VALUE ENGINEERING REPORT

SR 26 / US 80 Ogeechee River Bridge
BRST0-0005-05(047), PI No. 533145
Effingham & Bryan Counties
April 8, 2010

OWNER AND DESIGN TEAM:

Georgia Department of Transportation
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VALUE ENGINEERING CONSULTANT:

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EXECUTIVE SUMMARY

Executive Summary

VALUE ENGINEERING STUDY

SR 26 / US 80 Ogeechee River Bridge
BRST0-0005-05(047), PI No. 533145
March 29 – April 1, 2010

Introduction

This report presents the results of a Value Engineering (VE) study conducted on the proposed project to replace the Ogeechee River Main Channel Bridge and its Overflow Bridge. The bridges are located on SR 26 / US 80 in Effingham and Bryan Counties. The current structures are 26 feet wide and were constructed in 1944. Both bridges had sufficiency ratings of 47 when this project was started; however, the Overflow Bridge has been modified and currently has a sufficiency rating of 55.5. The main channel bridge is 1,380 feet long and the Overflow Bridge is 180 feet long. State Route 26 / US 80 is classified as a rural arterial and is part of the National Highway System. The route carries 8,400 VPD and is a local school bus route.

Major contract work items include structures, roadway embankment, roadway approaches, drainage extensions, pavement, and guardrail. The total estimated project cost including right-of-way (R/W) is $8.45 million. The 30 percent design plans have been completed. The study took place March 29 - April 1, 2010, at the Georgia DOT headquarters in Atlanta, using a four person VE team.

This report presents the Team's recommendations and all back-up information, for consideration by the decision-makers. This **Executive Summary** includes a brief description of each recommendation. The **Study Identification** section contains information about the project and the team. The **Recommendations** section presents a more detailed description and support information about each recommendation. The **Appendix** includes a complete record of the Team's activities and findings. The reader is encouraged to review all sections of the report in order to obtain a complete understanding of the VE process.

Considerations

The VE team was presented with several constraints to consider when developing their recommendations. The constraints were; minimize the project's impacts on the adjacent wetlands and R/W, do not shift the alignment to the south side of the existing roadway, and do not shift the alignment on the east end of the project in a manner that would impact the large sand pit area northeast of the project. The Environmental Documentation for the project is being prepared. The project does not have any scheduled letting date and R/W acquisition has not been scheduled.

Results Obtained

The VE team focused their efforts on the high cost items of the project. Through the use of functional analysis and "brain storming" techniques, the team generated 31 ideas with 15 ideas being identified for additional evaluation as possible recommendations or design considerations. The VE team developed three independent recommendations and three alternative recommendations. Implementation of the three independent recommendations has the potential to reduce the project cost by approximately $4.23 million. A detailed write-up of each recommendation is contained in the respective portion of this report. A summary of the recommendations follows.

Recommendation Highlights

Idea A-1: Construct only the new Ogeechee River Main Channel Bridge on the existing roadway alignment.

The current design realigns the roadway north approximately 60 feet to allow for both the Ogeechee River Bridge and its Overflow Bridge to be constructed without detouring SR 26 traffic. This realignment requires the construction of a new roadway embankment between the two bridges and at the end connections of the project.

It is recommended that only the Ogeechee River Main Channel Bridge be replaced and that it be replaced on the existing roadway alignment. The Overflow Bridge has had modifications to increase its rating to 55.5 thereby providing additional service life. The VE concept would detour traffic away from the bridge site utilizing SR 30 to the north, I-16 to the southwest, and SR 17 to the east. This concept eliminates all work required to realign the roadway and allows the project to be constructed within the existing R/W and minimizes wetland disturbance / mitigation. Constructing the new main channel bridge online should take only 12 months in-lieu-of 24 months for the original design. This concept reduces project cost and impacts. It does not include any work to the existing Overflow Bridge.

The total potential savings if accepted is $3,553,000.

Idea A-1.1: ALTERNATIVE TO A-1 Construct both the new Ogeechee River Main Channel Bridge and its Overflow Bridge on the existing roadway alignment.

The current design realigns the roadway north approximately 60 feet to allow for both the Ogeechee River Bridge and its Overflow Bridge to be constructed without detouring SR 26 traffic. This realignment requires the construction of a new roadway embankment between the two bridges and at the end connections of the project.

It is recommended that both the Ogeechee River Main Channel Bridge and its Overflow Bridge be replaced and that they be replaced on the existing roadway alignment. Even though the Overflow Bridge has been repaired to improve its sufficiency rating, it remains functionally deficient since it has no shoulders. The VE concept would detour traffic away from the bridge site utilizing SR 30 to the north, I-16 to the southwest, and SR 17 to the east. This concept eliminates all the work required to realign the roadway and allows the project to be constructed within the existing R/W and minimizes wetland disturbance / mitigation. Constructing the new bridges online is anticipated to take only 12 months in-lieu-of 24 months for the original design. This concept reduces project cost and impacts.

The total potential savings if accepted is $2,802,000.

Idea A-1.2: ALTERNATIVE TO A-1 Construct both the new bridges (just north of the existing bridge) in two stages while maintaining two-way traffic on the existing bridges.

The current design realigns the roadway north approximately 60 feet to allow for both the Ogeechee River Bridge and its Overflow Bridge to be constructed without detouring SR 26 traffic. This realignment

requires the construction of a new roadway embankment between the two bridges and at the end connections of the project.

It is recommended to only shift the mainline alignment north approximately 24 feet which would be sufficient to stage the bridge construction while maintaining two-lanes of traffic through the construction site. This concept allows for two-lane traffic on the existing route during construction although it will require traffic shifts and stage construction, while maintaining the current alignment as close to the existing roadway as feasible. This concept would allow the eastern project limit to be shortened by tying into the existing curve earlier (requires a compound curve to provide a smooth transition). It would shorten the project about 1,500 feet, reduce earthwork, reduce environmental impacts, and reduce construction costs. It also eliminates the box culvert extension work.

The total potential savings if accepted is $1,282,000.

Idea A-1.3: ALTERNATIVE TO A-1 Construct both bridges on new alignment but reduce the 60-foot northern roadway alignment shift by 20 feet.

The current design realigns the roadway north approximately 60 feet to allow for both the Ogeechee River Bridge and its Overflow Bridge to be constructed without detouring SR 26 traffic. This realignment requires the construction of a new roadway embankment between the two bridges and at the end connections of the project.

It is recommended to only shift the mainline alignment north approximately 40 feet in-lieu-of the current 60-foot shift and tie back into the original alignment at Station 53+00(+/-). This concept allows the new bridges to be constructed "in-the-clear" while maintaining traffic on the current roadway. The 20-foot alignment shift will reduce earthwork, environmental impacts and construction costs. It will also shorten the project approximately 1,200 feet and eliminate the culvert extension work.

The total potential savings if accepted is $346,000.

Idea A-4: Construct the four main channel crossing bridge piers using caissons in-lieu pile footings.

The current design would construct the four main bridge piers spanning the Ogeechee River using pile footings. This concept will require the use of cofferdams.

It is recommended that the four main bridge piers spanning the Ogeechee River be constructed using caissons. The use of caissons in-lieu-of pile footings will not require cofferdams. Using caissons will reduce construction time and minimize the environmental disturbance of the area. This concept will reduce the cost of the project and simplify construction.

The total potential savings if accepted is $231,000.

Idea A-12: Reduce the shoulder width of the Ogeechee River Main Channel Bridge and the Overflow Bridge from 10 feet to 8 feet.

The current design for the Ogeechee River Main Channel Bridge and the Overflow Bridge provides for a 24-foot roadway with 10-foot shoulders on both sides. This results in a total bridge width of 47.25 feet. The Ogeechee River Main Channel Bridge is 1,380 feet long and the Overflow Bridge is 180 feet long.

It is recommended that the shoulder widths of the two bridges be reduced from 10 feet to 8 feet. This provides a 24-foot roadway with 8-foot outside shoulders. Reducing the bridge shoulder widths from 10 feet to 8 feet follows the AASHTO "long bridge" policy and the GDOT revised bridge width policy. An 8-foot outside shoulder will provide room for bicycles. This concept will reduce the cost of the project.

NOTE: This recommendation was discussed and analyzed during the study, but it was not included in the team's close-out presentation. Upon further consideration, the VE team believes this recommendation should be included in the study report and considered by the design team.

The total potential savings if accepted is $454,000.

