

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

REVISED PROJECT CONCEPT REPORT

Project Number: BRSTO-1022-00(010)

County: Cherokee

P. I. Number: 642400

Federal Route Number: N/A

State Route Number: S.R. 372

Changes and reasons for changes:

The horizontal alignment has been revised to shorten the project approximately 1,000 feet according to the VE study recommendation. The maximum allowable profile grade has been increased from 7.0% to 9.0%. The proposed maximum profile grade is 8.7%. This will allow the shortened project to tie to the existing grade with only 0.75 feet raise of the bridge from the location at which it has been designed.

Submitted for approval:

DATE 9-20-2011

Shawn Fleet
Heath and Lipsback Engineers

DATE 9-22-2011

Bobby Falkner
Office Head

DATE 9/22/2011

[Signature]
Project Manager

Recommendation for approval:

DATE 11/7/2011

GLENN BOWMAN*/EKP
State Environmental Administrator

DATE 11/15/2011

BEN RABUN*/EKP
State Bridge Design Engineer

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

DATE Oct 28, 2011

Matthew Fowler
for State Transportation Planning Administrator

* - RECOMMENDATION ON FILE

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

REVISED PROJECT CONCEPT REPORT

Need & Purpose: Sufficiency rating is a scale used by the Georgia Department of Transportation (GDOT) to determine the structural and geometric condition of a bridge. This rating is determined by a federal definition adopted from the Association of American State Highway and Transportation Officials (AASHTO) standards and is based on structural adequacy and safety, serviceability, functional obsolescence, and necessity for public use. The sufficiency rating of a bridge is based on a scale of point values from one to 100. A rating of one is given to structures in serious need of replacement, and a rating of 100 is given to bridges without any deficiencies. Any bridge with a sufficiency rating of 50 points or lower are candidates for replacement in order to provide a safe, structurally sufficient bridge for motorists and pedestrians. The existing State Route 372 (SR 372) bridge, constructed in 1960, was last inspected on April 26, 2010, and was given a sufficiency rating of 48.12.

The structural evaluation rating is another scale used by GDOT that considers major structural deficiencies and is based on the condition of different parts of the bridge as related to the Average Daily Traffic (ADT). In 2009, the Average Annual Daily Traffic (AADT) along this section of SR 372 was 7,000 vehicles per day (VPD). In 2035, the AADT is expected to be 12,000 VPD. The structural evaluation rating is based on a scale of zero to nine with two being the lowest rating for an operable bridge. A zero requires closing the bridge and a two requires replacement of the bridge. The structural evaluation rating of the existing SR 372 bridge is five, which indicates the bridge is somewhat better than minimum adequacy to tolerate being left in place as is.

Project Location:

Project BRST0-1022-00(010) is the replacement of the SR 372 bridge over the Etowah River, 2.3 miles S.E. of the City of Ball Ground.

Description of the approved concept: Project BRST0-1022-00(010) is the replacement of the SR 372 bridge over the Etowah River, 2.3 miles S.E. of the City of Ball Ground. The purpose of this project is to replace a structurally deficient and functionally obsolete bridge on SR 372 over the Etowah River. The existing bridge sufficiency rating is currently 39.17. The project length is approximately 4000 ft. (0.76 mi.), beginning at M.P. 11.11 and ending to M.P. 11.87. The existing bridge is 192' x 24' and will be replaced with a 294' x 43'-3" new bridge.

PDP Classification: Major _____ Minor X

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

Functional Classification: Rural Major Collector

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

State Route Number(s): 372

Traffic (AADT) as shown in the approved concept:

Current Year: (2009) - 6,500

Design Year: (2029) - 10,000

Updated Traffic Data (AADT):

Current Year: (2015) - 7,700

Design Year: (2035) - 12,000

Approved Programmed/Schedule:

P.E.: 2002

R/W: 2013

Construction: 2015

VE Study: Yes (X) No ()

Benefit/Cost Ratio: Not Available

Is the project located in an Ozone Non-attainment area? Yes (X) No ()

Is the project in a PM2.5 Non-Attainment area? Yes (X) No ()

Approved features:	Proposed features:
<ul style="list-style-type: none">• The approved beginning of project is at M.P. 11.11.• The approved maximum allowable grade is 7.0%	<ul style="list-style-type: none">• The proposed beginning of Project is at M.P. 11.22.• The maximum allowable profile grade is 9.0%. The proposed maximum profile grade is 8.7%.
<p>Reason for Change: VE recommended consideration of shortening the project.</p> <p>AASHTO Exhibit 6-4 allows for short length of grades less than 500 feet to be 2% steeper than the maximum grade specified, which is 7.0% for a rolling rural collector at 55 mph.</p>	

Potential Environmental Impacts of Proposed Revision:

Since the revised alignment is shortened, no change is expected to the environmental effects.

Have proposed Revisions Been Reviewed by Environmental Staff? (X) Yes () No

Environmental Responsibilities (Studies/Documents/Permits): PB America, Inc. and Georgia Department of Transportation, Office of Environmental Services.

Revised Project Concept Report Page 4
Project Number: BRST0-1022-00(010)
P. I. Number: 642400
County: Cherokee

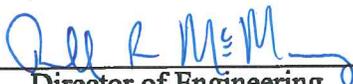
Revised cost estimates:

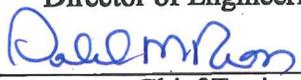
Updated Cost Estimate	
• Base Construction Cost	\$4,316,036.61
• Engineering and Inspection (5%)	\$215,801.83
• Total Liquid AC Adjustment	\$131,371.14
• Total Construction Cost	\$4,663,209.58
• Right-of-Way	\$804,502.23
• Utilities (Reimbursable)	\$0

Recommendation: It is recommended that the proposed revision to the concept be approved for implementation.

