

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

INTERDEPARTMENT CORRESPONDENCE

FILE: STP-0000-00(566) Bibb
P.I. No.: 0000566
Sardis Church Road Extension

OFFICE: Engineering Services

DATE: October 3, 2007

FROM: Brian K. Summers, PE, Project Review Engineer *REW*

TO: James B. Buchan, P.E., State Urban Design Engineer

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 #	Description	Potential Savings/LCC	Implement	Comments
ROADWAY (R)				
R-3	Narrow the travel lanes from 12 ft. wide to 11 ft. wide	\$2,000,000 (Original) \$1,420,000 (Revised)	Yes	The 12 ft. wide lanes will be used at the beginning of the project to tie to an existing multi lane facility up to just south of South Walden Road where they will transition to 11 ft. wide lanes until the end of the project or about 71% of the project.
R-4	Delete the bicycle lanes	\$4,000,000 (Original) \$810,000 (Revised)	Yes	The Bike Lanes will be deleted from Avondale Mill Road to the end of the project. The adjacent roadway at the beginning of this project already has Bike Lanes and they will be included on this project up to Avondale Mill Road to provide connectivity.

ALT #	Description	Potential Savings/LCC	Implement	Comments
ROADWAY (R) - continued				
R-5	Delete the bicycle lanes east of South Walden Road	\$2,856,017	No	Since R-4 will be implemented this VE Alternate is no longer applicable. Bike Lanes will be included up to Avondale Mill Road.
R-9	Use a reduced depth pavement section for side roads being modified to tie into the new road	\$380,501	Yes	This will be done pending results of the Pavement Condition Survey and Pavement Design Analysis.
R-11 /R-12	Lower the profile of Sardis Church Road Extension from Sta. 200+00 to Sta. 310+00	\$1,577,870	No	The profile was set to accommodate the drainage through the area noted. The ditch proposed by the VE team does not have the capacity necessary for the runoff in this area. According to the Drainage Manual, drainage ditches should be designed such that the 10-year frequency high water will not reach the bottom of the pavement structure.
R-13	Delete the left turn for a U-turn at Fairystone Drive	\$20,680	No	There is a high density of residential properties within this area. The Department has already committed to provide U-turns at all median openings during preliminary Right of Way negotiations with the Macon-Bibb County Industrial Authority.

ALT #	Description	Potential Savings/LCC	Implement	Comments
ROADWAY (R) - continued				
R-14	Delete the left turn lane for a U-turn at the intersection of Industrial Highway Connector Road	\$20,680	No	There is a high density of residential properties within this area. There is a high density of residential properties within this area. The Department has already committed to provide U-turns at all median openings during preliminary Right of Way negotiations with the Macon-Bibb County Industrial Authority.
R-16	Add an additional six feet of pavement adjacent to the bike lane in the two areas where several residential driveways connect to the main road	Design Suggestion	No	This would increase costs and would cause concerns with driver expectancy since there would be a wider roadway in the areas noted.
CURB AND GUTTER (CG)				
CG-1	Use a 1 ft. wide gutter pan in lieu of a 2 ft. wide gutter pan on the median side of the road	\$206,151	No	Reducing the gutter width would affect the gutter spread and would require the median drainage to be redesigned which could offset some of the savings due to increased PE costs.
CG-2	Use a 1 ft. wide gutter pan in lieu of a 2 ft. wide gutter pan on the outside of the road	\$316,193	No	Reducing the gutter width would affect the gutter spread and would require the outside drainage to be redesigned which could offset some of the savings due to increased PE costs.

ALT #	Description	Potential Savings/LCC	Implement	Comments
SIDEWALKS AND BIKE LANES (SB)				
SB-1	Substitute an asphalt concrete multi-use path on one side of the road for sidewalks on both sides for the road	\$472,670	No	This no longer applies from South Walden Road to Avondale Mill Road since the sidewalks will be deleted in "SB-3". The Bike Lanes will be included as shown since they are part of Bibb County's Bike Plan and the State Bike Plan and have been presented to the public at the Public Hearing.
SB-2	Build a concrete sidewalk on only one side of the road	\$502,205	No	This no longer applies from South Walden Road to Avondale Mill Road since the sidewalks will be deleted in "SB-3". The Bike Lanes will be included as shown since they are part of Bibb County's Bike Plan and the State Bike Plan and have been presented to the public at the Public Hearing.
SB-3	Delete the sidewalks on both sides of the road from South Walden Road to Avondale Mill Road except between the two bridges	\$447,854	Yes	This will be done since the roadway primarily serves an industrial area from South Walden Road to Avondale Mill Road.

