

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

INTERDEPARTMENT CORRESPONDENCE

FILE: STP00-0114-01(072), Cobb County **OFFICE:** Engineering Services
P.I. No.: 721310
SR 120 Widening **DATE:** April 14, 2009

FROM: Ronald E. Wishon, State Project Review Engineer *REW*

TO: James B. Buchan, P.E., State Urban Design Engineer
Attention: Albert Welch, Project Manager

SUBJECT: IMPLEMENTATION OF VALUE ENGINEERING STUDY ALTERNATIVES

Recommendations for implementation of Value Engineering Study Alternatives are indicated in the table below. Incorporate the VE alternatives recommended for implementation to the extent reasonable in the design of the project.

ALT No.	Description	Savings PW & LCC	Implement	Comments
ROADWAY				
A-4	Reduce the pavement depth from 24.5-inches to 22.5-inches.	Proposed= \$210,800 Actual= \$118,225	Yes	This should be done. OMR in conjunction with the Pavement Design Committee revised the pavement structure from 24.5-inches to 23.5-inches. The revised section reduced the 19mm layer from 3-inches to 2-inches for a savings of \$118,225.

ROADWAY Continued				
B-4	Reduce the 12-foot to 16-foot shoulder width to 7-feet to reduce the height and amount of retaining walls.	Proposed= \$915,194 Actual= \$558,843*	No	<p>The purpose of the walls along the corridor is to provide a minimum of 12-foot shoulders within the available ROW to allow adequate space for utility relocations of the 14 different utility companies.</p> <p>Up to 80% of the ROW has already been acquired.</p> <p>Design Variances will be required for urban shoulders that have widths less than 10 feet from the edge of pavement to the shoulder point.</p> <p>Redesign costs for the changes to the Typical Sections, Cross sections, Walls and the subsequent quantities will be extensive and will minimize the cost savings.</p> <p>The current two-way ADT is 60,000 vpd and the design year is 76,000 vpd.</p> <p>*The VE Team did not take into account the cost to extend the culvert and the cost of sound barrier construction (\$356,351).</p>
C-1	Reduce Curb and Gutter length by using an integral median.	\$200,300	Yes	This should be done.
C-3	Remove concrete paving and grass median.	\$99,830	Yes	This should be done.

ROADWAY Continued				
D-1 & D-2	Use existing traffic signals. Where possible, use strain poles and span wire in lieu of mast arms.	\$638,000	No	Mast Arms have been a standard in Cobb County since the mid 1990's. Mast Arms require less overall maintenance. Mast Arms last longer than span wires, signal cables are protected and are not exposed to the weather, signal heads typically don't get hit by trucks due to the static nature of the Mast Arm. Span wire signals, when exposure to windy weather, may fluctuate to the point that the driver cannot see the signal face or the street name signs. In some cases, street name signs have swung up and cut the signal cables. There is less damage to a mast arm signal than a span wire signal if a pole were to be hit. Typically when a pole is hit in the span wire signal, the entire signal falls into the street whereas only one or two fall for a Mast Arm signal. It is easier to install video detection devices on Mast Arms. Mast Arms are more aesthetically pleasing.
F-1	Use Type 2 design on culvert extension.	(-\$250,000)	Yes	This should be done.

The Office of Engineering Services concurs with the Project Manager's responses.

Approved: Gerald M. Ross Date: 4/14/09
Gerald M. Ross, P. E., Chief Engineer

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P.I. No. 721310
Implementation of Value Engineering Study Alternatives
Page 4.

REW / DMF

Attachments

c:	Genetha Rice Singleton	VE Team –	Bill Ingalsbe
	Ben Buchan		Jan Hillard
	Darrell Richardson		Lionel Alexander
	Butch Welch		Jim Simpson
	Paul Liles		David Acree
	Bill Ingalsbe		
	Bill DuVall		
	Mickey McGee		
	Ken Werho		
	Lisa Myers		
	Douglas Fadool		
	General Files		

design consultant but will also impact the current project schedule and utility relocations.