Attachments:

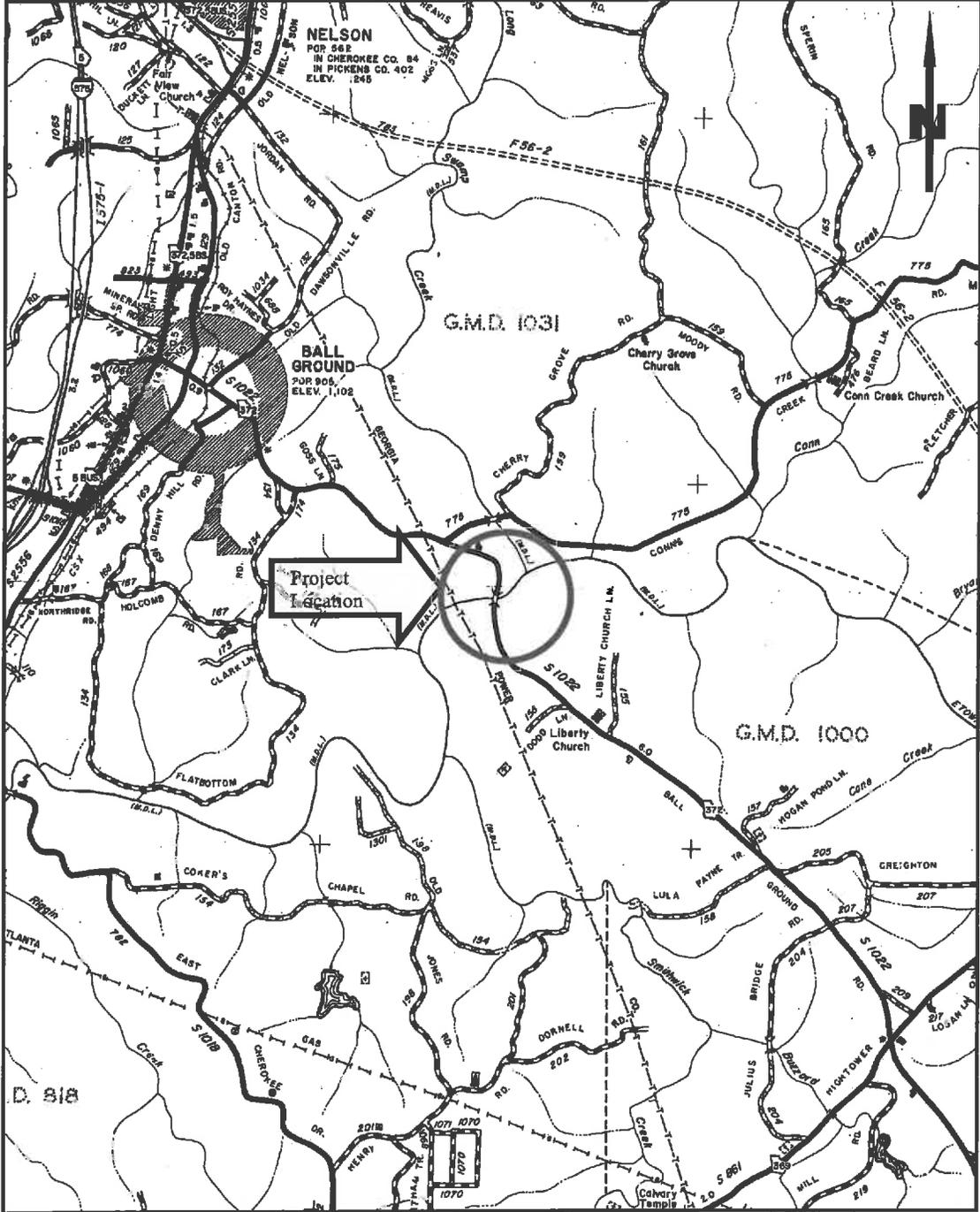
1. Location Map
2. Traffic Data
3. Cost Estimate Summary
4. Construction Cost Estimates
5. Total Liquid AC Adjustment Worksheet
6. Right of Way Cost Estimate
7. Utility Cost Estimate
8. Typical sections
9. VE Implementations Documentation
10. Project Layout

Concur: 
Director of Engineering

Approve: 
Chief Engineer

Date: 12/19/2011

Location Map



Project: BRST0-1022-00(010), Cherokee County, PI No.: 642400
Description: SR 372 @ Etowah River, 2.3 mi SE of Ball Ground

NO BUILD ADT = BUILD ADT
Department of Transportation
State of Georgia

INTERDEPARTMENT CORRESPONDENCE

FILE BRST0-1022-00(010), Cherokee County OFFICE Planning
P.I. # 642400 DATE May 5, 2011

FROM Cindy VanDyke, State Transportation Planning Administrator

TO Bobby K. Hilliard, P.E., State Program Delivery Engineer

SUBJECT Updated Traffic Assignment for S.R. 372 Etowah River 2.3 Mi SE of Ball Ground.

We are furnishing estimated Updated Traffic Assignment for the above project is as follows:

2009 AADT = 7000
2015 AADT = 7700
2035 AADT = 12000
2009 DHV = 650
2015 DHV = 700
2035 DHV = 1090
K = 9%
D = 60%
T = 8%
S.U. T = 5.5%
COMB. T = 2.5%
24 HOUR T = 13%
S.U. = 8.5%
COMB. = 4.5%

If you have any questions concerning this information please contact Abby Ebodaghe at (404) 631-1923.

CLV/AFE

DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE PROJECT No. , OFFICE
 DATE

P.I. No.

FROM

TO Ronald E. Wishon, Project Review Engineer

SUBJECT REVISIONS TO PROGRAMMED COSTS

PROJECT MANAGER

MNGT LET DATE

MNGT R/W DATE

PROGRAMMED COST (TPro W/OUT INFLATION)

CONSTRUCTION \$

RIGHT OF WAY \$

UTILITIES \$

LAST ESTIMATE UPDATE

DATE

DATE

DATE

REVISED COST ESTIMATES

CONSTRUCTION* \$

RIGHT OF WAY \$

UTILITIES \$

* Costs contain % Engineering and Inspection

REASON FOR COST INCREASE

Added liquid AC adjustments.
 Revised quantities due to reduce the project length.
 Revised R/W cost
 added Utilities relocation cost

CONTINGENCY SUMMARY

Construction Cost Estimate:	\$ 4,316,036.61	(Base Estimate)
Engineering and Inspection:	\$ 215,801.83	(Base Estimate x 5 %)
Total Fuel Adjustment	\$ N/A	(From attached worksheet)
Total Liquid AC Adjustment	\$ 131,371.14	(From attached worksheet)
Construction Total:	\$ 4,663,209.58	

