

**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA**

-----  
**INTERDEPARTMENT CORRESPONDENCE**

**FILE:** CSBRG-0007-00(128) Chatham **OFFICE:** Engineering Services  
P.I. No.: 0007128  
CR 787/Islands Expressway Bascule Bridge **DATE:** April 27, 2011

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

**TO:** Bobby K. Hilliard, PE, State Program Delivery Engineer  
Attn.: Robert Murphy

**SUBJECT: IMPLEMENTATION OF VALUE ENGINEERING STUDY ALTERNATIVES**

The VE Study for the above project was held October 4-7, 2010. Responses were received on April 26, 2011. The VE Study report included seven recommendations for Alternate 1, seven recommendations for Alternate 8 and two for Alternate 7. The Department selected Alternate 8 as the preferred alternate for this project; only the recommendations for Alternate 8 are included in the Implementation Letter.

Recommendations for implementation of Value Engineering Study Alternatives are indicated in the table below. The Project Manager shall incorporate the VE alternatives recommended for implementation to the extent reasonable in the design of the project.

ALT #	Description	Potential Savings/LCC	Implement	Comments
<b>LPA Bridge Replacement Alternate Design 8</b>				
BR-3	Retain portions of existing bridge	\$747,810	No	The calculations provided by the VE team did not include maintenance, security or liability costs. Additional costs would be incurred for parking and providing access to the bridges. This could also increase the project's impact to the surrounding marshlands. Both the additional bridges would be partially located beneath the new eastbound bridge, making them an obstruction to construction that would increase construction costs.

BR-4A	Reduce outside shoulders of eastbound bridge to 6 ft	\$403,920	No	The proposed bridge width for the bridges on this project is consistent with Department Policy 4265-10. The shoulder widths in the policy were developed through an implemented VE Study. This facility is a hurricane evacuation route and adequate width for disabled vehicles should be provided. A 6 foot shoulder would not be adequate.
BR-9	Signalize the reversible lanes in lieu of manually controlling traffic	\$320,500	No	The VE Team incorrectly assumed that the design proposed manual placement of barrels for the reversible lane operation on the new westbound bridge during removal of the existing bridges and construction of the remaining eastbound bridge. The cost estimate provided by the Design Team for the daily placement of barrels only included the approaches to the bridge. Costs were provided within the traffic control estimate for overhead signals during the construction period. No cost savings can be achieved as illustrated by the VE report as daily barrel placement will still be required for the lane shifts on the approaches to the bridge.
BR-13	Optimize span arrangement by using BT-74 Girders	\$361,068	No	Optimizing the span arrangement should be given consideration as the project progresses; however, it is premature at this point in the design phase to specifically set the span arrangement and select the beam type other than prestressed girders. The design team clearly documented that while it is possible to design a BT-74 to span the proposed 166 ft length, it would be excessively difficult to transport and lift into place due to lateral stability limitations of the narrow top flange of the BT-74.

BR-17	Include the time differential value in alternative selection process	\$252,000	Yes	This will be done.
BR-18	Utilize alternate bidding by developing two sets of construction plans – one for each viable alternate – for letting to determine which alternate would provide the same functional equivalent at the lowest bid price.	\$2,200,923	No	Preparation of two separate sets of construction plans for the two viable alternates (Alternate 1 and Alternate 8) is costly and exceeds the funding available for the design of the project. Alternate 8 has been selected as the preferred alternate; therefore, two sets of plans are not needed.
BR-20	Extend MSE wall to eliminate west end span	\$752,275	No	The Office of Materials and Research recommends limiting the height of the wall at this site to 30 feet due to compressible soils. Without the additional height, the length of the wall cannot be increased to shorten the bridge.

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

Approved:  Date: 4/28/11  
 Gerald M. Ross, PE, Chief Engineer

REW/LLM

Attachments

- c: Ben Buchan
- Bobby Hilliard/Mike Haithcock/Robert Murphy
- Paul Liles/Ben Rabun/Bill Duvall/Bill Ingalsbe
- Mike Murdoch/Larry Bowman
- Brad Saxon/Teresa Scott/Will Murphy/Troy Pittman
- Ken Werho
- Lisa Myers
- Matt Sanders

DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA

---

INTERDEPARTMENT CORRESPONDENCE

FILE CSBRG-0007-00(128) Chatham, County OFFICE Program Delivery  
P.I. No. 0007128  
Islands Expressway Wilmington River Bridge DATE April 27, 2011

FROM Bobby K. Hilliard, PE, State Program Delivery Engineer *B.K.H.*

TO Ron Wishon State Project Review Engineer  
Atten: Lisa Myers

SUBJECT Value Engineering Responses

Ron,

Attached are the responses for the Value Engineering Study. This office concurs with the responses.