ALT #	Description	Potential Savings/LCC	Implement	Comments
SIDEWALKS AND BIKE LANES (SB) - continued				
SB-4	Use multi-use path on one side of the road and a sidewalk on the other side and delete the bike lanes	\$4,365,438	No	This no longer applies from South Walden Road to Avondale Mill Road since the sidewalks will be deleted in "SB-3". The Bike Lanes will be included as shown since they are part of Bibb County's Bike Plan and the State Bike Plan and have been presented to the public at the Public Hearing.
BRIDGES (B)				
B-1-1	Reduce the length of the bridge over the Norfolk Southern Railroad by using single girder spans on pile supported end bents behind Mechanically Stabilized Earth Walls	\$557,962	No	The Railroad has approved the Preliminary Bridge Layout at this site. Changing the design would cause significant delays to the project's schedule.
B-1-2	Reduce the length of the bridge over Industrial Highway by using single girder spans on pile supported end bents behind Mechanically Stabilized Earth Walls	\$687,712	Yes	This should be done.

ALT #	Description	Potential Savings/LCC	Implement	Comments
BRIDGES (B) - continued				
B-1-3	Reduce the length of the bridge over the Norfolk Southern Railroad and S.R. 247/U.S. 129 by deleting the end spans and use pile supported end bents behind Mechanically Stabilized Earth Walls	\$691,615	No	The Railroad has approved the Preliminary Bridge Layout at this site. Changing the design would cause significant delays to the project's schedule.
B-4-A	Substitute a single span concrete girder bridge with extended confined earth ramp section for the curved steel girder bridge for Ramp A over the Norfolk Southern Railroad	-\$193,540 (cost increase)	No	Results in a cost increase and additional provisions would still need to be made to accommodate a huge drainage ditch that would be under the MSE Wall.
B-4-B	Substitute a single span concrete girder bridge with extended confined earth ramp section for the curved steel girder bridge for Ramp B over the Norfolk Southern Railroad	-\$193,540 (cost increase)	No	Results in a cost increase and additional provisions would still need to be made to accommodate a huge drainage ditch that would be under the MSE Wall.

STP-0000-00(566) Bibb
P.I. No. 0000566
Implementation of Value Engineering Study Alternatives
Page 7.

ALT #	Description	Potential Savings/LCC	Implement	Comments
BRIDGES (B) - continued				
B-5	Substitute a two span bridge for the three-span Ramp A curved steel girder bridge and convert the end span of the Sardis Church Road Extension Bridge to an earth fill section with a Mechanically Stabilized Earth Wall at the bridge end bents	\$753,560	No	The Railroad has approved the Preliminary Bridge Layout at this site. Changing the design would cause significant delays to the project's schedule. In addition, provisions would still need to be made to accommodate a huge drainage ditch that would be under the MSE Wall.

A meeting was held on September 26,, 2007 and Bryon Letourneau and David Stricklin with Kimley-Horn and Nicole Law and Jeff Simmons with Urban Design, and Brian Summers, Ron Wishon and Lisa Myers of Engineering Services were in attendance.

Additional information was provided on September 27, 2007 and October 1, 2007.

The results above reflect the consensus of those in attendance and those who provided input.

Approved:  Date: 10/10/07
Gerald M. Ross, P. E., Chief Engineer

BKS/REW

Attachments

- c: Gus Shanine, FHWA
- Todd Long
- Paul Liles
- Chuck Hasty
- Theresa Holder
- Nicole Law
- Jeff Simmons

STP-0000-00(566) Bibb

P.I. No. 0000566

Implementation of Value Engineering Study Alternatives

Page 8.