REIMBURSABLE UTILITY COST

Utility Owner

Reimbursable Cost

Attachments

c: Genetha Rice-Singleton, State Program Control Administrator

DATE : 10/04/2011
PAGE : 1

STATE HIGHWAY AGENCY

JOB ESTIMATE REPORT

JOB NUMBER : 642400 SPEC YEAR: 01
DESCRIPTION: SR 372 OVER ETOWAH RIVER

ITEMS FOR JOB 642400

LINE	ITEM	ALT	UNITS	DESCRIPTION	QUANTITY	PRICE	AMOUNT
0005	150-1000		LS	TRAFFIC CONTROL - BRST-1022(10)	1.000	65000.00	65000.00
0010	201-1500		LS	CLEARING & GRUBBING - BRST-1022(10)	1.000	78000.00	78000.00
0015	208-0100		CY	IN PLACE EMBANKMENT	1136530.15	9.51	1136530.15
0020	318-3000		TN	AGGR SURF CRS	500.000	17.49	8745.13
0025	433-1000		SY	REINF CONC APPROACH SLAB	310.000	148.21	45945.76
0030	436-1000		LF	ASPH CONC CURB - BRST-1022(10)	2625.000	9.51	24967.08
0035	441-0301		EA	CONC SPILLWAY, TP 1	1834.70	1834.70	3669.41
0040	436-2015		GLM	INDENT. RUMB. STRIPS - GRND-IN-PL (SKIP)	1.000	3527.36	3527.36
0045	500-3101		CY	CLASS A CONCRETE	15.000	627.56	9413.43
0050	522-1000		LS	SHORING BRST-1022(10)	1.000	246000.00	246000.00
0055	550-2240		LF	SIDE DR PIPE 24", H 1-10	304.000	23.29	7080.62
0060	550-2241		LF	SIDE DR PIPE 24", H 10-15	100.000	35.00	3500.00
0065	550-2242		LF	SIDE DR PIPE 24", H 15-20	40.000	35.00	1400.00
0070	550-3524		EA	SAFETY END SECTION 24" SD, 6' 1	4.000	811.73	3246.95
0075	550-4124		EA	FLARED END SECT 24 IN, SIDE DR	10.000	505.31	5053.16
0080	576-1015		LF	SLOPE DRAIN PIPE, 15 IN	556.000	20.50	11402.45
0085	577-1100		EA	METAL DR INLET - CMLPT ASSEMBLY	9.000	1248.93	11240.38
0090	620-0100		LF	TEMP BARRIER, METHOD NO. 1	4560.000	23.50	107190.96
0095	634-1200		EA	RIGHT OF WAY MARKERS	37.000	110.69	4095.85
0100	641-1100		LF	GUARDRAIL, TP T	83.000	58.74	4875.57
0105	641-1200		LF	GUARDRAIL, TP W	4413.000	14.69	64830.15
0110	641-5001		EA	GUARDRAIL ANCHORAGE, TP 1	8.000	610.07	4880.58
0115	641-5012		EA	GUARDRAIL ANCHORAGE, TP 12	8.000	1809.53	14476.29
0120	643-8200		LF	GR AGGR BASE CRS, INCL MATL	1875.000	1.43	2686.91
0125	310-1101		TN	BARRIER FENCE (ORANGE), 4 FT	10946.000	17.26	189032.06
0130	402-1812		TN	RECYL AC LEVELLING, INC BM&HL	574.000	68.24	39175.09
0135	402-3121		TN	RECYL AC 25MM SP, GPI/2, BM&HL	3127.000	59.58	186332.46
0140	402-3130		TN	RECYL AC 12.5MM SP, GP2, BM&HL	1347.000	71.11	95793.67
0145	402-3190		TN	RECYL AC 19 MM SP, GP 1 OR 2, INC BM&HL	2263.000	60.40	136697.19
0150	413-1000		GL	BITUM TACK COAT	863.000	2.10	1820.25
0155	446-1002		LF	PVMT REF FABRIC STRIPS, TP2, BIT	1538.000	2.63	4044.94
0160	636-1020		SF	Hwy SGN, TP1MAT, REEL SH TP3	6.000	17.26	103.61
0165	636-1029		SF	Hwy SGN, TP2 MATL, REFL SH TP 3	55.000	13.99	769.57
0170	636-1031		SF	Hwy SGN, TP3MAT, RFL SHITG, TP6	44.000	16.95	745.80
0175	636-2070		LF	GALV STEEL POSTS, TP 7	234.000	8.30	1942.79
0180	653-1501		LF	THERMO SOLID TRAF ST 5 IN, WHI	6358.000	0.47	3000.66
0185	653-1502		LF	THERMO SOLID TRAF ST, 5 IN YEL	6382.000	0.43	2756.90
0190	654-1001		EA	RAISED PVMT MARKERS TP 1	108.000	4.53	489.37
0195	657-1054		LF	PRF PL SD PVMT MKG, 5", WH, TP PB	468.000	4.69	2195.40
0200	657-6054		LF	PRF PL SD PVMT MKG, 5", YW, TP PB	5.600	4.75	26.62
0205	163-0232		AC	TEMPORARY GRASSING	187.200	313.06	59158.96
0210	163-0240		TN	MULCH	4.000	276.49	1107.96
0215	163-0300		EA	CONSTRUCTION EXIT	3.000	962.11	2886.33
0220	163-0503		EA	CONSTR AND REMOVE SILT CONTROL GATE, TP	3.000	420.07	1260.23