- *Design variances will be required for urban shoulders with widths less than 10-ft from edge of pavement to the shoulder point.*

3. Value Engineering Alternative No. C-1 – Use an integral 7.5-in concrete median throughout the project rather than type-7 curb & gutter section with median paving. **(Cost savings: \$200,300)**

Approval of the VE Alternative No. C-1 is recommended.

- *The type-7 curb and gutter section with concrete median paving will be removed and replaced with an integral 7.5-in median wherever practical, particularly in areas where the median will be placed over existing asphalt pavement.*
- *This recommendation will reduce construction time (as there will be no existing pavement removal in the proposed median) and the overall cost to facilitate staged construction/ maintenance of traffic.*

4. Value Engineering Alternative No. C-3 – Remove concrete median and grass the median in the 20-ft wide sections **(Cost savings: \$99,830)**

Approval of the VE Alternative No. C-3 is recommended.

- *The concrete median paving will be removed and replaced with grass in areas wider than 8-ft wherever practical, particularly where the median exceeds 8-ft for a respectable distance.*

5. Value Engineering Alternative Nos. D-1 & D-2 – Modify existing traffic signals where possible, upgrade equipment where necessary and use span wire in lieu of mast arms at five (5) existing locations/ intersections and two (2) newly signalized intersections **(Cost savings: \$638,000)**

Approval of the VE Alternative Nos. D-1 & D-2 is not recommended.

- *Mast Arms have been a standard in Cobb County since the mid 1990's.*
- *Mast Arms require less overall maintenance: Mast Arms last longer than span wires, signal cables are protected and are not exposed to the weather, signal heads typically don't get hit by trucks due to the static nature of the Mast Arm.*
- *Span wire signals, when exposure to windy weather, may fluctuate to the point that the driver cannot see the signal face or the street name signs. In some cases, street name signs have swung up and cut the signal cables.*
- *There is less damage to a mast arm signal than a span wire signal if a pole were to be hit. Typically when a pole is hit in the span wire signal, the entire signal falls into the street whereas only one or two fall for a Mast Arm signal.*
- *It is easier to install video detection devices on Mast Arms.*
- *Mast Arms are more aesthetically pleasing.*

6. Value Engineering Alternative No. F-1 – Remove the Design No. 1 section at each end of the quadruple 10-ft x 10-ft bridge culvert at Sope Creek and rebuild to the required length with Design No. 2. **(Cost increase: \$250,000)**

Approval of the VE Alternative No. F-1 is recommended.

- *This will ensure the existing structure can support additional fill loads.*
- *The removal and replacing of a section of existing culvert in-kind will not affect the length of stream impacts in the permit.*

JBB:ASW:smd(PBS&J)



Fadool, Douglas

From: Welch, Albert (Butch)
Sent: Monday, April 13, 2009 5:39 PM
To: Fadool, Douglas
Cc: Myers, Lisa; Wishon, Ron; Hoenig, Andrew
Subject: RE: VE Study Responses for 721310 - UPDATE

PI No. 721310: -What are the revised cost savings for ALT. No. B-4 including allowance for redesign?
-Review the written bullet responses nos. 4,5 & 6. They seem to conflict with a "Yes" response.

The response to B-4 should be "No."

Reducing the 12 to 16-ft shoulder width to under 10-ft as stated in the VE Study to reduce wall cost is not seen by the Office of Urban as an option due to the reasons stated in bullets 2, 3, 4, 5, & 6. Clear zone along with R/W and utility impacts are the major concerns. The project is to widen SR120/ Roswell rd from 4 to 6 lanes and current two-way traffic is 60,000 AADT with a design year of 76,000 AADT. Utilities along this corridor include GPA Transmission, GPA Distribution, GPC Underground, Cobb EMC, Marietta Power, MEAG, Sawnee EMC, MCI Worldcom & Telecom, AGL Resources, AGL Networks, Cobb Water and Sewer, AT&T, COMCAST, Cobb-Marietta Water Authority, & Level3.