If there are any questions please contact Project Manager Mr. Robert Murphy of this Office at (404) 631-1586.

BKH:  
RM Sr. PM  
Attachments

Cc:

**GEORGIA DEPT. OF TRANSPORTATION**  
**Project CSBRG-0007-00(128) Chatham County PI 0007128**  
**CR 787/Islands Expressway over the Wilmington River**

**RESPONSE TO THE VALUE ENGINEERING (VE) REPORT** Dated: October 2010

This is the response to the Value Engineering Study/Report prepared by PBS&J for the above project. This response is the LPA Design Team analysis of the recommendations offered in the VE study/report that, if implemented, would presumably reduce the overall project costs and provide the best value for the Department in developing a project that would achieve the need and purpose. Out of 20 original alternatives/recommendations considered by the VE team, 10 were selected for implementation. The response provided herein will focus only on the 10 alternatives/recommendations suggested by the VE Team for implementation and will address each conceptual alternative separately developed by the LPA design team. The format and order of the responses follow the presentation in the VE Report. **(Please be advised that subsequent to the VE Response in February 2011, the Department selected Alternate 8 as the preferred alternate for this project.)**

**VE Alternatives/recommendations for implementation:**

**BR-3:** Retain portions of the existing bridges and roadways to be used for recreation and save demolition costs. Specifically the portions to be retained would be: WB Sta. 159+49 to Sta. 161+27 (178') and from Sta. 163+72 to Sta. 167+83 (411'); EB Sta. 159+89 to 167+27 (138') and from Sta. 163+72 to 167+83 (411'). (LPA Alternate 8)

Proposed Cost Savings: \$747,810

*Response: WILL NOT IMPLEMENT*

*The VE Team recommends retaining the above portions of the existing bridges for recreational/community purposes but does not consider yearly maintenance, and security costs that Chatham County would be burdened with in addition to the liability associated with these facilities. Furthermore, additional costs would be needed for providing adequate parking and access to the bridges, which may increase the project's impact to the surrounding marshlands. Most importantly, a review of the old plans in comparison to Alternate 8 indicates that both existing bridges would be partially below the new EB Bridge, which makes the existing bridges an obstruction to construction and will increase construction and design costs. Therefore the Design Team does not recommend implementation of this recommendation.*

**BR-4A:** Reduce the outside shoulder width on the new eastbound bridge from 8' to 6' to more closely match the approach roadway cross section. (Preferred Alternate 8)

Proposed Cost Savings: \$403,920

**Response: WILL NOT IMPLEMENT**

*Islands Expressway is not on the Georgia state route system; however, it is a part of the National Highway System (NHS). Therefore the Georgia DOT's Bridge and Structures Design Policy Manual establishes the desired bridge width for all new bridges constructed in Georgia on its roadway systems. This manual indicates that for projects on the federal system with design traffic volumes in excess of 2,000 vehicles per day for multilane, median divided roadways, the proposed bridge width should be: 4' inside shoulder + traveled way width (24') + 8' outside shoulder equaling a total width of 36' barrier to barrier. Reducing the outside shoulder to 6' will require a design exception per the directions in the aforementioned bridge manual. The Design Team does not agree that a reduction in outside shoulder width is warranted for costs savings since there will be a reduction in the usable space on the bridge for emergencies. The 8' shoulder width should be retained for stranded motorist, cyclist, pedestrians and emergency vehicle parking as well as flexibility during hurricane evacuation. Therefore, the Design team does not recommend implementation of this recommendation.*

**BR-9:** Use an electronic overhead signal system to route (AM/PM) traffic across the new westbound bridge (reversible lanes) during the removal of the existing bridges and the construction of the new eastbound bridge in lieu of manually moving barrels each day. (Preferred Alternate 8)

Proposed Cost Savings: \$320,500

**Response: WILL NOT IMPLEMENT**

*The VE Team assumed that the LPA Design Team utilized manual placement of barrels for the reversible lane operation on the new westbound bridge during removal of the existing bridges and construction of the remaining eastbound bridge. The cost provided by the Design Team for daily placement of barrels only included the approaches to the bridge, not across the entire structure. Costs were provided within the estimate for Alternate 8 traffic control for overhead signals during this construction period and the \$1500/day only covered barrel placement on the approaches. No cost savings can be achieved as is illustrated in the VE report as daily barrel placement will still be needed for the lane shifts on the approaches to the bridge. Therefore this recommendation is not valid as it was already accounted for in the cost estimate for Alternate 8.*

**BR-13:** The alternative design proposes optimizing the span arrangement by using BT-74 Girders of similar lengths. The span arrangement in this alternative provides 10 spans, thus eliminating the need for two intermediate bents.