STATE HIGHWAY AGENCY

DATE : 10/04/2011
PAGE : 2

JOB ESTIMATE REPORT

ITEM	LF	CONSTR AND REMOVE TEMP PIPE SLOPE DRAIN	1235.000	10.85	13411.77
0225 163-0520	LF	CONSTR AND REMOVE TEMP PIPE SLOPE DRAIN	1235.000	10.85	13411.77
0230 163-0521	EA	CONSTR AND REMOVE TEMP DITCH CHECKS	112.000	167.94	18809.28
0235 163-0530	LF	CONSTR AND REMOVE BALED STRW EROSION CHK	1066.000		
0240 165-0030	LF	MAINT OF TEMP SILT FENCE, TP C	4045.000	0.80	3266.18
0245 165-0040	EA	MAINT OF EROSION CTRL CHKDAMS/DITCH CHKS	112.000		
0250 165-0070	LF	MAINT OF BALED STRAW EROSION CHECK	1066.000	148.75	446.26
0255 165-0087	EA	MAINT OF SILT CONTROL GATE, TP 3	3.000	582.85	2331.42
0260 165-0101	EA	MAINT OF CONST EXIT	4.000	232.45	464.90
0265 167-1000	EA	WATER QUALITY MONITORING AND SAMPLING	2.000		
0270 167-1500	MO	WATER QUALITY INSPECTIONS	18.000	362.50	6525.00
0275 171-0030	LF	TEMPORARY SILT FENCE, TYPE C	8065.000	2.58	20857.86
0280 603-2180	SY	STN DUMPED RIP RAP, TP 3, 12"	94.000	42.89	4032.36
0285 603-7000	SY	PLASTIC FILTER FABRIC	2422.000	3.38	8201.28
0290 700-6910	AC	PERMANENT GRASSING	11.200	709.35	7944.73
0295 700-7000	TN	AGRICULTURAL LINE	41.000	66.36	2721.01
0300 700-7010	GL	LIQUID LIME	34.000	18.32	623.14
0305 700-8000	TN	FERTILIZER MIXED GRADE	14.000	414.98	5809.74
0310 700-8100	LB	FERTILIZER NITROGEN CONTENT	676.000	1.98	1341.00
0315 700-9000	CY	LOOSE SOD	2733.000	4.41	12052.53
0320 712-2000	SY	FIBERGLASS BLANKET, WATERWAYS	1990.000	3.05	6069.50
0325 713-2200	SY	BITUM TRTD ROVING, WATERWAYS	1999.000	1.34	2684.88
0330 716-2000	SY	EROSION CONTROL MATS, SLOPES	22979.000	0.84	19349.01
0335 540-1101	LS	REM OF EX BR, STA NO - BRST-1022(10)	1.000	200000.00	200000.00
0345 603-2024	SY	STN DUMPED RIP RAP, TP 1, 24"	1500.000	41.81	62725.71
0350 603-7000	SY	PLASTIC FILTER FABRIC	1500.000	3.47	5212.49
0355 543-9000	LS	CONSTR OF BRIDGE COMPLETE - BRST-1022(10)	1.000	1317650.00	1317650.00

ITEM TOTAL 4316036.61
INFLATED ITEM TOTAL 4316036.63

TOTALS FOR JOB 642400

ESTIMATED COST:
CONTINGENCY PERCENT (0.0) :
ESTIMATED TOTAL:

4316036.63
0.00
4316036.63

PROJ. NO.
P.I. NO.
DATE

BRST0-1022-00(010)- Cherokee
642400
8/31/2011

CALL NO.

INDEX (TYPE)

REG. UNLEADED	DATE	INDEX
DIESEL	Aug-11	\$ 3.714
LIQUID AC		\$ 3.959
		\$ 580.00

Link to Fuel and AC Index:

<http://www.dot.ga.gov/doingbusiness/Materials/Pages/asphaltcementindex.aspx>

LIQUID AC ADJUSTMENTS

PA=[(APM-APL/APL)xTMT]xAPL

Asphalt

Price Adjustment (PA)

Monthly Asphalt Cement Price month placed (APM)

Monthly Asphalt Cement Price month project let (APL)

Total Monthly Tonnage of asphalt cement (TMT)

\$ 127,211.40
\$ 928.00
\$ 580.00
365.55

Max. Cap 60%

\$ 127,211.40

ASPHALT

Leveling	Tons	%AC	AC ton
12.5 OGFC	574	5.0%	28.7
12.5 mm		5.0%	0
9.5 mm SP	1347	5.0%	67.35
25 mm SP		5.0%	0
19 mm SP	3127	5.0%	156.35
	2263	5.0%	113.15
	7311		365.55

BITUMINOUS TACK COAT

Price Adjustment (PA)

Monthly Asphalt Cement Price month placed (APM)

Monthly Asphalt Cement Price month project let (APL)

Total Monthly Tonnage of asphalt cement (TMT)

\$ 1,289.92
\$ 928.00
\$ 580.00
3.706672096

Max. Cap 60%

\$ 1,289.92

Bitum Tack

Gals	gals/ton	tons
863	232.8234	3.7066721

CALL NO.

BPST0-1022-00(010)- Cherokee
642400
8/31/2011

PROJ. NO.
P.I. NO.
DATE

BITUMINOUS TACK COAT (surface treatment)

Price Adjustment (PA) \$ 2,869.81 \$ 2,869.81
 Monthly Asphalt Cement Price month placed (APM) \$ 928.00
 Monthly Asphalt Cement Price month project let (APL) \$ 580.00
 Total Monthly Tonnage of asphalt cement (TMT) 8.24659377

Max. Cap

60%

Bitum Tack	SY	Gals/SY	Gals	gals/ton	tons
Single Surf. Trmt	9600	0.20	1920	232.8234	8.24659377
Double Surf. Trmt		0.44	0	232.8234	0
Triple Surf. Trmt		0.71	0	232.8234	0
					8.24659377

TOTAL LIQUID AC ADJUSTMENT \$ 131,371.14

Preliminary Right of Way Cost Estimate

Date: 2/04/2011

Project: BRST0-1022-00(010) - Cherokee County

P.L. Number: 642400

Existing/Required R/W: 80'/285' & Varies

No. Parcels: 9

Project Termini: From approximately 2 miles east of Ball Ground to 3.5 miles west of SR 369

Project Description: Bridge Replacement on SR 372 over Etowah River

Land:

Commercial	0 s.f @	/s.f. = \$0	
Industrial	0 s.f @	/s.f. = \$0	
Residential	98,010 s.f @ \$1.07	/s.f. = \$104,870.70	
Agricultural	504,862 s.f @ \$0.29	/s.f. = \$146,409.98	
TOTAL			<u>\$251,280.68</u>