SR 26 / US 80 Ogeechee River Bridge

SUMMARY OF POTENTIAL COST SAVINGS

ITEM No.	CREATIVE IDEA DESCRIPTION	ORIGINAL INITIAL COST	PROPOSED INITIAL COST	INITIAL COST SAVINGS	FUTURE SAVINGS	TOTAL LIFE CYCLE SAVINGS
	RECOMMENDATIONS					
A-1	Construct only the new Ogeechee River Main Channel Bridge on the existing roadway alignment.	$8,606,000	$5,053,000	$3,553,000	N/A	$3,553,000
A-1.1	ALTERNATIVE TO A-1 Construct both the new Ogeechee River Main Channel Bridge and Overflow Bridge on the existing roadway alignment.	$8,724,000	$5,922,000	$2,802,000	N/A	$2,802,000
A-1.2	ALTERNATIVE TO A-1 Construct both new bridges (just north of the existing bridge) in two stages while maintaining two-way traffic on the existing bridges.	$1,397,000	$0	$1,397,000	N/A	$1,397,000
A-1.3	ALTERNATIVE TO A-1 Construct both bridges on new alignment but reduce the 60-foot northern roadway alignment shift by 20 feet.	$346,000	$0	$346,000	N/A	$346,000
A-4	Construct the four main river crossing bridge piers using caissons in-lieu pile footings.	$454,000	$223,000	$231,000	N/A	$231,000
A-12	Reduce the shoulder width from 10 feet to 8 feet on the Ogeechee River Main Channel Bridge and Overflow Bridge.	$5,354,000	$4,900,000	$454,000	N/A	$454,000

STUDY IDENTIFICATION

Study Identification

Project: SR 26 / US 80 Ogeechee River Bridge **Date:**	March 29 – April 1
Location: Ogeechee River in Effingham and Bryan Counties	

VE Team Members

Name:	Title: Organiz	ation:	Telephone:
George Obaranec	Highway Design	MACTEC	770-421-3346
Dan Cogan	Construction	KEA	678-904-8591
Aruna Sastry	Structures	Sastry & Associates, Inc.	678-366-9375
Keith Borkenhagen	VE Team Facilitator	MACTEC	623-556-1875

Project Description:

This proposed project would replace the Ogeechee River Main Channel Bridge and its Overflow Bridge on SR 26 / US 80 in Effingham and Bryan Counties. The current structures are 26 feet wide and were constructed in 1944. Both bridges had sufficiency ratings of 47 when this project was started, however, the Overflow Bridge has been modified and currently has a sufficiency rating of 55.5. The Ogeechee River Main Channel Bridge is 1,380 feet long and the Overflow Bridge is 180 feet long. State Route 26 / US 80 is classified as a rural arterial and is part of the National Highway System. The route carries 8,400 VPD and is a local school bus route. Major contract work items include structures, roadway embankment, roadway approaches, drainage extensions, pavement and guardrail. The total estimated project cost including R/W is $8.45 million.

Project Conditions:

The project involves replacing the Ogeechee River Main Channel Bridge (1,380 feet long) and the Overflow Bridge (180 feet long). The VE team was given the following conditions to consider when making their recommendations:

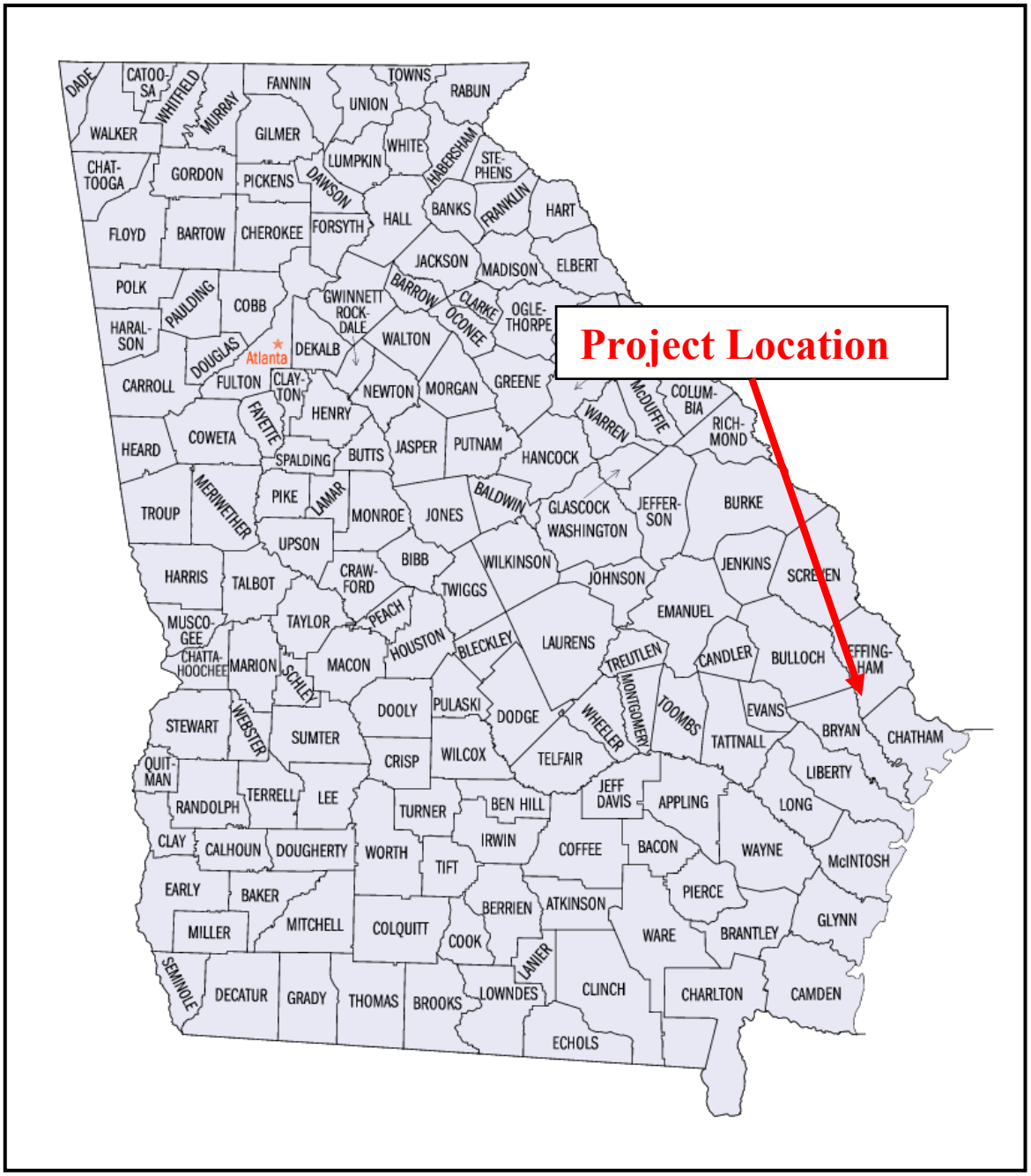
- Minimize the project's impacts on the adjacent wetlands.
- Minimize the project's impact on adjacent R/W.
- Do not shift the alignment to the south side of the existing roadway because it would require the taking of a residence.
- Do not shift the alignment on the east end of the project in a manner that would impact the large sand pit area northeast of the project.

Project Briefing:

The VE team received a project status briefing from Aghdas Ghazi, Office of Program Review, and several members of the State District Office before beginning their study. The following information was discussed:

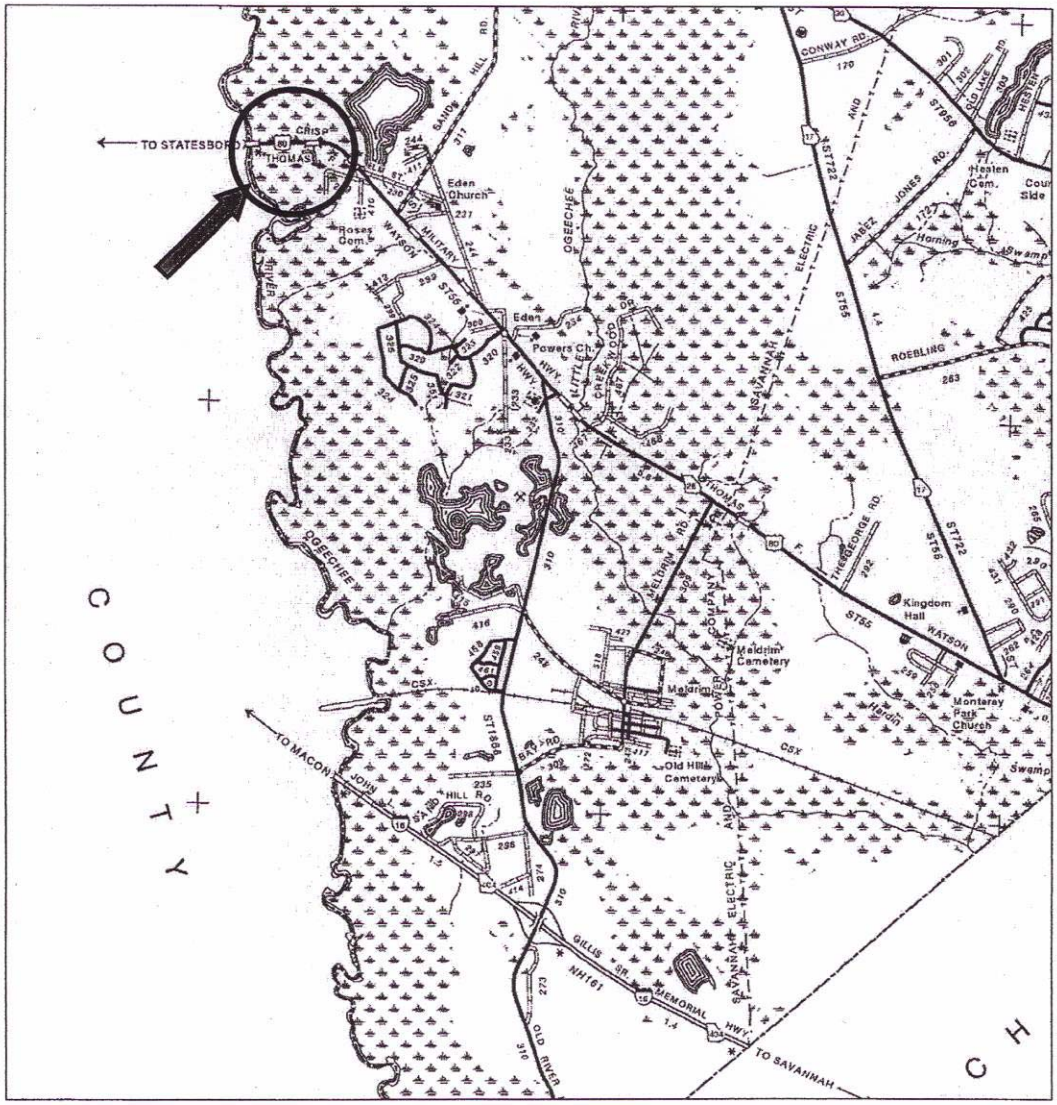
- This is a bridge replacement project. Both the Ogeechee River Main Crossing Bridge and the Overflow Bridge had bridge ratings of 47. They were both structurally and functionally obsolete, however, since this project was proposed, the Overflow Bridge has been updated and currently has a bridge rating of 55.5.
- The original concept was to construct the new bridges south of the existing alignment. This concept however would require the taking of a residence and increase the degree of curve required to tie back into the existing roadway on the east end of the project.
- The current design concept shifts the alignment approximately 60 feet north and would construct the new bridges away from the existing roadway alignment so it can be used to carry traffic through the project site.
- Shifting the alignment approximately 60 feet north will require a new embankment between the two bridges and at both ends of the project. This shift will also require additional R/W and have environmental impacts to the adjacent wetlands.
- The new alignment will also impact utilities on the north side. These utilities are currently within the existing R/W.
- Construction of the new Ogeechee River Main Channel Bridge will require cofferdams for the main crossing piers. The other piers will be set on piles and not require cofferdams. The proposed 60-foot pier spacing for all but the four main river piers provides the simplest and most cost effective structure.
- The proposed project has an anticipated construction time of 24 months. This is primarily due to the large amount of new embankment required for the alignment shift.
- The environmental documentation has not been completed. The project currently does not have a letting date.