Proposed Cost Savings: \$361,068

**Response: WILL NOT IMPLEMENT**

*The LPA Design Team concurs with the concept of minimizing the total number of substructure units by using longer span lengths and minimizing the number of different beam types. The beam layout shown in the structure type study was conceptual and arranged to maximize cost savings in the superstructure by using the least costly beam type which at the conceptual level showed greater cost savings over removing a substructure unit on the approaches. It was always the plan of the Design Team to revisit the span arrangement during Preliminary design, where detailed layouts are typically performed.*

*The Design Team does not support the VE recommendation to use a BT-74 for a 166 ft span length. During the development of the Structure Type Study, the Design team clearly documented that while it is possible to design a BT-74 to span that length, it would be excessively difficult to transport and lift into place due to lateral stability limitations of the narrow top flange of the BT-74. In addition, our preliminary analysis indicates that the use of BT-74's would require an additional beam line per span over that which would be required for an FBT-78. The Design Team maintains that the locally available FBT-78 remains the preferred section type for span lengths above 150 ft on this project and does not recommend implementation of this recommendation.*

**BR -17:** Consider the time differential value in alternative selection and in the construction contract. This alternative proposes to assign a cost value to time for construction of the project since the project will likely cost in excess of \$40,000,000 and will present some disruption to the traveling public during the construction period. ( LPA Alternate 1 and 8)

Proposed Cost savings: \$252,000

**Response: IMPLEMENT**

*The Design Team supports this recommendation to consider the use of liquidated damages as a means of minimizing the time of construction for this project due to its impact to the traveling public particularly during the removal of the existing bridges and the construction of the new eastbound bridge (Stage 2). The Design Team also agrees that consideration should be given to an incentive/disincentive special provision in the construction contract for this project by the Department in attempt to further minimize cost and time of construction.*

**BR-18:** Develop two separate sets of construction plans for the two viable project alternates for letting to determine which alternative would provide the same functional equivalent at the lowest bid price. (LPA Alternate 1 and 8)

Proposed Cost Savings: \$ 2,200,922.93

*Response: WILL NOT IMPLEMENT*

*Preparation of full Construction plans for two alternates is costly and exceeds the funding that Chatham County has available for the project. It is appropriate for a preferred Alternate to be selected based on the Concept report and subsequent Value Engineering study performed by learned individuals in industry. During this process, Alternate 8 was selected by the Department as the preferred alternate; therefore an additional full alternate design is not warranted.*

**BR-20:** The alternative design proposes extending the MSE Wall to eliminate the need for the west end span from the current design.

Proposed Cost Savings: \$752,275

*Response: WILL NOT IMPLEMENT*

*The Design team had initially discussed a maximum wall height of 40 ft for MSE walls on the project based on a recommendation from The Reinforced Earth Company. Shortly after the Concept Team meeting, Tom Scruggs at GDOT-OMR, commented that he was uncomfortable with a 40 ft wall on the compressible soils in the project area and recommended setting the maximum height at 30 ft. Based on this, the Design Team does not recommend implementation of this recommendation.*