Improvements:

Structure Impacts \$90,000.00

TOTAL **\$90,000.00**

Relocation:

Commercial 0@ \$25,000/parcel = \$0.00
 Residential 1@ \$40,000/parcel = \$40,000.00

TOTAL **\$40,000.00**

Damages:

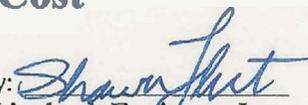
Proximity \$ \$0.00
 Consequential \$ \$0.00
 Cost to Cure \$ \$0.00

TOTAL **\$0.00**

SUB-TOTAL: **\$130,000.00**

Net Cost	\$ 381,280.68
Scheduling Contingency 55 %	\$ 209,704.37
Adm/Court Cost 60%	\$ 213,517.18
TOTAL	\$ <u>804,502.23</u>

Total Cost **\$ 804,502.23**

Prepared By: 
 Heath & Lineback Engineers Inc.
 2390 Canton Rd, Bldg 200, Marietta, GA 30067

Reviewed / Approved: 
 Howard P. Copeland
 R/W Administrator

Note: Accuracy of estimate is the sole responsibility of the Preparer.

Note: The Market Appreciation (40%) is not included in this Preliminary Cost Estimate.

REVISED: 10-07-2010

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE: BRST0-1022-00(010); Cherokee Co. OFFICE: Cartersville
P.L. No. 642400-
FROM: Kerry D. Bonner, District Utilities Engineer DATE: March 17, 2011
TO: Bobby Hilliard, P.E., State Program Delivery Engineer
ATTN: Tim Matthews, P.E., Project Manager
SUBJECT: UPDATED UTILITY COST ESTIMATE

We are furnishing you with an Updated Utility Cost estimate for each utility with facilities potentially located within the project limits.

FACILITY OWNER	NON-REIMBURSABLE	REIMBURSABLE
Ellijay Telephone Co.	\$ 35,000.00	
Cherokee County Water & Sewer*	\$ 725,000.00	
TDS Telecom	\$ 50,000.00	
Totals	\$ 810,000.00	

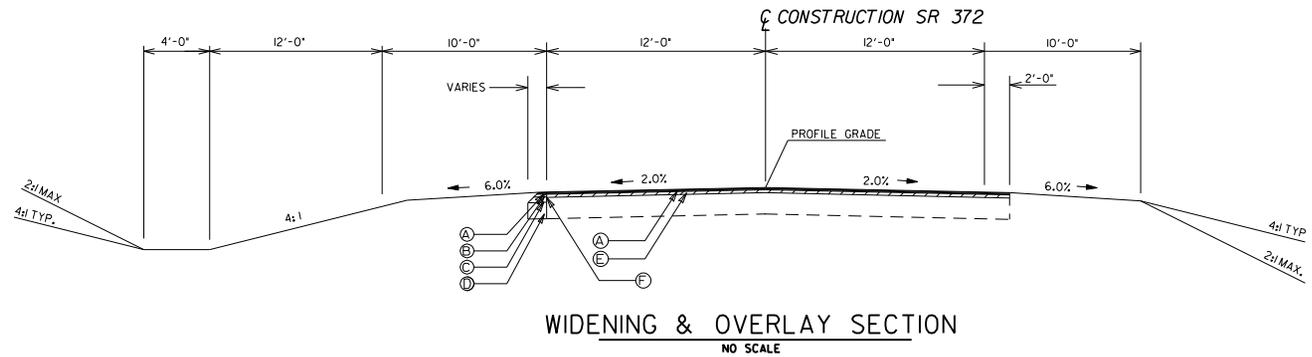
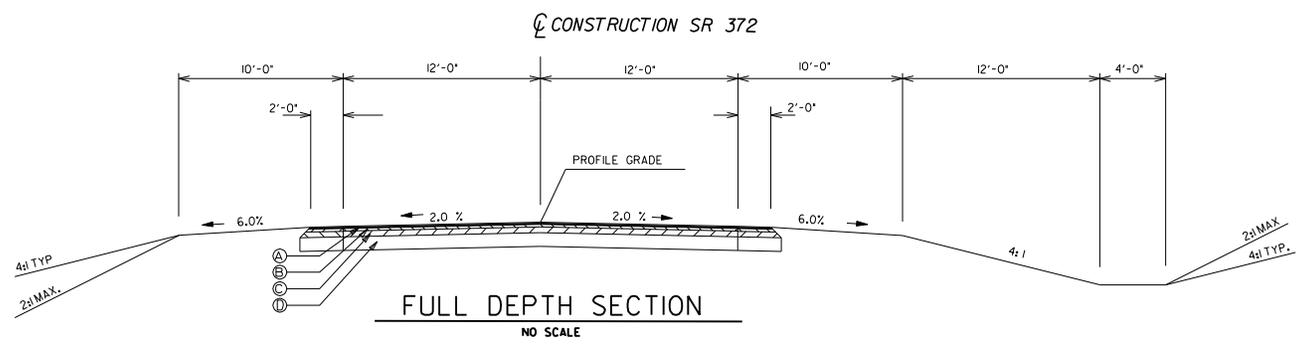
Total Updated Utility Cost Estimate: \$810,000.00

* The reimbursable amount could increase to \$725,000.00 if Cherokee County Water and Sewer Authority were to apply for utility assistance for the relocation of their facilities.

If you have any questions, please contact Jennifer Deems at 770-987-3616.