Doug Franks
Lamar Pruitt
Clinton Ford
Richard Marshall
Ken Werho
Beau Quarles
Jennifer Mathis
Lisa Myers

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA



INTERDEPARTMENT CORRESPONDENCE

FILE STP-0000-00(566), Bibb County
P.I. No. 0000566
Sardis Church Road Extension

OFFICE Urban Design
DATE August 29, 2007

FROM *James B. Buchan*
James B. Buchan, P.E., State Urban Design Engineer

TO Brian Summers, P.E., State Project Review Engineer
Attn: Lisa Myers

SUBJECT Value Engineering Study – Responses

Below are the responses to the Value Engineering Study conducted on June 6-14, 2007, for the above referenced project.

ALTERNATE NUMBER R-3: *Narrow travel lanes from 12-ft. wide to 11-ft. wide.*

RESPONSE: The design team recommends constructing 12-foot travel lanes through the urban section and transition to 11-foot travel lanes in the rural section of the project, which will begin south of the intersection of Sardis Church Road with South Walden Road.

ALTERNATE NUMBER R-4: *Delete Bicycle Lanes*

RESPONSE: It is the desire of Macon-Bibb County to have bike lanes adjacent to the travel lanes on both sides of the roadway. The bike lanes will end at the intersection of Avondale Mill Road to provide continuity between Bibb County's Long Term Bike Plan and the Statewide Bicycle Network (Statewide Bicycle Route 15 follows US 41/SR 49/SR 11 through Bibb County).

ALTERNATE NUMBER R-5: *Delete Bicycle Lanes east of South Walden Road*

RESPONSE: No. Stopping the bicycle lanes at South Walden Road would not provide continuity between Bibb County's Long Term Bike Plan and the Statewide Bicycle Network.

ALTERNATE NUMBER R-9: *Use a reduced depth pavement section for side roads being modified to tie into the new road.*

RESPONSE: An existing pavement evaluation for this project has not been completed, nor has a pavement design been approved. The recommendation will be considered when the existing pavement evaluation report is received.

ALTERNATE NUMBER R-11/R-12: *Lower the profile of Sardis Church Road Extension from station 200+00 to station 310+00.*

RESPONSE: No. The project within this station range is on new location. The proposed profile was set to maintain a minimum of one foot elevation difference between the bottom of the pavement sub-base material and the design-year flood stage elevation for surface drainage ditches.

ALTERNATE NUMBER R-13: *Delete the left turn for a U-turn at Fairystone Drive.*

RESPONSE: No. The design team does not agree with this recommendation. Due to the high density of residential properties in this area of the project, left turn will be permitted at this location.

ALTERNATE NUMBER R-14: *Delete the left turn lane for a U-turn at the intersection of the Industrial Highway Connector road.*

RESPONSE: No. The design team does not agree with this recommendation. The Department has committed to provide left-turns/ U-turns at all median openings(during the right of way negotiation process) to the Macon-Bibb County Industrial Authority.

ALTERNATE NUMBER R-16: *Add an additional six feet of pavement adjacent to the bike lane in the two areas where several residential driveways connect to the main road.*

RESPONSE: No. To maintain driver expectancy and continuity on this road the design team will not consider this recommendation.

ALTERNATE NUMBER CG-1: *Use a 1-ft. wide gutter pan in lieu of a 2-ft. wide gutter pan on the median side of the road.*

RESPONSE: No. The design team does not agree with this recommendation. Constructing a 1-foot wide gutter would reduce the 'shy distance' to the raised median resulting in a reduced capacity of the proposed roadway, and may require redesign of the storm-water drainage system in super-elevated sections.

ALTERNATE NUMBER CG-2: *Use a 1-ft. wide gutter pan in lieu of a 2-ft. wide gutter pan on the outside of the road.*

RESPONSE: No. The design team does not agree with this recommendation. Constructing a 1-foot wide gutter would reduce the 'shy distance' to the shoulder section resulting in a reduced capacity of the proposed roadway, and may require redesign of the storm-water drainage system.

ALTERNATE NUMBER SB-1: *Substitute an asphalt concrete multi-use path on one side of the road for sidewalks on both sides of the road.*

RESPONSE: No. Construction of a multi-use path beyond clear zone limits may increase the projects footprint, resulting in greater impacts to adjacent properties. From an ADA compliance prospective, multi-use paths constructed independent of the roadway construction centerline often do not meet design criteria for grade and cross slope.