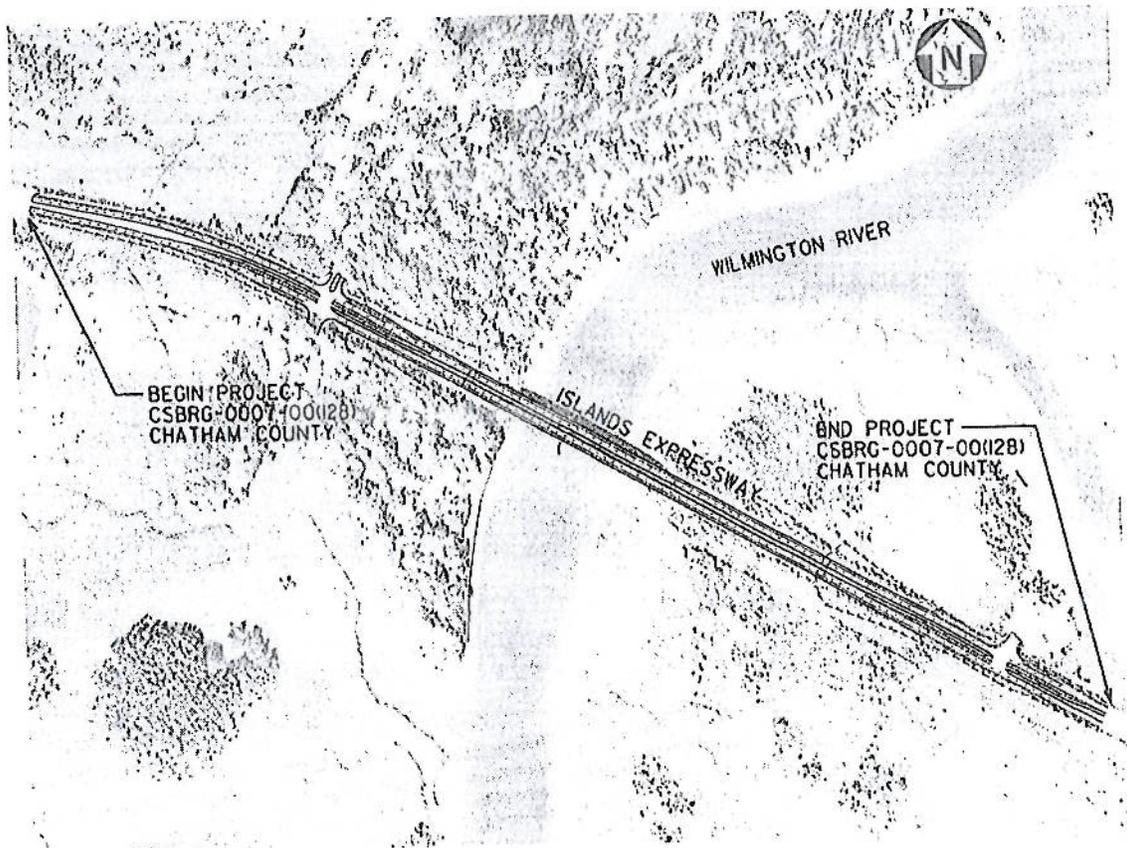
**GEORGIA DEPARTMENT OF TRANSPORTATION**

**CSBRG-0007-000(128) P.I. No. 0007128**

**CR 787/Islands Expressway Bridge Replacement**

**Chatham County**

**Value Engineering Report--- RESPONSE**



NOT TO SCALE

**PROJECT LIMITS**

PRECONSTRUCTION STATUS REPORT FOR PI:0007128

CR 787/ISLANDS EXPRESSWAY @ WILMINGTON RIVER/BASCULE BRIDGE

MGMT LET DATE: 11/15/2013  
 MGMT ROW DATE: 12/15/2011  
 BASELINE LET DATE: 11/19/2013  
 SCHED LET DATE: 1/6/2014  
 WHO LETS?: GDOT Let  
 LET WITH:

PRIORITY CODE: STM09  
 DOT DIST: 5  
 CONG. DIST: 12, 1  
 BIKE: Y  
 MEASURE: E  
 NEEDS SCORE:  
 BRIDGE SUFF: 60.50, 71.93

MPO: Savannah TMA  
 TIP #: 2005-H-03  
 MODEL YR: Bridges  
 TYPE WORK: BR REPL  
 CONCEPT: Replacement  
 PROV. for ITS: N  
 BOND PROJ.:

PROJ ID: 0007128  
 COUNTY: Chatham  
 LENGTH (MI): 0.40  
 PROJ NO.: CSBRG-0007-00(128)  
 PROJ MGR: Murphy, Robert P.  
 AOH Initials: MAH  
 OFFICE: Program Delivery  
 CONSULTANT: Local Design, Reimbursed by GDOT funds  
 SPONSOR: Chatham County  
 DESIGN FIRM: The LPA Group Incorporated