KDB/d

C: Jeff Baker, P. E., State Utilities Engineer
Angie Robinson, Office of Financial Management
File/Estimating Book



REQUIRED PAVEMENT

- (A) RECYCLED ASPH CONC 9.5 mm SUPERPAVE, GP 2 ONLY, INCL BITUM & H LIME - 137.5 LB/SY - MIX DESIGN LEVEL B
- (B) RECYCLED ASPH CONC 19 mm SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME - 220 LB/SY - MIX DESIGN LEVEL B
- (C) RECYCLED ASPH CONC 25 mm SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME - 440 LB/SY - MIX DESIGN LEVEL A
- (D) GR AGGR BASE CRS, 12 INCH, INCL MATL
- (E) RECYCLED ASPH CONC LEVELING, INCL BITUM MATL & H LIME, AS DIRECTED BY ENGINEER
- (F) PAVEMENT REINF FABRIC STRIPS, TP2, INCL BITUM BINDER

PROPERTY AND EXISTING R/W LINE	— E —
REQUIRED R/W LINE	— F —
CONSTRUCTION LIMITS	— G —
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES	[Hatched Pattern]
EASEMENT FOR CONSTR OF SLOPES	[Cross-hatched Pattern]
EASEMENT FOR CONSTR OF DRIVES	[Diagonal-hatched Pattern]

BEGIN LIMIT OF ACCESS.....BLA
 END LIMIT OF ACCESS.....ELA
 LIMIT OF ACCESS.....
 REQ'D R/W & LIMIT OF ACCESS.....
 ESA - HISTORICAL BOUNDARY.....

Heath & Lineback Engineers
 INCORPORATED
 2390 CANTON ROAD, BUILDING 200
 MARIETTA, GEORGIA 30066-5593

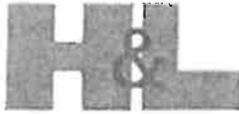
LAND LOT NO. :	
LAND DISTRICT: 3	
GMD :	

REVISION DATES	

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE: PROGRAM DELIVERY
TYPICAL SECTIONS

S. R. 372 OVER ETOWAH RIVER

DRAWING No. 05-01



Heath & Lineback Engineers INCORPORATED

2390 CANTON ROAD • BUILDING 200 • MARIETTA, GEORGIA 30066-5393
e-mail: hle@heath-lineback.com
(770) 424-1668 • Fax (770) 424-2907

June 14, 2011

Mr. Tahir Chaudhry
PB America
3340 Peachtree Road, NE
Suite 2400, Tower Place 100
Atlanta, GA 30326-1001

RE: BRST0-1022-00(010) Cherokee County; P.I. No. 642400
SR 372 over Etowah River
Value Engineering Implementation

Dear Tahir:

I met with Tim Matthews on Friday June 10th to discuss the alternates that were presented due to the VE study response. During the meeting, we reviewed the alternates and decided the next steps. I have summarized our discussion and the decisions below.

Horizontal Alignment:

It was decided that the alignment can be revised to shorten the project as recommended by the VE study. The project length will be extended slightly from the recommended tie-in due to staging.

Vertical Profile:

It was decided to increase the profile grade from 7.0% to approximately 7.75%. This will allow the shortened project to tie to the existing grade without raising the bridge from the location at which it has been designed. This avoids the need to revise the Hydraulic Study which is approved.

A design variance will not be needed for the grade increase as stated in our VE Response. It was determined that AASHTO allows short lengths of grade to exceed the maximum grade shown for a specified design speed. In this case, we have a Rural Collector in rolling terrain and a 55 MPH design speed. The short length of grade is approximately 200 ft in length and will be approximately 7.75%. These values are verified in the chart below.

Type of terrain	Metric								US Customary								
	Maximum grade (%) for specified design speed (km/h)								Maximum grade (%) for specified design speed (mph)								
	30	40	50	60	70	80	90	100	20	25	30	35	40	45	50	55	60
Level	7	7	7	7	7	6	6	5	7	7	7	7	7	7	6	6	5
Rolling	10	10	9	8	8	7	7	6	10	10	9	9	8	8	7	7	6
Mountainous	12	11	10	10	10	9	9	8	12	11	10	10	10	10	9	9	8

Note: Short lengths of grade in rural areas, such as grades less than 150 m (500 ft) in length, one-way downgrades, and grades on low-volume rural collectors may be up to 2 percent steeper than the grades shown above.

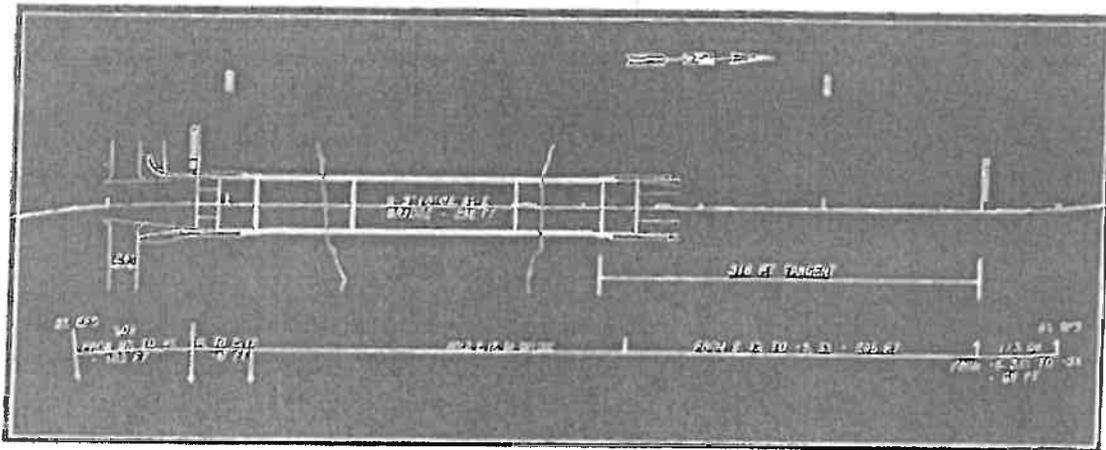
Exhibit 6-4. Maximum Grades for Rural Collectors

Heath & Lineback Engineers

Mr. Tahir Chaudhry
June 14, 2011
Page 2

Superelevation:

Additional study of the alternate revealed that superelevation transition across the bridge is not required. The superelevation can be partially transitioned before the bridge, then held at an acceptable constant cross slope on the bridge, and then transitioned again after the bridge to complete the full rotation. Details on the proposed superelevation transition are shown in the sketch below.

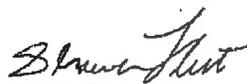


We request your concurrence and the concurrence of the Office of Program Delivery on the decisions made to the project.

At this time, we will draft and submit a revised concept report and begin implementing the above changes into the design of the project.

Please contact me if you have any questions or need additional information.