Project Vicinity Map
Figure 1



County Map of Georgia

Project Sketch Map
Figure 2



Scale 1 inch = 1000 ft

Location Map

Project: BRST0-0005-05(047) Effingham & Bryan Counties **PI No.:** 533145

Description: SR 26/US 80 over Ogeechee River 9 Miles South of Guyton

VE RECOMMENDATIONS

DEVELOPMENT AND RECOMMENDATION PHASE

Project: SR 26/US 80 Ogeechee River Bridge

IDEA No.:	Sheet No.:	CREATIVE IDEA:
A-1	1 of 5	Construct only the new Ogeechee River Main Channel Bridge on the existing roadway alignment.

Comp By: DPC Date: 3/30/2010 Checked By: KEB Date: 04/05/2010

Original Concept:

The current design realigns the roadway to the north side of the existing 200-foot wide corridor. This results in an alignment shift (centerline to centerline) of approximately 60 feet. The alignment shift allows both the Ogeechee River Bridge and its Overflow Bridge to be constructed without detouring SR 26. The realignment requires the construction of a new roadway embankment between the two bridges and at the end connections of the project.

Proposed Change:

It is recommended that only the Ogeechee River Main Channel Bridge be replaced and that it be replaced on the existing roadway alignment.

Justification:

The approved 2005 project need and purpose statement defined the project scope as a "bridge replacement project to replace (2) deficiently rated bridge structures". After this statement was prepared, the Overflow Bridge has had modifications to increase its rating to an acceptable 55.5 level. Replacing the Ogeechee River Main Channel Bridge, with a sufficiency rating of 47, is the remaining critical item under the original need and purpose statement.

The current design requires a new roadway alignment to construct the new bridges (north of the existing bridges) which adds large quantities of fill material, drainage modifications, new pavement, right-of-way acquisition, and wetland disturbance / mitigation that increase project cost. Constructing the current project, while keeping traffic on-line, is anticipated to take 24 months to complete.

COST SUMMARY	INITIAL COST	FUTURE COST	TOTAL L. C. COST SAVINGS
Original	$8,606,000		
Proposed	$5,053,000		
Savings	$3,553,000		$3,553,000
FUTURE COST: - Savings		N/A	N/A
TOTAL PRESENT WORTH SAVINGS			**$3,553,000**

CONTINUATION

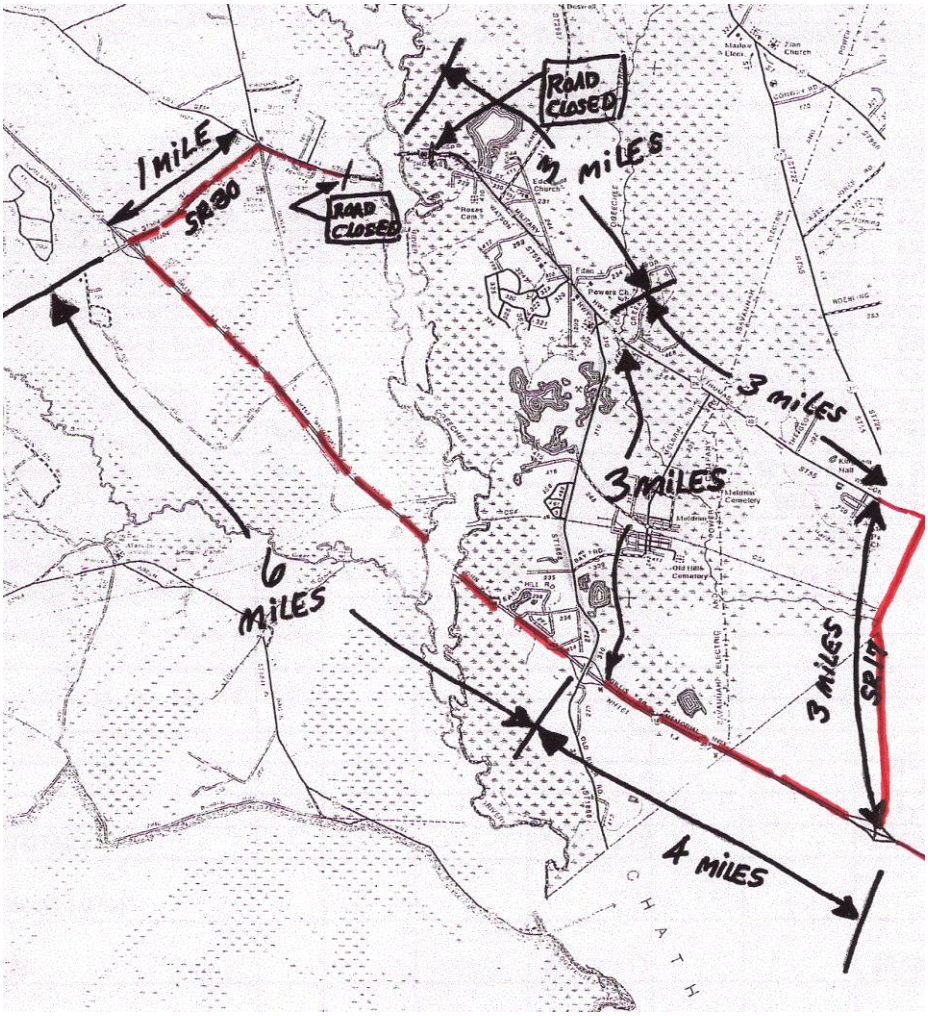
Project: SR 26/US 80 Ogeechee River Bridge	Idea No.: A-1 Client: GDOT Sheet 2 of 5

The VE concept would replace only the Ogeechee River Main Channel Bridge on the existing alignment by detouring traffic away from bridge site utilizing SR 30 to the north, I-16 to the southwest, and SR 17 to the east. This concept would replace the main channel bridge in its current location, mill/resurface all damaged roadway surfaces and then open the road to traffic. It eliminates all work required to realign the roadway, thereby constructing the project within existing R/W and minimizing wetland disturbance / mitigation. Constructing the new bridge online is anticipated to take only 12 months.

This concept reduces project cost and impacts. Utility relocation activities would also be reduced except for the infrastructure items located on bridge itself, which will create a need for the utility owners to incorporate service measures to their customers.

SKETCH

Project: SR 26/US 80 Ogeechee River Bridge	Idea No.: A-1 Client: GDOT Sheet 3 of 5



DETOUR ROUTING

COST WORKSHEET

Project: SR 26/US 80 Ogeechee River Bridge					Idea No.: A-1 Client: GDOT Sheet 4 of 5		
CONSTRUCTION ELEMENT		**ORIGINAL ESTIMATE**			**NEW ESTIMATE**		
Item Unit		**No. Units**	**Cost/Unit**	**Total Cost N**	**o. Units**	**Cost/Unit**	**Total Cost**
Complete project cost	LS	1.0	$8,224,000	$8,224,000			
Right-Of-Way	LS	1.0	263,750	$263,750			
Replace Main Channel Bridge	LS				1.0	$4,736,160	$4,736,160
Traffic Control – Detour Maint.	LS				0.40	$58,617	$23,450
Field Engineers Office	LS				0.50	$73,914	$36,957
Mill Asph. Conc. Pavemt, 1 ½”	SY				3,111	$2.00	$6,225
Recycled Asph. Conc. 25 mm	TN				860	$59.47	$51,145
Rein. Conc. Approach Slab (2)	SY				310	$140.30	$43,493
Erosion Control	LS				0.25	$63,230.15	$15,870
Traffic Signs and Marking	LS				0.40	$23,623.00	$9,450
Concrete Spillway, TP. 3	EA				4.0	$1,693.57	$6,775
Guardrail TP 1 Anchorage	EA				2.0	$673.15	$1,346
Guardrail TP 12 Anchorage	EA				2.0	$1,762.58	$3,525.16
Stoned Dumped Rip Rap, TP 1 not in original estimate)	SY	2,778	$42.56	$118,232	2,778	$42.56	$118,232
SUBTOTAL				$8,605,982			$5,052,628
TOTAL ROUNDED				**$8,606,000**			**$5,053,000**

CALCULATIONS

Project: SR 26/US 80 Ogeechee River Bridge	Idea No.: A-1 Client: GDOT Sheet 5 of 5

Traffic Control: Closing road and detouring traffic away from site dramatically reduces cost of this item due to reduction of intense maintenance activities during live traffic scenarios. Estimate a 60% reduction in item expense.

Field Office: Still need facility in area due to geographical location of GDOT Area Office. Project duration is reduced from 24 to 12 months. Use 50% of estimated cost.