The VE Team stated the original wall cost was \$2,161,065 as opposed to the actual cost of \$1,804,714.40. The VE team did not subtract the cost to extend the culvert or the cost of the sound barrier.

The design team continues to make every effort to reduce the length, type, and number of walls. Originally this project proposed 21 walls. The number of walls at the time of the VE study was 16; 3 – type 2, 7 - gravity, 5 -special design and 1 – MSE. Currently there is an ongoing effort to reduce the total number of walls to 15 with only 1 of those being a special design and 1 MSE. It is believed that wall 4 can be deleted with a **cost savings of \$32,833**.

Thanks,

Butch

Albert S. Welch, Jr. (Butch)
Design Group Manager - UD5
ph. 404-631-1690

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PRECONSTRUCTION STATUS REPORT FOR PI:721310-

PROJ ID : 721310-Cobb
COUNTY : I.82
LENGTH (MI) : STP00-0114-01(072)
PROJ NO.: Welch, Albert
PROJ MGR: Urban Design
OFFICE : Local Design, Reimbursed by GDOT funds
CONSULTANT: Cobb County
SPONSOR : Post Buckley Schuh and Jernigan, Inc
DESIGN FIRM:

SR 120/ROSWELL RD FM SR 120 ALT TO BRIDGEGATE DR - GRTA
MPO: Atlanta TMA
TIP #: CO-177
MODEL YR : 2020
TYPE WORK: Widening
CONCEPT: ADD 6U(MED 20)
PROG TYPE: Reconstruction/Rehabilitation
Prov. for ITS: N
BOND PROJ : GRTA/ARTERIAL

MGMT LET DATE : 09/18/2009
MGMT ROW DATE : 04/15/2006
SCHED LET DATE : 1/7/2010
WHO LETS? : GDOT Let
LET WITH :

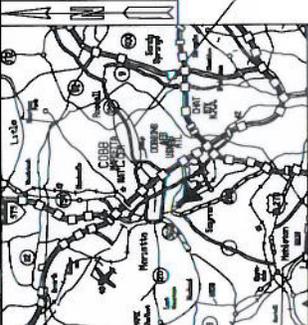
ACTIVITY		ACTUAL START	ACTUAL FINISH	%	PROGRAMMED FUNDS						
SCHED START	SCHED FINISH				Phase	Approved	Proposed	Cost	Fund	Status	Date Auth
4/13/2009	4/21/2009	1/20/1987	11/17/1997	100	PE	1997	1997	265,471.90	33C	AUTHORIZED	2/14/1997
		8/27/1997	8/27/1997	100	PE	2004	2004	42,080.08	42210	AUTHORIZED	2/14/1997
		9/12/1997	9/13/1997	100	PE	2004	2004	1,126,219.92	CFTS	AUTHORIZED	2/14/1997
		10/21/1997	10/28/1997	100	ROW	2006	2006	36,750.00	CFTS	AUTHORIZED	2/27/2006
		10/29/1997	11/17/1997	100	ROW	2006	2006	4,350,000.00	L230S	AUTHORIZED	2/27/2006
		1/3/2005	2/16/2005	100	ROW	2006	2006	2,113,250.00	RRB	AUTHORIZED	2/27/2006
		10/22/2008	2/21/2005	67	PE Cost Est Amt:	2009	2009	10,075,968.00	C-Phase PRECST		
		2/21/2005	11/10/2002	100	PE Cost Est Amt:				PE		0.00
		4/11/1997	5/25/1999	100	PE Cost Est Amt:				PE		0.00
		5/14/1999		100	PE Cost Est Amt:				PE		0.00
		1/1/2004	7/1/2005	0	ROW Cost Est Amt:				PE		0.00
		5/2/1991	5/8/1991	100	ROW Cost Est Amt:				ROW		0.00
		7/1/2005	7/1/2005	100	ROW Cost Est Amt:				ROW		0.00
		5/23/2005	7/1/2005	100	ROW Cost Est Amt:				ROW		0.00
		1/11/2006	2/23/2006	100	ROW Cost Est Amt:				ROW		0.00
		12/12/2005	12/15/2005	100	CST Cost Est Amt:				CST		8,704,000.00
		2/23/2006	3/8/2006	97							
		2/23/2006	3/18/2005	100							
		1/18/2005		41							
		8/11/2005		0							
				0							