Very Truly Yours,
Heath & Lineback Engineers, Inc.


Shawn Fleet, PE
Project Manager



Heath & Lineback Engineers

I N C O R P O R A T E D

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March 30, 2011

Mr. Tahir Chaudhry
Parsons Brinckerhoff Quade & Douglas
3340 Peachtree Road, NE
Suite 2400, Tower Place 100
Atlanta, GA 30326-1001

RE: BRSTO-1022-00(010) Cherokee County; P.I. No. 642400
SR 372 over Etowah River
Value Engineering Recommendation Response

Dear Tahir:

Below is the response to Value Engineering recommendation for the above referenced project. The Department's recommendation to shorten the project at the south end of the project was carefully studied and determined to be feasible.

The current project length is 4198 feet, the Value Engineering Recommendation would result in a project length of 3174 feet, which corresponds to a decrease of 1024 feet in the project length. Two alternates were evaluated along with the current design. Cost comparisons were performed. Advantages and disadvantages were determined relative to the current design.

Alternate 1- This alternate utilizes a standard longitudinal grade at the South end of the project to tie to the existing grade and superelevation transitions across the bridge. The profile across the bridge will raise. A list of advantages and disadvantages follows:

Advantages

- The project length is reduced as recommended by the Value Engineering Recommendation, but the actual reduction is 824 feet, taking into account that 200 feet of additional length required for staged construction.
- The proposed alignment will still improve the sight distance and visibility for motorists with wider shoulders, wider road, and ditches.
- The required right of way on the south end of the project is reduced.

Disadvantages

- The bridge elevation will be raised approximately 8 feet.
- The bridge length will increase by approximately 13 feet.
- The hydraulic report will need to be amended based on the new bridge length required to maintain the same bridge opening. The hydraulic models will not be rerun.
- The staging costs are higher due to the increase in height of the shoring walls used during construction.

- The changes described above cause significant design changes on the north end of the project which was not included in the scope of work.
- The super elevation will transition across the bridge. This transition is constructible but is not desirable.
- The super elevation transition for curves 2 and 3 require modification to move the flat cross-slope off the end of the bridge, which resolves drainage issues. The modification involving 50% super elevation transitioning on the curve meets AASHTO Guidelines.

Alternate 2- This alternate utilizes a substandard grade at the south end of the project to tie to the existing grade and superelevation transitions across the bridge. The profile across the bridge remains essentially the same. A list of advantages and disadvantages follows:

Advantages

- The project length is reduced as recommended by the Value Engineering Recommendation, but the actual reduction is 824 feet, taking into account that 200 feet of additional length required for staged construction.
- The proposed alignment will still improve the sight distance and visibility for motorists with wider shoulders, wider road, and ditches.
- The hydraulic report will not need to be modified.
- The changes described above are within the scope of work.
- The changes described above will not cause significant design changes on the north end of the project.
- The required right of way on the south end of the project is reduced.

Disadvantages

- The substandard grade used to tie back to the existing grade potentially requires a design exception.
- The super elevation will transition across the bridge. This transition is constructible but is not desirable.
- The super elevation transition for curves 2 and 3 require modification to move the flat cross-slope off the end of the bridge, which resolves drainage issues. The modification involving 50% super elevation transitioning on the curve meets AASHTO Guidelines.

Current Design- Leave the project with no modifications.

Advantages

- No redesign required which will save the DOT approximately \$31,000 in redesign costs which corresponds to 40% of the preliminary plan phase.
- The plans are ready for PFPR with minor updates.
- The current design meets AASHTO minimum road grade criteria.
- The current design utilizes standard super elevation transitions with 1/3 super elevation transition on the curve.
- The super elevation transition occurs before and after the bridge.

- The hydraulic report and bridge layout have been approved.

Disadvantages

- The required right of way on the south side of the project is greater compared to Alternates 1 and 2.

Summary

Alternate 1 has considerable design changes that increase the design costs, which were not included in the scope of work .

Alternate 2 has the lowest construction cost compared to Alternates 1 and 3 but potentially requires a design exception due to the substandard road grade.

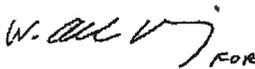
Alternate 3 meets current AASHTO and GDOT Design Policies. This alternate is ready for PFPR and will not incur any design changes.

Attachments

Cost estimates for the two proposed alternate and the current design.

Please call me at your convenience to discuss.

Sincerely,
Heath & Lineback Engineers, Inc.