Pavement: Due to anticipated construction damage there must be measures taken to repair. Milling a depth of 1-1/2 inches of surface coarse and placing in kind for a length of approximately 500-feet on both sides of bridge should work well. 1,000 ft x 28 ft = 28,000 sf / 9 SY = 3,111 SY (use for milling costs)
Therefore, 25 mm mix – 550 #/SY x 3,111 SY / 2,000 #/TN = 860 Tons

Erosion Control: Expense greatly reduced by eliminating nearly 75% of project scope.

Signing and Marking: Expense greatly reduced by eliminating nearly 60% of project scope. Bridge length at 1,380 ft + 500 ft each side on bridge = 2,380 ft / 5,903 ft of project total = 40% of original project length.

Riprap: Item not included in current estimate. Assumed Type 1 large stone riprap @ $42.56 / SY to be placed at abutments.

DEVELOPMENT AND RECOMMENDATION PHASE

Project: SR 26/US 80 Ogeechee River Bridge

IDEA No.:	Sheet No.:	
A-1.1	1 of 5	**CREATIVE IDEA: ALTERNATIVE TO A-1** Construct both the new Ogeechee River Main Channel Bridge and its Overflow Bridge on the existing roadway alignment.

Comp By: DPC Date: 3/30/2010 Checked By: KEB Date: 04/05/2010

Original Concept:

The current design realigns the roadway to the north side of the existing 200-foot wide corridor. This results in an alignment shift (centerline to centerline) of approximately 60 feet. The alignment shift allows both the Ogeechee River Bridge and its Overflow Bridge to be constructed without detouring SR 26. The realignment requires the construction of a new roadway embankment between the two bridges and at the end connections of the project.

Proposed Change:

It is recommended that both the Ogeechee River Main Channel Bridge and its Overflow Bridge be replaced and that it be replaced on the existing roadway alignment.

Justification:

The approved 2005 project need and purpose statement defined the project scope as a "bridge replacement project to replace (2) deficiently rated bridge structures". After this statement was prepared, the Overflow Bridge has had modifications to increase its rating to an acceptable 55.5 level. Even though the Overflow Bridge has been repaired to strengthen its structural rating, it remains functionally deficient since it has no shoulders.

The current design requires a new roadway alignment to construct the new bridges (north of the existing bridges) which adds large quantities of fill material, drainage modifications, new pavement, right-of-way acquisition, and wetland disturbance / mitigation that increase project cost. Constructing the current project, while keeping traffic on-line, is anticipated to take 24 months to complete.

COST SUMMARY	INITIAL COST	FUTURE COST	TOTAL L. C. COST SAVINGS
Original	$8,724,000		
Proposed	$5,922,000		
Savings	$2,802,000		$2,802,000
FUTURE COST: - Savings		N/A	N/A
TOTAL PRESENT WORTH SAVINGS			**$2,802,000**

CONTINUATION

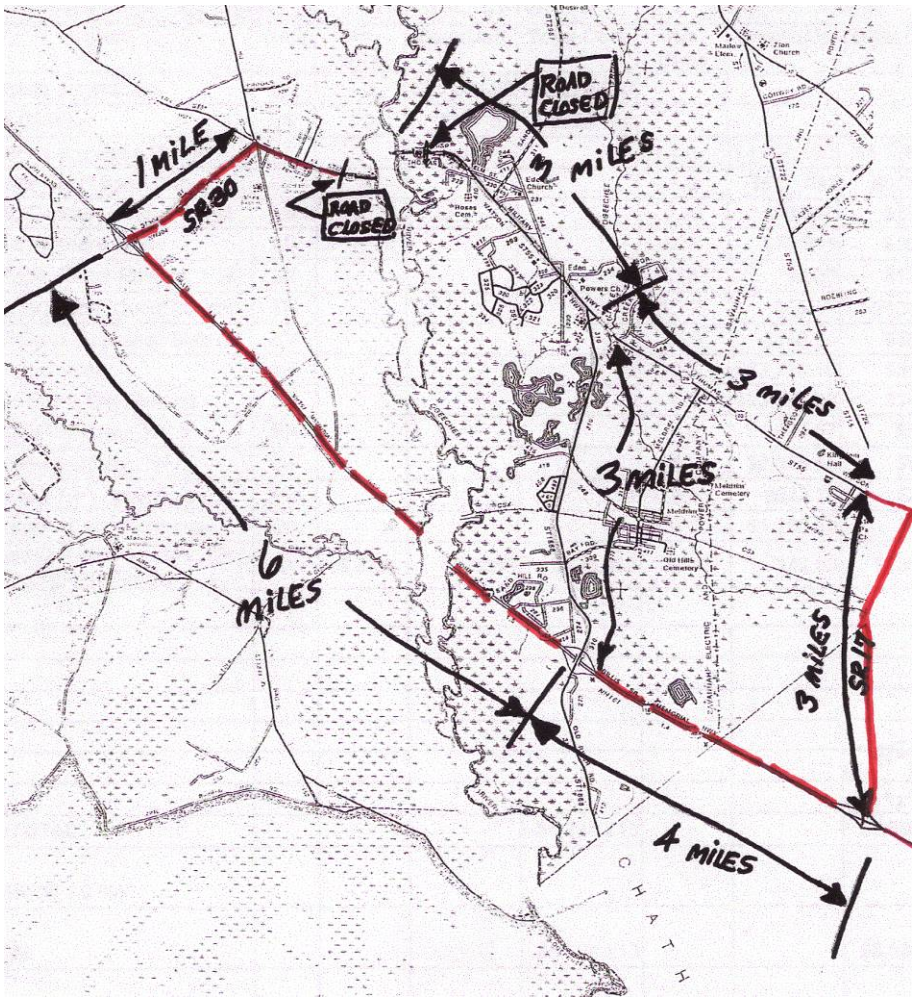
Project: SR 26/US 80 Ogeechee River Bridge	Idea No.: A-1 Client: GDOT Sheet 2 of 5

The VE concept would replace both the Ogeechee River Main Channel Bridge and its Overflow Bridge on the existing alignment by detouring traffic away from bridge site utilizing SR 30 to the north, I-16 to the southwest, and SR 17 to the east. This concept replaces both bridges in the same location, mills/resurfaces all damaged roadway and then opens the road to traffic. It eliminates all the work required to realign the roadway, thereby constructing the project within existing R/W and minimizing wetland disturbance / mitigation. Constructing the new bridges online is anticipated to take only 12 months.

This concept reduces project cost and impacts. Utility relocation activities would also be reduced except for the infrastructure items located on bridge itself, which will create a need for the utility owners to incorporate service measures to their customers.

SKETCH

Project: SR 26/US 80 Ogeechee River Bridge	Idea No.: A-1.1 Client: GDOT Sheet 3 of 5



DETOUR ROUTING

COST WORKSHEET

Project: SR 26/US 80 Ogeechee River Bridge					Idea No.: A-1.1 Client: GDOT Sheet 4 of 5		
CONSTRUCTION ELEMENT		**ORIGINAL ESTIMATE**			**NEW ESTIMATE**		
Item Unit		**No. Units**	**Cost/Unit**	**Total Cost N**	**o. Units**	**Cost/Unit**	**Total Cost**
Complete project cost	LS	1.0	$8,224,000	$8,224,000			
Right-Of-Way	LS	1.0	263,750	$263,750			
Replace Main Channel Bridge	LS				1.0	$4,736,160	$4,736,160
Replace Overflow Bridge	LS				1.0	$617,760	$617,760
Traffic Control – Detour Maint.	LS				0.40	$58,617	$23,450
Field Engineers Office	LS				0.50	$73,914	$36,957
Mill Asph. Conc. Pavemt, 1 ½”	SY				6,222	$2.00	$12,444
Recycled Asph. Conc. 25 mm	TN				1,712	$59.47	$101,813
Rein. Conc. Approach Slab (4)	SY				620	$140.30	$86,986
Erosion Control	LS				0.5	$63,230.15	$31,615
Traffic Signs and Marking	LS				0.6	$23,623.00	$14,175
Concrete Spillway, TP. 3	EA				4.0	$1,693.57	$6,775
Concrete Spillway, TP. 1	EA				4.0	$2,038.55	$8,154
Guardrail TP 1 Anchorage	EA				4.0	$673.15	$2,693
Guardrail TP 12 Anchorage	EA				4.0	$1,762.58	$7,050
Stoned Dumped Rip Rap, TP 1 (not in original estimate)	SY	5,556	$42.56	$236,463	5,556	$42.56	$236,463
SUBTOTAL				$8,724,213			$5,922,495
TOTAL ROUNDED				**$8,724,000**			**$5,922,000**

CALCULATIONS

Project: SR 26/US 80 Ogeechee River Bridge	Idea No.: A-1.1 Client: GDOT Sheet 5 of 5

Traffic Control: Closing road and detouring traffic away from site dramatically reduces cost of this item due to reduction of intense maintenance activities during live traffic scenarios. Estimate a 60% reduction in item expense.

Field Office: Still need facility in area due to geographical location of GDOT Area Office. Project duration is reduced from 24 to 12 months. Use 50% of estimated cost.

Pavement: Due to anticipated construction damage there must be measures taken to repair. Milling a depth of 1-1/2 inches of surface course and placing in kind for a length of approximately 500-feet on both sides of bridge and the 1,000 ft in between the two bridges should work well. 2,000 ft x 28 ft = 56,000 SF / 9 SY = 6,222 SY (use for milling costs)
Therefore, 25 mm mix – 550 #/SY x 6,222 SY / 2,000 #/TN = 1,712 Tons

Erosion Control: Expense greatly reduced by eliminating nearly 50% of project scope.

