of request, a location map of area, and two copies of Specified Acts Permit #06-005. Please sign one copy and return to this office at the above address. Work may proceed at your convenience.

Please note that the collection of archaeological resources, artifacts and other material removed from public lands under the provisions of this permit remain the property of the United States Government and that all costs shall be borne by the permittee, including, but not limited to, the curation, repatriation, and preservation of any artifacts discovered onsite.

If you have any questions or need further information, please call Park Ranger Rusty Simmons at 678-721-6736.

Sincerely,

Barry L. Richards  
Acting Operations Project Manager

Enclosures

CC: John Watson, RE-M, Lake Lanier  
Wendy Janusheske, RE-M, Mobile  
Brian Thomas, TRC Solutions

20

**SPECIFIED ACTS PERMIT  
ALLATOONA LAKE**

PERMIT # 06-005

EXPIRES: 1-1-07

Pursuant to authority delegated by the District Engineer, U. S. Army Engineer, Mobile, the individual hereinafter named, his agents, servants, or employees, for his convenience, is hereby granted a permit for the sole and express purpose to (Description and Location):

Conduct environmental studies as described in Mr. Brian Thomas' letter dated December 9, 2005 (copy attached), which includes an archaeological survey and wetland delineation work, in conjunction with the Bells Ferry Road widening project.

**THIS PERMIT IS GRANTED SUBJECT TO THE FOLLOWING CONDITIONS:**

1. If the work herein authorized is not completed on or before the expiration date, this permit if not previously revoked, shall cease and null and void.
2. The exercise of the privileges hereby granted shall be without cost or expense to the United States, under the general provision and subject to the approval of the Issuing Officer and subject also to such regulations as may be prescribed by the District Engineer.
3. Permittee shall hold the Government, its officers, agents and employees harmless from any and all claims of any nature whatsoever arising from or out of the performance of the acts authorized by this permit.
4. No property right or interest in real estate is conveyed hereby. The permittee has no rights of supervision or control of the use of Government-owned lands, and the free use of such Government land is and shall remain open to the public.

**NOTE:** The flood control pool is that area between elevations 840 and 863 MSL. The power pool is that area between elevations 840 and 823 MSL. The level of the reservoir may rise into the flood control pool when required by the needs of flood control, and may be drawn down below the top of the power pool 840 when required by other project needs.

1-24-06  
Date

Rusty Simmons  
Issuing Officer

This permit, together with all the conditions thereof, is hereby accepted this date: \_\_\_\_\_ 20\_\_\_\_.

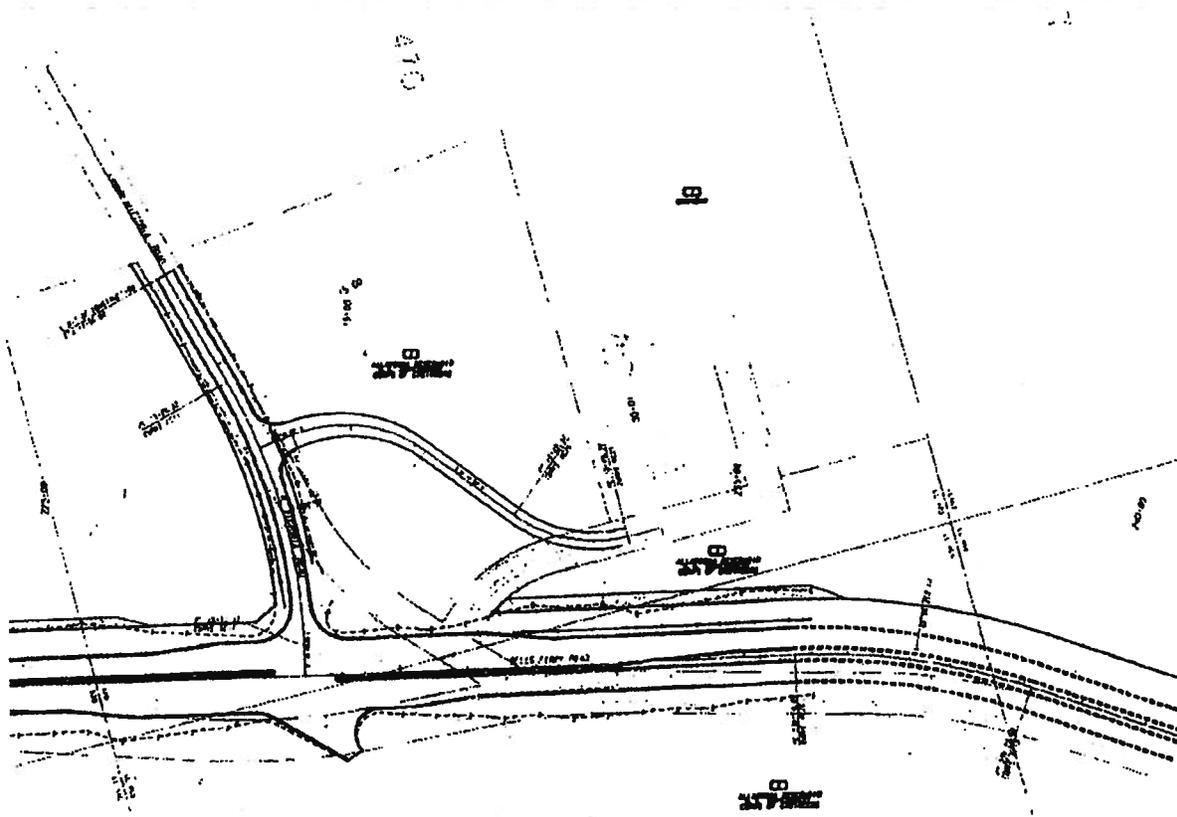
GDOT/Robert Reid  
(Printed Name of Permittee)