PDD: BOND, URBAN TO DESIGN, 10/8/99, COBB HIGH PRIORITY 1/30/00, 4(I), 5/25/04, Coord w/0004403.
Bridge: 9/1/04
Design: SWW 03/02/09 - RET WALLS - 100% P.L. - 70% F.P.,
EIS: UD-Hoing: Consultant preparing for FFR/ mgc
LGA: CE/APvd 1-21-97/Rev 8-25-05(OnSched/SEPT09)let/Bowman 3,3,09
Planning: REV PMA SGN COBB DO PE/ROW/UTIL & CST 11-13-03
 SR 120/Roswell Rd. fm SR 120LP to Bridgegate Dr. is on the ARC Bike Trans and Ped Walkways(2002) pg 65 & 92
Prog. Develop: NOW AN ARTERIAL TCI - RW WAS 3.158MIL NOW .9MIL!! 4-02
Programming: PR2/PE-5-12-97#1 9-03#2 5-05#3 5-06#4 3-08#5 7-08
ROW: 75 R/W EST \$1,000,000; Ct exe Loc 8:25/06; Ct exe GDOT 9/13/06
Traffic Op: AWAITING CNSLT FFR PLANS FOR REVIEW* +PFPR sent
UST: SITES 3(P?);5(P?); - 1,2&4 OK.
Utility: CC: MPLANS TO DZN (-1) 03/09
EMG: MI 507/2017 (H85/04)-W/V88); PE BY COUNTY

Pre. Parcel CT:	Under Review:	Released:	Total Parcel in ROW System:	Options - Pending:	Condemnations- Pend:	Cond. Filed:	Relocations:	Acquired:	Acquired by:	LOC	DEEDS CT:
90	0	83	89	8	11	1	0	47	Black, Pam (LOC)		46

DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA

PLAN AND PROFILE OF PROPOSED SR 120/ROSWELL ROAD WIDENING COBB COUNTY STP-114-1(72)