Signing and Marking: Expense greatly reduced by eliminating nearly 40% of project scope. Bridge lengths at 1,380 ft + 180 ft + 500 ft each side of bridge + 1,000 ft in between bridges = 3,560 ft / 5,903 ft of project total = 60% of original project length.

Riprap: Item not included in current estimate. Assumed Type 1 large stone riprap @ $42.56 / SY to be placed at abutments.

DEVELOPMENT AND RECOMMENDATION PHASE

Project: SR 26 / US 80 Ogeechee River Bridge

IDEA No.: A-1.2	**Sheet No.:** 1 of 3	**CREATIVE IDEA: ALTERNATIVE TO A-1** Construct both new bridges (just north of the existing bridge) in two stages while maintaining two-way traffic on the existing bridges.

Comp By: GAO Date: 3/30/2010 Checked By: KB Date: 04/05/2010

Original Concept:

The current design realigns the roadway to the north side of the existing 200-foot wide corridor. This results in an alignment shift (centerline to centerline) of approximately 60 feet. The alignment shift allows both the Ogeechee River Bridge and its Overflow Bridge to be constructed without detouring SR 26. The realignment requires the construction of a new roadway embankment between the two bridges and at the end connections of the project.

Proposed Change:

It is recommended to only shift the mainline alignment north approximately 24 feet which would be sufficient to stage the bridge construction while maintaining two-lanes of traffic through the construction site.

Justification: This concept allows for two-lane traffic during construction although it will require traffic shifts and stage construction, while maintaining the current alignment as close to the existing as feasible. The eastern project limit will tie into the existing curve requiring a compound curve to provide a smooth transition. It will shorten the project about 1,500 feet, reduce earthwork, reduce environmental impacts, and reduce construction costs. It also eliminates the culvert extension work.

With the offset from existing centerline only 24 feet, this recommendation would allow for future widening and improvements on either side of the roadway.

COST SUMMARY	INITIAL COST	FUTURE COST	TOTAL L. C. COST SAVINGS
Original	$1,397,000		
Proposed	$0		
Savings	$1,397,000		$1,397,000
FUTURE COST: – Savings		N/A	N/A
TOTAL PRESENT WORTH SAVINGS			**$1,397,000**

COST WORKSHEET

Project: SR 26 / US 80 Ogeechee River Bridge

Idea No.: A-1.2
Client: GDOT
Sheet 2 of 3

CONSTRUCTION ELEMENT		ORIGINAL ESTIMATE			NEW ESTIMATE		
Item Unit		**No. Units**	**Cost/Unit**	**Total Cost N**	**o. Units**	**Cost/Unit**	**Total Cost**
Current Design: (60-foot shift)							
75% R/W Reduction	LS	0.75	$263,750	$197,813	0	$0	$0
60% Earthwork Reduction	LS	0.60	$1,798,000	$958,800	0	$0	$0
Pavement Reduction	SY	3,520	$45.00	$158,400	0	$0	$0
Shoulder Reduction	SY	1,907	$20.00	$38,140	0	$0	$0
Box Culvert Extension	LS	1	$44,000	$44,000	0	$0	$0
SUBTOTAL				$1,397,153			$0
TOTAL ROUNDED				**$1,397,000**			**$0**

CALCULATIONS

Project: SR 26 / US 80 Ogeechee River Bridge	Idea No.: A-1.2 Client: GDOT Sheet 3 of 3

Assume horizontal alignment tie-in point is at station 50+00 (+/-); shorten project on east side by about 1,500 ft.

Pavement area removed:
(1,500 – 180) ft x 24 ft = 31,680 sq ft = 3,520 sq yd
Shoulder area removed:
(1,500 – 180) ft x 13 ft = 17,160 sq ft = 1,907 sq yd

<u>Asphalt pavement; SR 26: 8 ½ in asphalt / 12 inch GAB</u>

(8.5/12 ft) (150 #/CF) (1 TON / 2000 #) = 0.053125 TON/SF
(12/12 ft) (135 #/CF) (1 TON/ 2000#) = 0.0675 TON/SF

Cost per SY
(0.053125 TON/SY x 9 SF/SY x $65 / TON) + (0.0675 TON/SF x 9 SF/SY x $18 / TON) =
$ 31.08 + 10.94 = $42.02 / SY USE**: $45 per SY**

<u>Shoulder pavement; SR 26: 3 ½ in asphalt / 6 inch GAB</u>

(3.5/12 ft) (150 #/CF) (1 TON / 2000 #) = 0.021875 TON/SF
(6/12 ft) (135 #/CF) (1 TON/ 2000#) = 0.03375 TON/SF

Cost per SY
(0.021875 TON/SF x 9 SF/SY x $65 / TON) + (0.03375 TON/SF x 9 SF/SY x $18 / TON) =
$ 12.80 + 5.47 = $18.27 / SY **USE: $20 per SY**

Earthwork reduction: assume 60% reduction
0.60 x $1,597,699 = **$958,612**

Assume 75% reduction in Right of Way:
0.75 x $263,750 = **$197,813**

Eliminate all work associated with the culvert extension.
Significantly reduce the environmental footprint and impacts.

DEVELOPMENT AND RECOMMENDATION PHASE

Project: SR 26 / US 80 Ogeechee River Bridge

IDEA No.: A-1.3	**Sheet No.:** 1 of 4	**CREATIVE IDEA: ALTERNATE TO A-1** Construct both bridges on new alignment but reduce the 60-foot northern roadway alignment shift by 20 feet.

Comp By: GAO Date: 3/29/2010 Checked By: KEB Date: 04/05/2010

Original Concept:

The current design realigns the roadway to the north side of the existing 200-foot wide corridor. This results in an alignment shift (centerline to centerline) of approximately 60 feet. The alignment shift allows both the Ogeechee River Bridge and its Overflow Bridge to be constructed without detouring SR 26. The realignment requires the construction of a new roadway embankment between the two bridges and at the end connections of the project.

Proposed Change:

It is recommended to only shift the mainline alignment north approximately 40 feet in-lieu-of the current 60-foot shift and tie back into the original alignment at Station 53+00(+/-).

Justification:

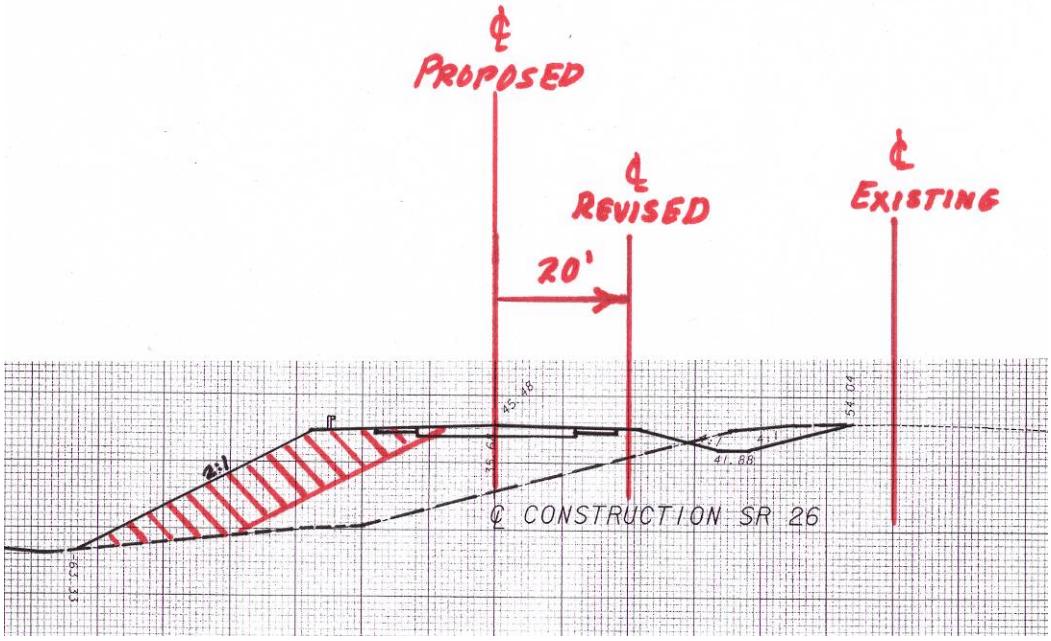
This recommendation allows for the construction of the new bridges "in-the-clear" while maintaining traffic on the current roadway, similar to the current design. However, the 20-foot alignment shift to the south will reduce earthwork, environmental impacts and construction costs. It will also shorten the project about 1,200 feet while providing for the reconstruction of both bridges. It also eliminates the culvert extension work.

Future widening of SR 26 can be accommodated by this alignment. The widened section about 3 miles to the east is a 5 lane, urban section; therefore a 16-foot median will suffice. Even if a wider median is desired for future widening, the current R/W will contain the future roadway.

COST SUMMARY	INITIAL COST	FUTURE COST	TOTAL L. C. COST SAVINGS
Original	$346,000		
Proposed	$0		
Savings	$346,000		$346,000
FUTURE COST: – Savings		N/A	N/A
TOTAL PRESENT WORTH SAVINGS			**$346,000**

SKETCH

Project: SR 26 / US 80 Ogeechee River Bridge	Idea No.: A-1.3 Client: GDOT Sheet 2 of 4



COST WORKSHEET

Project: SR 26 / US 80 Ogeechee River Bridge

Idea No.: A-1.3
Client: GDOT
Sheet 3 of 4

CONSTRUCTION ELEMENT		ORIGINAL ESTIMATE			NEW ESTIMATE		
Item	**Unit**	**No. Units**	**Cost/Unit**	**Total Cost**	**No. Units**	**Cost/Unit**	**Total Cost**
Current Design: (60-foot shift)							
20% R/W Reduction	LS	0.20	$263,750	$52,750	0	$0	$0
Earthwork Reduction	CY	24,444	$4.00	$97,776	0	$0	$0
Pavement Reduction	SY	2,720	$45.00	$122,400	0	$0	$0
Shoulder Reduction	SY	1,473	$20.00	$29,460	0	$0	$0
Box Culvert Extension	LS	1	$44,000	$44,000	0	$0	$0
SUBTOTAL				$346,386			$0
TOTAL ROUNDED				**$346,000**			**$0**

CALCULATIONS

Project: SR 26 / US 80 Ogeechee River Bridge	Idea No.: A-1.3 Client: GDOT Sheet 4 of 4

Assume horizontal alignment tie-in point is at station 53+00 (+/-); shorten project on east side by about 1,200 ft.