\_\_\_\_\_  
(Permittee Signature)

No. 2 Capitol Square SW  
(Street Address)

Atlanta, GA 30334  
(City, State, and Zip)

21



# ***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 Oct. 29 – Nov. 1, 2007 in Atlanta, Georgia, for the Georgia Department of Transportation.

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

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

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

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

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

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

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

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

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

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

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



# FUNCTION ANALYSIS AND COST-WORTH

SHEET NO.: 1 of 2

PROJECT: GEORGIA DEPARTMENT OF TRANSPORTATION  
 Project: Project - STP-1375(5), P.I. No. - 630977, Bells Ferry Road Widening and Improvements  
 Cherokee County

NO.	ELEMENT	FUNCTION			COST (000)	WORTH (000)	COMMENTS
		VERB	NOUN	KIND			
1	OVERALL PROJECT	Increase	Traffic Capacity	B	76,955	70,000	C/W = 1.10
		Facilitate	Access	B			
		Enhance	Safety	S			
2	BASE AND PAVING	Create	Lanes	B	9,500	8,500	C/W = 1.11
		Increase	Capacity	B			
		Enhance	Safety	RS			
3	EARTHWORK (EW)	Support	Road	S	3,600	2,800	C/W = 1.28
		Avoid	Flooding	RS			
		Connect	Points	B			
5	DRAINAGE (DR)	Convey	Storm Water	B	1,980	1,500	C/W = 1.32
		Facilitate	Utilities	S			

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



# FUNCTION ANALYSIS AND COST-WORTH

SHEET NO.: 2 of 2

PROJECT: GEORGIA DEPARTMENT OF TRANSPORTATION  
 Project: STP-1375(5), P.L. No. - 630977, Bells Ferry Road Widening and Improvements  
 Cherokee County

NO.	ELEMENT	FUNCTION			COST (000)	WORTH (000)	COMMENTS
		VERB	NOUN	KIND			
6	CLEARING & GRUBBING	Remove	Vegetation	S	175	175	C/W = 1.0
7	EROSION CONTROL	Stabilize	Earthwork	S	100	100	C/W = 1.0
		Protect	Environment	RS			
8	GUARDRAIL & ANCHORING SYSTEMS	Enhance	Safety	B	34	34	C/W = 1.0
		Reduce	Earthwork	S			
9	TRAFFIC CONTROL	Facilitate	Safe Construction	S	1,276,000	400,000	C/W = 3.19
		Enhance	Safety	RS			
10	SIGNING & MARKING	Enhance	Directions	S	74	74	CW = 1.0
		Channelize	Traffic	S			
11	GRASSING	Stabilize	Earthwork	S	14	14	CW = 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

Georgia Department of Transportation		October 29, 2007	
Project – STP-1375(5) P.I. No. – 630977 Bells Ferry Road Widening and Improvements Cherokee County			
NAME	ORGANIZATION & TITLE	E-MAIL	PHONE
Lisa Myers	 GDOT - Engineering Services	<a href="mailto:lisa.myers@dot.state.ga.us">lisa.myers@dot.state.ga.us</a>	404-651-7468
Ron Wishon	 GDOT - Engineering Services	<a href="mailto:ron.wishon@dot.state.us.ga.us">ron.wishon@dot.state.us.ga.us</a>	(404)651-7470
Ken Werho	 GDOT - TS&D	<a href="mailto:kenwerho@dot.state.ga.us">kenwerho@dot.state.ga.us</a>	404-635-8144
James Magnus	 GDOT - Construction	<a href="mailto:jamesmagnus@dot.state.ga.us">jamesmagnus@dot.state.ga.us</a>	404-635-8144
Kenny Beckworth	 GDOT - Dist 6	<a href="mailto:kennybeckworth@dot.state.ga.us">kennybeckworth@dot.state.ga.us</a>	770-387-3685
Nicoe Alexander	 GDOT-OCD	<a href="mailto:nicoalexander@dot.state.ga.us">nicoalexander@dot.state.ga.us</a>	770-287-1650
Les Thomas	 PBS&J	<a href="mailto:lmthomas@pbsi.com">lmthomas@pbsi.com</a>	678-677-6420
Luke Clarke	 PBS&J - Highway/Roadway Design	<a href="mailto:lwclarke@pbsi.com">lwclarke@pbsi.com</a>	205-969-3776
Randy Thomas	 PBS&J	<a href="mailto:rsithomas@pbsi.com">rsithomas@pbsi.com</a>	678-677-6420
Kevin Martin	 PBS&J	<a href="mailto:kimartin@pbsi.com">kimartin@pbsi.com</a>	205-969-3776
Harley Griffin	DHA Delon Hampton & Assoc.	<a href="mailto:hgriffin@delonhampton.com">hgriffin@delonhampton.com</a>	404-524-8030
Gerald Smith	DHA Delon Hampton & Assoc.	<a href="mailto:gsmith@delonhampton.com">gsmith@delonhampton.com</a>	404-524-8030