BASE START	BASE FINISH	LATE START	LATE FINISH	TASKS	ACTUAL START	ACTUAL FINISH	%	PROGRAMMED FUNDS				Date Auth		
								Activity	Approved	Proposed	Cost		Fund	Status
9/17/2010	4/14/2011			Concept Development	5/20/2007	4/26/2007	73	PE	2010	2010	1,000,000.08	C230	AUTHORIZED	5/11/2005
9/17/2010	11/25/2010			Concept Meeting	4/26/2007	11/10/2009	100	PE	2005	2005	90,000.00	Q23	AUTHORIZED	5/11/2005
9/16/2010	9/16/2010	5/13/2011	5/26/2011	PM Submit Concept Report	11/10/2009		0	ROW	LOCL	2012	100,000.00	LOC	PRECST	
9/16/2010	9/16/2010	5/26/2011	5/12/2011	Concept Report Review and Comments Management Concept Approval Complete	7/29/2010	5/26/2005	83	CST	LR	2016	47,803,702.75	L110	PRECST	
9/17/2010	4/14/2011			Value Engineering Study	5/26/2005		100							
11/5/2010	11/25/2010			Public Information Open House Held	5/4/2010	9/10/2010	20							
11/29/2010	12/31/2010			Environmental Approval	9/10/2010	10/10/2010	100							
1/5/2011	7/19/2011	5/31/2011	9/5/2011	Mapping	5/10/2010		30							
9/17/2010	1/27/2011	5/27/2011	10/6/2011	Field Surveys/SDE	9/10/2010		0							
9/17/2010	1/27/2011	5/27/2011	10/6/2011	Preliminary Plans	9/10/2010		0							
9/17/2010	1/27/2011	5/27/2011	10/6/2011	Preliminary Bridge Design	9/10/2010		0							
12/8/2011	3/21/2012	1/25/2012	5/8/2012	Underground Storage Tanks	9/10/2010		0							
8/10/2011	8/11/2011	9/27/2011	9/28/2011	404 Permit Obtainment	9/10/2010		0							
8/12/2011	11/3/2011	9/29/2011	12/21/2011	PFPR Inspection	9/10/2010		0							
11/4/2011	12/7/2011	1/22/2012	1/22/2012	R/W Plans Preparation	9/10/2010		0							
9/19/2011	9/21/2011	11/4/2011	11/8/2011	R/W Plans Final Approval	9/10/2010		0							
12/8/2011	12/8/2011	1/25/2012	1/25/2012	L & D Approval	9/10/2010		0							
3/16/2012	3/29/2012	5/3/2012	5/16/2012	R/W Authorization	9/10/2010		0							
10/12/2012	3/6/2013	11/29/2012	4/23/2013	Stake R/W	9/10/2010		0							
7/20/2011	4/23/2012	9/6/2011	6/8/2012	Soil Survey	9/10/2010		0							
9/22/2011	3/5/2013	11/9/2011	4/22/2013	Bridge Foundation Investigation	9/10/2010		0							
4/24/2012	1/28/2013	6/11/2012	3/15/2013	Final Design	9/10/2010		0							
6/26/2013	6/27/2013	8/13/2013	8/14/2013	Final Bridge Plans Preparation	9/10/2010		0							
7/11/2013	7/24/2013	8/28/2013	9/10/2013	FFPR Inspection	9/10/2010		0							
				Submit FFPR Responses (OES)	9/10/2010		0							

Activity	Amount	Date	Activity	Cost	Fund
PE	\$90,000.00		PE	0.00	Q23
PE	\$1,000,000.08		PE	1,000,000.00	C230
ROW	\$100,000.00		ROW	0.00	LOC
CST	\$40,000,000.00	2/7/2007	CST	0.00	L110

**District Comments**  
 TAS/PIOH held on 5-26-05/9-26-05/working on concept (contract is for concept only)/11-15-06/concept report in UD/2-12-07/concept mtg 4-26-07/9-24-07/working on concept report Local. to request RFQ 10-1-09. begin design of bridge 2010. Chatham County selected LPA to do Pre-Eng. Preparing for V. E. Study 3/08/10. Revised Concept in circulation. Concept submitted to L&D 7-30-10 V.E. Study held 10-4-10. Addressing V.E. comments. Environ. Doc. anticipated in Early Summer 2011, preparing for PFPR in August 2011.

PreL Parcel CT:	6	Total Parcel in ROW System:	Cond. Filed:	Acquired by:	DEEDS CT:
Under Review:			Relocations:	Acquisition MGR:	
Released:			Acquired:	R/W Cert Date:	