Pavement area:
(1,200 – 180) ft x 24 ft = 24,480 SF = 2,720 SY
Shoulder area:
(1,200 – 180) ft x 13 ft = 13,260 SF = 1,473 SY

<u>Asphalt pavement; SR 26: 8 ½ in asphalt / 12 inch GAB</u>

(8.5/12 ft) (150 #/CF) (1 TON / 2000 #) = 0.053125 TON/SF

(12/12 ft) (135 #/CF) (1 TON/ 2000#) = 0.0675 TON/SF

Cost per SY
(0.053125 TON/SF x 9 SF/SY x $65 / TON) + (0.0675 ON/SF x 9 SF/SY x $18 / TON) =
$ 31.08 + 10.94 = $42.02 / SY **USE: $45 per SY**

<u>Shoulder pavement; SR 26: 3 ½ in asphalt / 6 inch GAB</u>

(3.5/12 ft) (150 #/CF) (1 TON / 2000 #) = 0.021875 TON/SF

(6/12 ft) (135 #/CF) (1 TON / 2000#) = 0.03375 TON/SF

Cost per SY
(0.021875 TON/SF x 9 SF/SY x $65 / TON) + (0.03375 TON/SF x 9 SF/SY x $18 / TON) =
$12.80 + 5.47 = $18.27 / SY **USE: $20 per SY**

Earthwork reduction:
10ft x 30 ft (avg wd) x (300 +1900) ft long = 660,000 cu ft = **24,444 cu yd**
Assume $4.00 / CY

Assume 20% reduction in Right of Way:
0.20 x $263,750 = **$52,750**

Eliminate all work associated with the culvert extension.

DEVELOPMENT AND RECOMMENDATION PHASE

Project: SR 26 / US 80 Ogeechee River Bridge

IDEA No.: A-4	**Sheet No.:** 1 of 5	**CREATIVE IDEA:** Construct the four main river crossing bridge piers using caissons in-lieu-of pile footings and cofferdams.

Comp By: AS Date: 3/31/2010 Checked By: KB Date: 4/05/2010

Original Concept:

The current design would construct the four main bridge piers spanning the Ogeechee River using pile footings. This concept will require the use of cofferdams.

Proposed Change:

It is recommended that the four main bridge piers spanning the Ogeechee River be constructed using caissons.

Justification:

The use of caissons in-lieu-of pile footings will not require cofferdams. Using caissons will reduce construction time and minimize the environmental disturbance of the area. This concept will reduce the cost of the project.

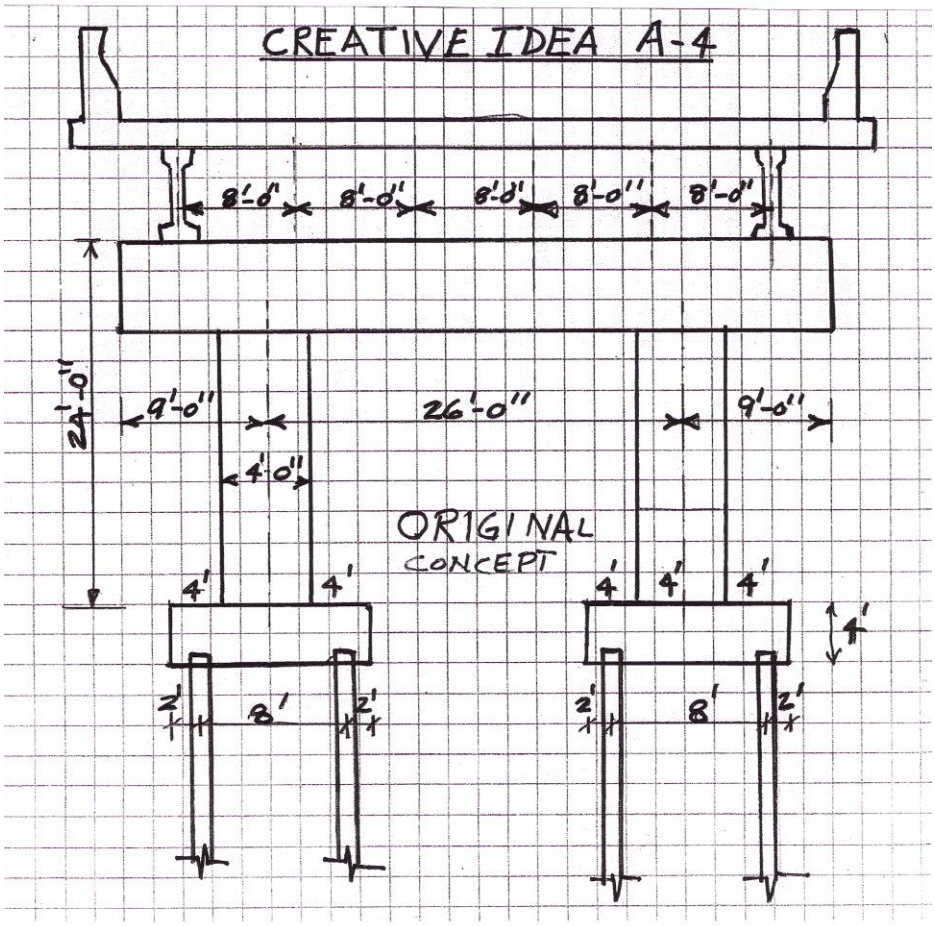
Note: Final footing design will be dependent on soil conditions which will be determined from future soil borings.

COST SUMMARY	INITIAL COST	FUTURE COST	TOTAL L. C. COST SAVINGS
Original	$454,000		
Proposed	$223,000		
Savings	$231,000		$231,000
FUTURE COST: – Savings		N/A	N/A
TOTAL PRESENT WORTH SAVINGS			**$231,000**

SKETCH

Project: SR 26 / US 80 Ogeechee River Bridge	Idea No.: A-4 Client: GDOT Sheet 2 of 5

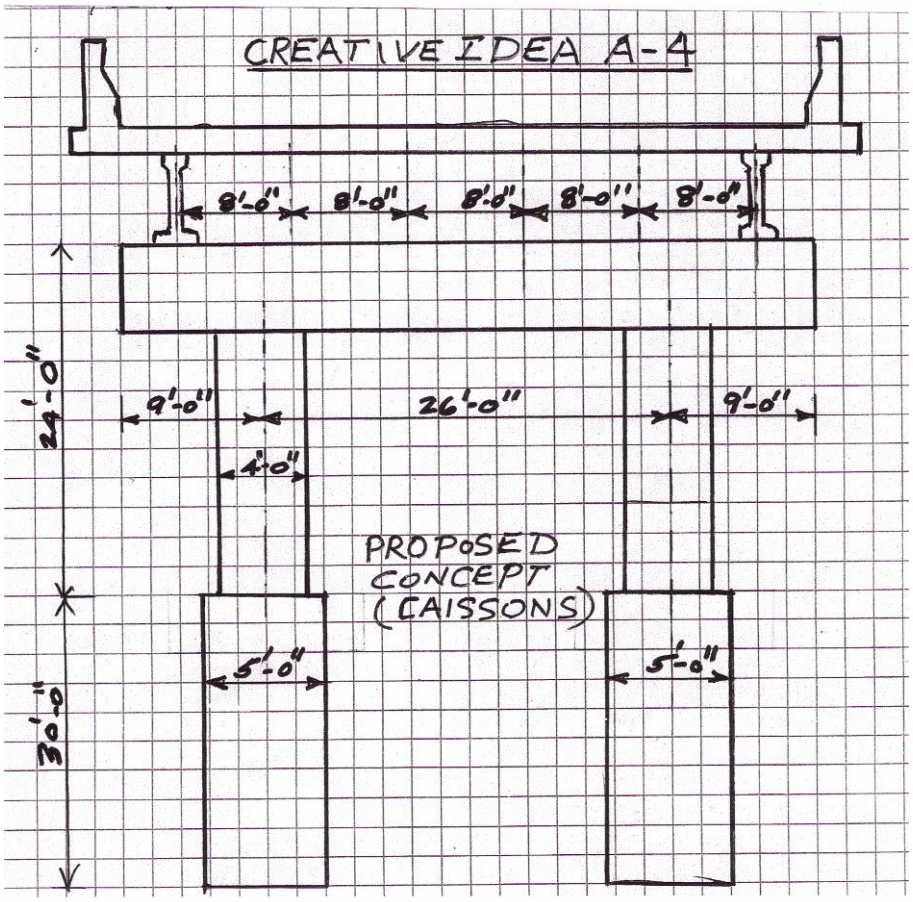
Current Design



SKETCH

Project: SR 26 / US 80 Ogeechee River Bridge	Idea No.: A-4 Client: GDOT Sheet 3 of 5

VE Concept



COST WORKSHEET

Project: SR 26 / US 80 Ogeechee River Bridge					Idea No.: A-4 Client: GDOT Sheet 4 of 5		
CONSTRUCTION ELEMENT		**ORIGINAL ESTIMATE**			**NEW ESTIMATE**		
Item	**Unit**	**No. Units**	**Cost/Unit**	**Total Cost**	**No. Units**	**Cost/Unit**	**Total Cost**
Original Design:							
Two Column Piers: Assume pile footings & cofferdams							
Footing (12' x 12' x 4')	CY	171	$557.82	$95,387			
Reinforcing Steel	Lbs	34,200	$0.69	$23,598			
Concrete Piles	LF	2,560	$52.58	$134,605			
Cofferdams	EA	4	$50,000	$200,000			
VE Concept:							
Use 5 ft Diameter Caissons	LF				240	$929.34	$223,042
SUBTOTAL				$453,590			$223,042
TOTAL ROUNDED				**$454,000**			**$223,000**

CALCULATIONS

Project: SR 26 / US 80 Ogeechee River Bridge	Idea No.: A-4 Client: GDOT Sheet 5 of 5

Original concept:
Four main river crossing piers:
Assume pier with pile footing construction (same concept as existing bridge)
Construct main river crossing bridge piers requires cofferdams.