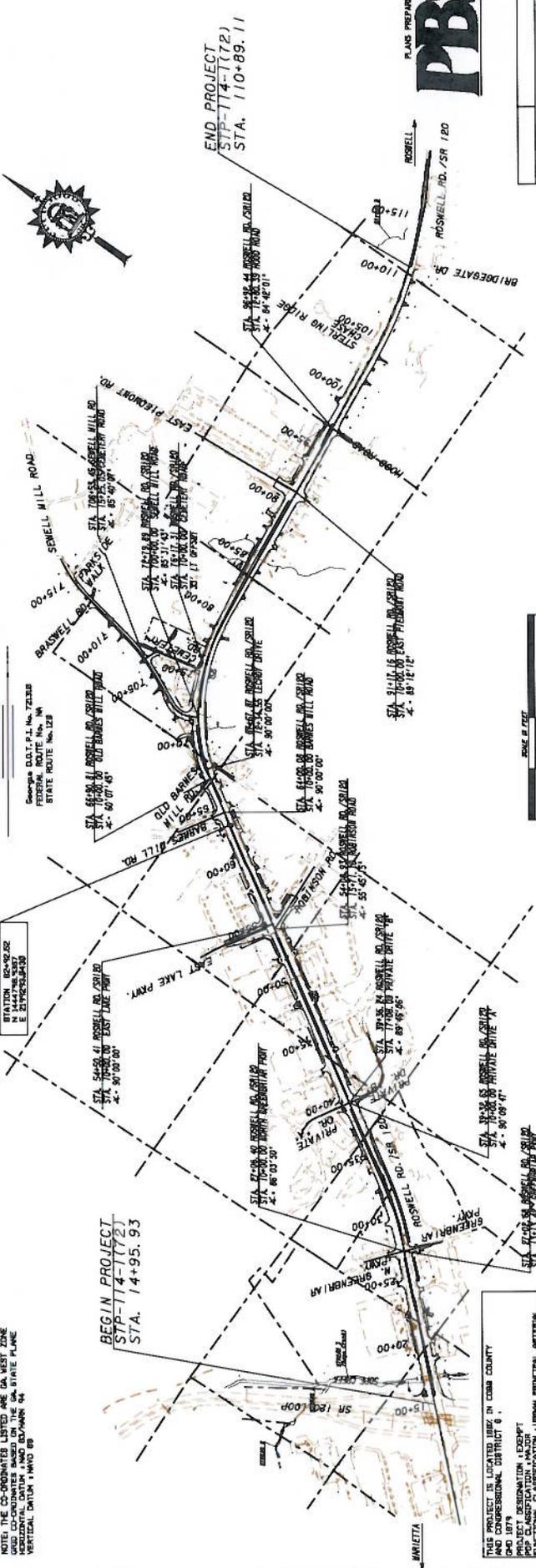
LOCATION SKETCH

NOTE: THE CO-ORDINATES LISTED ARE GA WEST ZONE
 GRID COORDINATES AND NOT THE STATE PLANE
 GRID COORDINATES AND ELEVATION AS
 VERTICAL DATUM = NAVD 83

FEDERAL AID PROJECT

Georgia D.O.T.P.L. No. 72338
 FEDERAL ROUTE No. 44
 STATE ROUTE No. 120

KEYPOINT COORDINATE
 STATION 65+92.82
 E 1444786.4433
 N 1125254.5433



THIS PROJECT IS LOCATED WITHIN COBB COUNTY
 AND CONGRESSIONAL DISTRICT 6.
 GAO 1879
 PROJECT DESIGNATION: A-007
 PROJECT CLASSIFICATION: URBAN PRINCIPAL, ARTERIAL

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 THE DATA TOGETHER WITH ALL OTHER INFORMATION SHOWN ON THESE PLANS OR IN ANY WAY INDICATED THEREBY, WHETHER BY
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 ACTUAL CONDITIONS. HOWEVER, THE SAME ARE SHOWN AS INFORMATION ONLY, ARE NOT GUARANTEED, AND DO NOT BIND THE DEPARTMENT
 OF TRANSPORTATION IN ANY WAY. THE ATTENTION OF THE BIDDER IS SPECIFICALLY DIRECTED TO SUBSECTIONS 102.14, 102.30,
 AND 104.43 OF THE SPECIFICATIONS.



DESIGN DATA:	
TRAFFIC DATA:	AASHTO 2007
TRAFFIC A.D.T.:	60,600 (2004)
TRAFFIC A.D.T.:	76,500 (2030)
TRAFFIC D.H.V.:	6185
DIRECTIONAL DIST.:	50%
% TRUCKS:	2%
% TRUCKS:	2%
SPEED DESIGN:	45 MPH

LENGTH OF PROJECT	
NET LENGTH OF ROADWAY	
BLUR	
NET LENGTH OF PROJECT	
NET LENGTH OF EXISTING	
ROSS LENGTH OF PROJECT	

STP-114-1(72) COBB

PLANS PREPARED BY
PBS&J

DATE	STATE	DESIGN ENGINEER
DATE	CHIEF ENGINEER	
DATE	LOCATION AND DESIGN APPROVAL DATE	
DATE	DESIGN DATE	