# VE TEAM PRESENTATION MEETING PARTICIPANTS



Georgia Department of Transportation		November 1, 2007	
Project – STP-1375(6) P.I. No. – 630977 Bells Ferry Road Widening and Improvements Cherokee County			
NAME	ORGANIZATION & TITLE	E-MAIL	PHONE
Lisa Myers	 GDOT - Engineering Services	<a href="mailto:lisa.myers@dot.state.ga.us">lisa.myers@dot.state.ga.us</a>	404-651-7468
Ron Wishon	 GDOT - Engineering Services	<a href="mailto:ron.wishon@dot.state.us.ga.us">ron.wishon@dot.state.us.ga.us</a>	(404)651-7470
Ken Werho	 GDOT - TS&D	<a href="mailto:kenwerho@dot.state.ga.us">kenwerho@dot.state.ga.us</a>	404-635-8144
James Magnus	 GDOT - Construction	<a href="mailto:jamesmagnus@dot.state.ga.us">jamesmagnus@dot.state.ga.us</a>	404-635-8144
Kenny Beckworth	 GDOT - Dist 6	<a href="mailto:kennybeckworth@dot.state.ga.us">kennybeckworth@dot.state.ga.us</a>	770-387-3685
Nicoe Alexander	 GDOT-OCD	<a href="mailto:nicoalexander@dot.state.ga.us">nicoalexander@dot.state.ga.us</a>	770-287-1850
Les Thomas	 PBS&J	<a href="mailto:lmthomas@pbsi.com">lmthomas@pbsi.com</a>	678-677-6420
Luke Clarke	 PBS&J - Highway/Roadway Design	<a href="mailto:lwclarke@pbsi.com">lwclarke@pbsi.com</a>	205-969-3776
Randy Thomas	 PBS&J	<a href="mailto:rsthomas@pbsi.com">rsthomas@pbsi.com</a>	678-677-6420
Kevin Martin	 PBS&J	<a href="mailto:kimartin@pbsi.com">kimartin@pbsi.com</a>	205-969-3776
Harley Griffin	DHA	<a href="mailto:hgriffin@delonhampton.com">hgriffin@delonhampton.com</a>	404-524-8030
Gerald Smith	DHA	<a href="mailto:gsmith@delonhampton.com">gsmith@delonhampton.com</a>	404-524-8030
Todd Long	 GDOT - Pre-Construction	<a href="mailto:todd.long@dot.state.ga.us">todd.long@dot.state.ga.us</a>	404-651-7468
Bob Abubakan	DHA	<a href="mailto:babubakan@delonhampton.com">babubakan@delonhampton.com</a>	404-524-8030

# CREATIVE IDEA LISTING & EVALUATION



PROJECT: Georgia Department of Transportation  
 STP-1375(5) – P.I. No. 630977  
 Bells Ferry Road-Widening & Improvements-Cherokee County

SHEET NO.: 1 of 1

NO.	IDEA DESCRIPTION	RATING
<b>Roadway (RD)</b>		
RD-1	Construct a 5 lane section	1
RD-2	Use 11' lanes	4
RD-3	Use fuller slopes to minimize waste	DS
RD-4	Realign Port Victoria Way with east Bell Ferry Rd.	2
RD-5	Construct multi-use trail	2
RD-6	Reduce side road ROW taking & minimize side roadwork @ MLROW tie	5
RD-7	Provide one additional signal at N. Victoria, delete all other non-signal intersection "U" turns	DS
RD-8	Use positive separation to reduce median width	1
RD-9	N. Victoria Road Realign with existing mainline alignment	4
RD-10	Adjust center line profile to reduce side road work and ROW	2
RD-11	Rotate & shift alignment between Sta. 140+00 and Sta. 147+00 to reduce conflicts during construction	DS
RD-12	Shift alignment to reduce ROW acquisition on "one" side vs both sides	2
RD-13	Provide right turn lane on Othello Road	DS
RD-14	Delete left turn bays at Fire Station Drive	5
RD-15	Delete right turn northbound into Fire Station Drive	5
RD-16	Delete left turns to side streets provide mid-block "U turns"	DS
<b>Drainage (DR)</b>		
DR-1	Modify cross drains @ intermittent streams 223+00 225+70	4
DR-2	At 149+90 move drop inlet on west side and re-route pipe	4
DR-3	Delete curb and gutter from side roads	5
DR-4	Eliminate existing structure at 219+29	4
<b>Earthwork (EW)</b>		
EW-1	From Sta. 200+00 to Sta. 206+00 raise grade to reduce earthwork	4
EW-2	Adjust profile to reduce earthwork and ROW	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