Cost of Pile footings:

Concrete: 4 piers x 2 footings x (12 ft x 12 ft x 4 ft x 1/27) = 171 CY x $557.82 = $95,387
Reinforcing steel: 171 CY x 200 lb/CY = 34,200 lbs x $0.69 = $23,598
Piles: (18" concrete pile) 8 piles / footing = 8 x 8 x 40 ft = 2,560 LF X $52.58 = $134,605

Cost of Cofferdams … 4 x $ 50,000/cofferdam = $200,000
TOTAL = $ 453,590

Using Drilled caissons:
Assume 5 ft diameter caisson
4 piers x 2 caissons x 30 LF = 240 LF X $929.34 = $223,042

DEVELOPMENT AND RECOMMENDATION PHASE

Project: SR 26 / US 80 Ogeechee River Bridge

IDEA No.:	Sheet No.:	CREATIVE IDEA:
A-12 C-3	1 of 2	Reduce the shoulder width from 10 feet to 8 feet on the Ogeechee River Main Channel Bridge and the Overflow Bridge.

Comp By: AS Date: 3/31/2010 Checked By: KEB Date: 04/06/2010

Original Concept: The current design for the Ogeechee River Main Channel Bridge and the Overflow Bridge provides for a 24-foot roadway with 10-foot shoulders on both sides. This results in a total bridge width of 47.25 feet. The Ogeechee River Main Channel Bridge is 1,380 feet long and the Overflow Bridge is 180 feet long.

Proposed Change: It is recommended that the shoulder width of the two bridges be reduced from 10 feet to 8 feet. This would result in a 43.25-foot wide bridge providing a 24-foot roadway with 8-foot outside shoulders.

Justification: The AASHTO Guide defines a "long bridge" as any structure having an overall length in excess of 60 meters (200 feet). "Long bridges" can have their shoulder widths reduced, but should provide at least 4 feet of clearance. The GDOT also revised (7/23/2009) its bridge policy to reduce bridge shoulder widths for rural highways with above 2,000 ADT on State and Federal Systems to 8 feet + TW + 8 feet.

Reducing the bridge shoulder widths from 10 feet to 8 feet follows the AASHTO and GDOT bridge width policy. An 8-foot outside shoulder will allow room for bicycles to use the shoulders to cross the river. Reducing the shoulder widths to 8 feet on the Overflow Bridge will provide for a uniform roadway crossection throughout the length of the project. This concept will reduce the cost of the project.

COST SUMMARY	INITIAL COST	FUTURE COST	TOTAL L. C. COST SAVINGS
Original	$5,354,000		
Proposed	$4,900,000		
Savings	$454,000		$454,000
FUTURE COST: – Savings		N/A	N/A
TOTAL PRESENT WORTH SAVINGS			**$454,000**

COST WORKSHEET

Project: SR 26 / US 80 Ogeechee River Bridge

Idea No.: A-12
Client: GDOT
Sheet 2 of 2

CONSTRUCTION ELEMENT		ORIGINAL ESTIMATE			NEW ESTIMATE		
Item	**Unit**	**No. Units**	**Cost/Unit**	**Total Cost**	**No. Units**	**Cost/Unit**	**Total Cost**
Original Design:							
Main Channel 1,380' x 47.25'	SF	65,205	$72.63	$4,735,839			
Overflow 180' x 47.25'	SF	8,505	$72.63	$617,718			
VE Concept:							
Main Channel 1,380' x 43.25'	SF				59,685	$72.63	$4,334,922
Overflow 180' x 43.25'	SF				7,785	$72.63	$565,425
SUBTOTAL				$5,353,557			$4,900,347
TOTAL ROUNDED				**$5,354,000**			**$4,900,000**

APPENDIX

Sources

Approving/Authorizing Persons

Name:	Position: Telephone:	
Aghdas Ghazi	Office of Program Development	912-271-7027
Ron Wishon	Engineering Services	404-631-1753

Personal Contacts

Name:	Telephone: Notes:	
Aghdas Ghazi	912-271-7027	Project Briefing
Clayton Bennett	404-635-8183	Discuss the condition of existing bridges to verify whether or not the existing bridges can be rehabilitated.
Brad Saxon	912-427-5715	Discuss possible detour routes

Documents/Abstracts

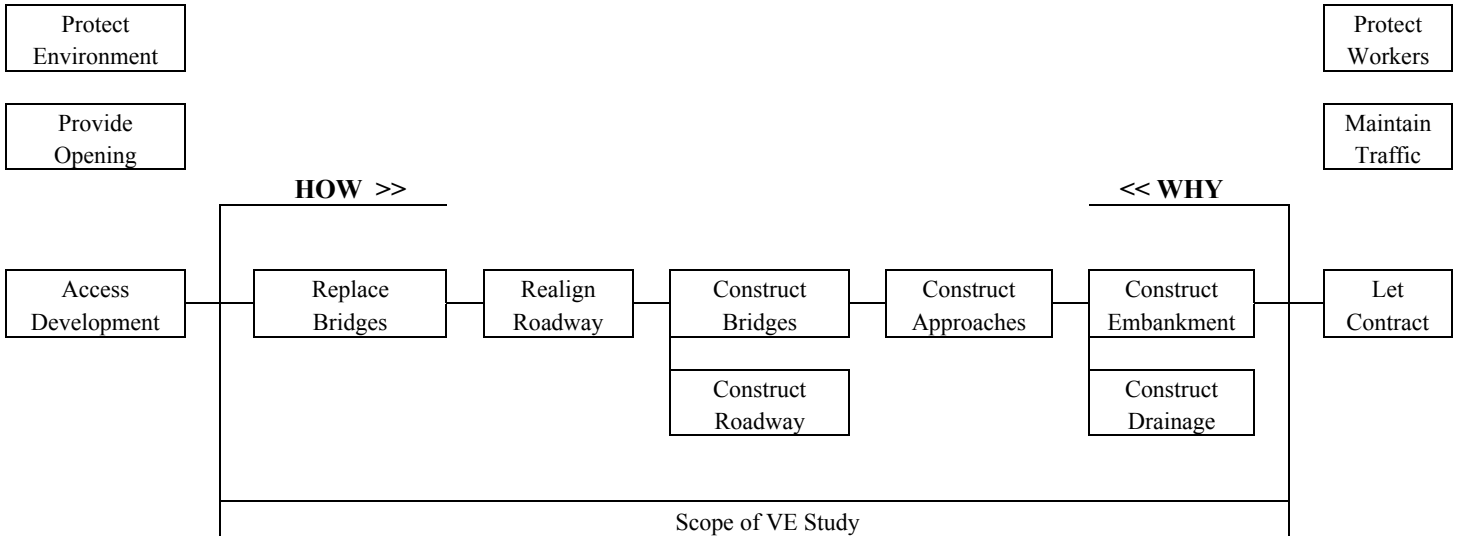
Reference: Reference:	
30% Construction Plans	Roadway Profile
Roadway Cross Sections	Bridge Preliminary Layout
Cost Estimate	Erosion Control Plan
Concept Report	Sign and Marking Plans
100 Scale Layout Sheet	

SR 26 / US 80 Ogeechee River Bridge

Cost Model / Distribution

Item	Description	$ Amount	% of Total Project
A	Main Channel Bridge (44 x 1,380)	$4,736,000	57.6%
B	Grading Complete	$1,578,000	19.2%
	80% Line		
C	Overflow Bridge (44 x 180)	$618,000	7.5%
D	Bituminous Asphalt	$464,000	5.6%
E	Miscellaneous	$264,000	3.2%
F	Aggregate Base Course	$195,000	2.4%
G	Guardrail	$94,000	1.1%
H	Concrete Approach Slab	$87,000	1.1%
I	Roadway Drainage	$81,000	1.0%
J	Erosion Control	$63,000	0.8%
K	Box Culvert	$44,000	0.5%
Constructio	**n Total**	**$8,224,000**	**100%**
	R/W	$263,750	
Project	**Total**	$8,487,750	

FAST DIAGRAM



INFORMATION PHASE – FUNCTION ANALYSIS

Project: SR 26 / US 80 Ogeechee River Bridge
Function: Replace Bridges

ITEM	DESCRIPTION	FUNCTION		INITIAL DOLLARS		
No.		Verb	Noun	Cost	% of Total	Worth/Save
A	Main Channel Bridge	Cross	River	$4,736,000	57.6%	Yes
		Accommodate	Hydraulics			
		Replace	Existing Bridge			
		Require	R/W Easement			
		Improve	Safety			
		Remove	Old Bridge			
		Construct	Coffer Dams			
		Install	Rip Rap			
		Accommodate	Typical Section			
B	Grading Complete	Realign	Roadway	$1,578,000	19.2%	Yes
		Improve	Curve			
		Remove	Old Roadway			
		Clear	Area			
		Stage	Construction			
		Separate	Future Road			