 FOR

Shawn Fleet, PE
Project Manager

Item	Description	Alternate 1 Price (\$)	Alternate 2 Price (\$)	Current Design Price (\$)
150-1000	TRAFFIC CONTROL	\$65,000	\$65,000	\$65,000
201-1500	CLEARING & GRUBBING	\$78,000	\$78,000	\$78,000
208-9100	IN PLACE EMBANKMENT	\$729,428	\$958,463	\$729,428
318-3000	AGGR SURF CRS	\$9,450	\$9,450	\$9,450
433-1000	REINF CONC APPROACH SLAB	\$46,620	\$46,620	\$46,620
436-1000	ASPH CONC CURB	\$29,143	\$29,143	\$29,143
441-0301	CONC SPILLWAY, TP 1	\$3,522	\$3,522	\$3,522
458-2015	INDENT. RUBB. STRIPS - GRIND-IN/PL (SKIP)	\$4,349	\$4,349	\$4,349
500-3101	CLASS A CONCRETE	\$8,426	\$8,426	\$8,426
522-1000	SHORING	\$387,811	\$246,000	\$246,000
550-2240	SIDE DR PIPE 24" H 1-10	\$7,228	\$7,228	\$7,228
550-2241	SIDE DR PIPE 24" H 1-15	\$3,500	\$3,500	\$3,500
550-2242	SIDE DR PIPE 24" H 15-20	\$1,400	\$1,400	\$1,400
550-3024	SAFETY END SECTION 24", SD, 6:1	\$4,112	\$4,112	\$4,112
550-4124	FLARED END SECT 24 IN. SIDE DR	\$3,471	\$3,471	\$3,471
576-1015	SLOPE DRAIN PIPE, 15 IN	\$12,697	\$12,697	\$12,697
577-1100	METAL DR INLET - CAPLT ASSEMBLY	\$9,786	\$9,786	\$9,786
620-0100	TEMP BARRIER, METHOD NO. 1	\$145,082	\$151,711	\$145,082
634-1200	GUARDRAIL, TP T	\$4,114	\$4,114	\$4,114
641-1100	GUARDRAIL, TP W	\$4,352	\$4,352	\$4,352
641-1200	GUARDRAIL ANCHORAGE, TP 1	\$97,839	\$67,839	\$67,839
641-5012	GUARDRAIL ANCHORAGE, TP 12	\$4,982	\$4,982	\$4,982
643-8200	BARBER FENCE (ORANGE), 4 FT	\$14,468	\$14,468	\$14,468
810-1101	GR AGGR BASE CRS, INCL MATL	\$2,627	\$2,627	\$2,627
402-1012	RECTY. AC LEVELING, INC BMMHL	\$205,011	\$205,011	\$205,011
402-3121	RECTY. AC 25MM SP, GP1Z BMMHL	\$40,530	\$40,530	\$40,530
402-3130	RECTY. AC 12.5MM SP, GP2Z BMMHL	\$196,075	\$196,075	\$196,075
402-3150	RECTY. AC 19MM SP, GP 2, INC BMMHL	\$97,778	\$97,778	\$97,778
413-1000	BITUM TACK COAT	\$144,030	\$144,030	\$144,030
448-1002	PVMT REF FABRIC STRIPS, TPZ BIT	\$1,805	\$1,805	\$1,805
635-1020	HWY SGN, TP1MAT, REFL SH TP3	\$4,044	\$4,044	\$4,044
636-1029	HWY SGN, TP2 MATL, REFL SH TP3	\$905	\$905	\$905
636-1031	HWY SIGNS, TP1MTL, REFL SH TP5	\$745	\$745	\$745
636-2070	GALV STEEL POSTS, TP 7	\$2,264	\$2,264	\$2,264
633-1001	THERMO SOLID TRAF ST 5 IN, WHI	\$2,289	\$2,289	\$2,289
633-1502	THERMO SOLID TRAF ST 5 IN, YEL	\$2,489	\$2,489	\$2,489
664-1001	RAISED PVMT MARKERS TP 1	\$461	\$461	\$461
657-1054	PRF FL SD PVMT MKG, 5", WH, TP PB	\$1,314	\$1,314	\$1,314
657-6054	PRF FL SD PVMT MKG, 5", YW, TP PB	\$1,875	\$1,875	\$1,875
163-0232	TEMPORARY GRASSING	\$2,217	\$2,217	\$2,217
63-0240	WALLCH	\$33,538	\$33,538	\$33,538
63-0300	CONSTRUCTION EXIT	\$5,618	\$5,618	\$5,618
163-0505	CONSTR AND REMOVE SILT CONTROL GATE, TP	\$935	\$935	\$935
163-0520	CONSTR AND REMOVE TEMP PIPE SLOPE DRAIN	\$16,878	\$16,878	\$16,878
163-0521	CONSTR AND REMOVE TEMP DITCH CHECKS	\$18,809	\$18,809	\$18,809
163-0530	CONSTR AND REMOVE BALZD STRW EROSION CHK	\$3,928	\$3,928	\$3,928
165-0030	MAINT OF TEMP SILT FENCE, TP C	\$3,479	\$3,479	\$3,479
165-0040	MAINT OF EROSION CTRL CHK/DAM/SWITCH CHKS	\$5,615	\$5,615	\$5,615
165-0070	MAINT OF BALZD STRAW EROSION CHECK	\$1,483	\$1,483	\$1,483
165-0087	MAINT OF SILT CONTROL GATE, TP 3	\$351	\$351	\$351
165-0101	MAINT OF CONST EXIT	\$3,198	\$3,198	\$3,198
167-1000	WATER QUALITY MONITORING AND SAMPLING	\$612	\$612	\$612
167-1500	WATER QUALITY INSPECTIONS	\$11,985	\$11,985	\$11,985
171-0030	TEMPORARY SILT FENCE, TYPE C	\$20,890	\$20,890	\$20,890
				\$26,101

Item	Description	Alternate 1 Price (\$)	Alternate 2 Price (\$)	Current Design Price (\$)
603-2180	STN DUMPED RIP RAP TP 3, 12"	\$3,462	\$3,462	\$3,462
603-7000	PLASTIC FILTER FABRIC	\$8,551	\$8,551	\$10,689
700-0910	PERMANENT GRASSING	\$4,157	\$6,157	\$10,157
700-7000	AGRICULTURAL LIME	\$2,708	\$2,708	\$2,708
700-7010	LIQUID LIME	\$648	\$648	\$648
700-8000	FERTILIZER MIXED GRADE	\$5,181	\$5,181	\$5,181
700-8100	FERTILIZER NITROGEN CONTENT	\$1,050	\$1,050	\$1,050
712-2000	FIBERGLASS BLANKET, WATERWAYS	\$6,069	\$6,069	\$6,069
715-2200	BITUM TRTD ROVING, WATERWAYS	\$3,177	\$3,177	\$3,177
718-2000	EROSION CONTROL MATS, SLOPES	\$19,303	\$19,303	\$24,129
540-1101	REK OF EX BR	\$26,000	\$26,000	\$26,000
603-2024	STN DUMPED RIP RAP TP 1, 24"	\$64,658	\$64,658	\$64,658
603-7000	PLASTIC FILTER FABRIC	\$5,389	\$5,389	\$5,389
543-3000	CONSTR OF BRIDGE COMPLETE	\$1,376,312	\$1,377,650	\$1,377,650
	Right of Way	\$768,860	\$768,860	\$804,502
	Des gn Cost	\$31,440	\$31,440	\$0
	Total cost (estimate)	\$4,810,029	\$4,546,225	\$4,812,644

*Items which have a big impact on the total construction cost
The cost estimates for alternatives 1 and 2 were determined by reducing the cost of the current design by 20%. This corresponds to an 800 feet project length reduction.

	Savings
Alternate 1	\$2,615
Alternate 2	\$266,418
Current Design	\$31,000