INFORMATION PHASE – FUNCTION ANALYSIS

Project: SR 26 / US 80 Ogeechee River Bridge
Function: Replace Bridges

ITEM	DESCRIPTION	FUNCTION		INITIAL DOLLARS		
No.		Verb	Noun	Cost	% of Total	Worth/Save
C	Overflow Bridge	Accommodate	Overflow	$618,000	7.5%	Yes
		Cross	Waterway			
		Replace	Existing Bridge			
		Improve	Safety			
		Accommodate	Typical Section			
		Extend	Project			
D	Bituminous Concrete Pavement	Support	Pavement	$464,000	5.6%	Yes
		Construct	Typical Section			
		Widen	Roadway			
		Connect	Bridges			
		Relocate	Road			
		Add	Shoulders			
E	Miscellaneous	Complete	Construction	$264,000	3.2%	No
F	Aggregate Base Course	Support	Load	$195,000	2.4%	No
		Drain	Roadway			
		Support	Shoulder			

INFORMATION PHASE – FUNCTION ANALYSIS

Project: SR 26 / US 80 Ogeechee River Bridge
Function: Replace Bridges

ITEM	DESCRIPTION	FUNCTION		INITIAL DOLLARS		
No.		Verb	Noun	Cost	% of Total	Worth/Save
G	Guardrail	Improve	Safety	$94,000	1.1%	Yes
		Protect	Bridge Barrier			
		Steepen	Slopes			
		Save	R/W			
		Protect	Motorists			
H	Concrete Approach Slab	Provide	Transition	$87,000	1.1%	No
		Prevent	Settlement			
		Accommodate	Spillways			
I	Roadway Drainage	Extend/Replace	Culverts	$81,000	1.0%	Yes
		Drain	Roadway			
		Extend	Pipes			
		Eliminate	Water			
		Construct	Median Ditch			
J	Erosion Control	Protect	Environment	$63,000	0.8%	No
		Allow	Construction			
		Retain	Material			

INFORMATION PHASE – FUNCTION ANALYSIS

Project: SR 26 / US 80 Ogeechee River Bridge
Function: Replace Bridges

ITEM	DESCRIPTION	FUNCTION		INITIAL DOLLARS		
No.		Verb	Noun	Cost	% of Total	Worth/Save
K	Box Culvert	Extend	Existing Box	$44,000	0.5%	Yes
		Accommodate	Realignment			

CREATIVE PHASE Creative Idea Listing		JUDGMENT PHASE Idea Evaluation	
No.	**CREATIVE IDEA**	**COMMENTS**	**IDEA RATING**
A	**Main Channel Bridge**		
A-1	Detour traffic and construct the new bridge(s) on the existing alignment.	Reduce embankment, reduce environmental impacts, reduce paving requirements	□
A-2	Use longer spans over the main river channel to eliminate one pier.	Higher cost due to raising grade. Possible river impacts.	X
A-3	Analyze the proposed span configuration to provide the "best" spacing.	Current design best option	X
A-4	Use caissons in-lieu-of coffer dams for the main river piers.	Possible cost reduction	DS
A-5	Combine the two bridges into a single bridge.	Probable wet land impacts	X
A-6	Reduce the amount of rip rap.	Needed for flood conditions	X
A-7	Use gabions in-lieu-of large size rip rap.	Possible constructability issues	X
A-8	Shift (approx 20 feet) the location of the new bridge closer to the existing bridge.	Reduce embankment, reduce environmental impacts	□
A-9	Construct the new bridge next to the existing bridge in stages while maintaining one lane of traffic on the existing bridge.	Reduce embankment, reduce environmental impacts	□
A-9.1	Construct the new bridge next to the existing bridge in stages while maintaining two lanes of traffic on the existing bridge.	Reduce embankment, reduce environmental impacts	□
□ = Will be considered further; X = will be dropped; DS = Design suggestion –written for consideration by design team			

CREATIVE PHASE Creative Idea Listing		JUDGMENT PHASE Idea Evaluation	
No.	**CREATIVE IDEA**	**COMMENTS**	**IDEA RATING**
A-10	Use a one-lane detour and construct the new bridge on the existing alignment.	Reduce embankment, reduce environmental impacts	□
A-11	Construct two single lane bridges on the outside of the existing bridge.	Additional bridge widths, additional embankment needs, R/W impacts south side	X
A-12	Reduce the width of the bridge.	Doesn't meet State / Federal standards	X
A-13	Include bid items for Bridge removal and Coffer Dams.	Clarify contract work	DS
A-14	Rehabilitate Existing Bridges	Reduce cost, embankment, and pavement	□
B Grading Complete			
B-1	Detour traffic and construct the new bridge on the existing alignment.	See Idea A-1	X
B-2	Shift the new roadway / bridges (approx 20 feet) closer to the existing alignment.	See Idea A-8	X
B-3	Shift roadway east of the long bridge closer to the existing alignment to reduce roadway embankment.	Reduce cost, reduce embankment, eliminate box culvert extension.	□
B-4	Separate the Grading Complete Item into Borrow Ex, Clearing and Grubbing, and obviate old roadway.	Combine with A-13	DS
□ = Will be considered further; X = will be dropped; DS = Design suggestion –written for consideration by design team			

CREATIVE PHASE Creative Idea Listing		JUDGMENT PHASE Idea Evaluation	
No.	**CREATIVE IDEA**	**COMMENTS**	**IDEA RATING**
C	**Overflow Bridge**		
C-1	Shift bridge south and realign roadway closer to existing alignment.	See A-1	X
C-2	Eliminate / reduce the amount of rip rap.	See A-1	X
C-3	Reduce the width of the bridge	Doesn't meet State / Federal standards	X
C-4	Shift roadway closer to the existing alignment and rehab the short bridge.	Reduce cost, reduce embankment, reduce environmental impacts	□
C-5	Stop the project east of the main channel bridge approach and keep the existing short bridge in place.	Shorten construction, reduce cost, reduce environmental and R/W impacts	□
D-1 Bituminous Pavement			
D-1	Keep the existing alignment and mill / resurface the existing pavement.	Reduce cost, simplify construction, shorten construction	□
D-2	Reduce the paved shoulder width from 6 ½ feet to 4 feet.	Reduce cost	□
G Guardrail			
G-1	Use cable barrier in-lieu-of standard guardrail.	Not practical for this project	X
G-2	Flatten slopes and eliminate guardrail where possible.	May require additional R/W	X
□ = Will be considered further; X = will be dropped; DS = Design suggestion –written for consideration by design team			

CREATIVE PHASE Creative Idea Listing		JUDGMENT PHASE Idea Evaluation	
No.	**CREATIVE IDEA**	**COMMENTS**	**IDEA RATING**
I	**Drainage**		
I-1	Shift alignment closer to existing roadway and reduce the length of the drainage pipes.	See A-1, A-8	X
L-2	Shift alignment to existing alignment and eliminate drainage pipe extensions.	See A-1	X
K Box	**Culvert**		
K-1	Shift alignment and eliminate extension.	See A-1	X
□ = Will be considered further; X = will be dropped; DS = Design suggestion –written for consideration by design team			

VE STUDY SIGN-IN SHEET

Project No.: BRST0-0005-05(047) County: Bryan/Effingham PI No.: 533145- Date: March 29 - April 1, 2010

Days 1	Days 4	NAME	EMPLOYEE ID NO.	DOT OFFICE OR COMPANY	PHONE NUMBER	EMAIL ADDRESS
⊗		Lisa L. Myers		Engineering Services	404-631-1770	lmyers@dot.ga.gov
✓	✓	Matt Sanders		Engineering Services	404-631-1752	msanders@dot.ga.gov
⊗		James K. Magnus		Construction	404-631-1971	jmagnus@dot.ga.gov
✓		Ken Werho		Traffic Operations	404-635-8144	kwerho@dot.ga.gov
✓		Ron Wishon		Engineering Services	404-631-1753	rwishon@dot.ga.gov
✓	✓	DAN COGAN	N/A	KEA GROUP	404 290 6424	dcogan@keagroup.com
✓	✓	GEORGE OBAZANZ	—	MACTEC	770-421-3346	GAOBAZANZ@MACTEC.COM
✓	✓	Keith Borkenhagen	—	MACTEC	623-556-1875	kborkenhagen@msn.com
✓	✓	ARUNA SASTRY	—	SASTRY AND ASSOC.	678-366-9375	Sast9375@bellsouth.net
✓	✓	Aghdas Ghazi		OPD	912-27[illegible]-7027	aghazi@dot.ga.gov
✓		Fenni Aweseu		OES	404-631-1190	oweseesu@dot.ga.gov
✓		Stanley Hill		OPD	404-631-1560	Sthill@dot.ga.gov
✓	✓	Bill Duvall		Bridge	404-631-1888	bduvall@dot.ga.gov
✓		SHAUN WILLIAMS		BRIDGE	404 631-1888	SWILLIAMS@DOT.GA.GOV

✓ Check all that apply ____ Attended Project Overview(Day 1) ____ Attended Project Presentation (Day 4)

4 VIA VIDEO CONFERENCE

VE STUDY SIGN-IN SHEET

Project No.: BRSTO-0005-05(047) County: Bryan/Effingham PI No.: 533145- Date: March 29 - April 1, 2010

1	4	NAME	EMPLOYEE ID NO.	DOT OFFICE OR COMPANY	PHONE NUMBER	EMAIL ADDRESS
✓	✓	TRAVIS DENT		Jesup Road Design	912-427-5718	tdent@dot.ga.gov
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✓	✓	DENNIS ODOM		DS DESIGN	912-427-5716	DODOM@DOT.GA.GOV
✓		Teresa Scott		DS Precon	912-427-5788	tscott@dot.ga.gov
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✓ Check all that apply ____ Attended Project Overview (Day 1) ____ Attended Project Presentation (Day 4)

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