ALTERNATE NUMBER SB-2: *Build a concrete sidewalk on only one side of the road.*

RESPONSE: No. Construction of curb and gutter and sidewalks will end at the intersection of South Walden Road. Due to the high density of residential properties, sidewalk will be constructed on both sides of the roadway.

ALTERNATE NUMBER SB-3: *Delete the sidewalks on both sides of the road from South Walden Road to Avondale Mill Road except between the two bridges.*

RESPONSE: Yes. The design team will comply with this recommendation.

ALTERNATE NUMBER SB-4: *Use multi-use path on one side of the road and a sidewalk on the other side and delete the bike lanes.*

RESPONSE: No. Construction of a multi-use path beyond clear zone limits may increase the project's footprint, resulting in greater impacts to adjacent properties, and are not ADA compliant. Due to the high density of residential properties, sidewalk will be constructed on both sides of the roadway. Bicycle lanes will be constructed to the intersection of Avondale Mill Road to provide continuity between Bibb County's Long Term Bike Plan and the Statewide Bicycle Network.

ALTERNATE NUMBER B-1-1 to B-5: *Bridges (Design Suggestions)*

RESPONSE: See the attachments from the design consultant, Kimley-Horn and Associates, Inc.

If additional information or comments are needed, please contact Nicole Law or Jeff Simmons at 404-656-5444.


JBB:NSL

Attachment



August 17, 2007

■
Suite 600
3169 Holcomb Bridge Road
Norcross, Georgia
30071

Project: STP-0000-00(566), Bibb County
PI No. 0000566
Sardis Church Road Extension

Subject: Value Engineering Study Responses

Reference is made to the alternatives that were contained in the Value Engineering Study Report dated June 2007 for the above referenced project. Our responses are as follows:

1. **Value Engineering Alternative B-1-1** – Reduce the length of the bridge over the Norfolk Southern Railroad by using single girder spans on pile supported end bents behind mechanically stabilized earth walls.
 - *GDOT's standard approach for railroad crossings is to use end slopes.*
 - *Preliminary plans for this bridge were previously reviewed and approved by the GDOT Office of Bridge and Structural Design.*
 - *Use of MSE walls at the railroad will likely require additional railroad review and approval.*

2. **Value Engineering Alternative B-1-2** - Reduce the length of the bridge over Industrial Highway by using single girder spans on pile supported end bents behind mechanically stabilized earth walls.
 - *GDOT's standard approach for a grade separation is to use end slopes to better accommodate future widening or changes below the bridge.*
 - *Preliminary plans for this bridge were previously reviewed and approved by the GDOT Office of Bridge and Structural Design.*

3. **Value Engineering Alternative B-1-3** – Reduce the length of the bridge over the Norfolk Southern Railroad and US 129/ SR 247 by deleting the end spans and use pile supported end bents behind mechanically stabilized earth walls.
 - *Significant drainage ditches are present below the "as designed" end spans. The end spans span the drainage elements. Proposed MSE walls would interfere with the drainage ditches and would require culverts. The drainage ditch near the railroad would likely require a box culvert. Placing a culvert behind the wall in the reinforced fill zone is not desirable and may not be possible.*
 - *Preliminary plans for this bridge were previously reviewed and approved by the GDOT Office of Bridge and Structural Design.*



4. **Value Engineering Alternative B-4-A** - Substitute a single span concrete girder bridge with extended confined earth ramp section for the curved steel girder bridge for Ramp A over the Norfolk Southern Railroad.
 - *A significant drainage ditch is present below the "as designed" third (end) span. The end span spans the drainage element. The proposed MSE wall would interfere with the drainage ditch and would likely require a box culvert. Placing a box culvert behind the wall in the reinforced fill zone is not desirable and may not be possible.*
 - *Use of MSE walls at the railroad will likely require additional railroad review and approval.*
 - *Preliminary plans for this bridge were previously reviewed and approved by the GDOT Office of Bridge and Structural Design.*

5. **Value Engineering Alternative B-4-B** - Substitute a single span concrete girder bridge with extended confined earth ramp section for the curved steel girder bridge for Ramp B over the Norfolk Southern Railroad.
 - *A significant drainage ditch is present below the "as designed" first (end) span. The end span spans the drainage element. The proposed MSE wall would interfere with the drainage ditch and would likely require a box culvert. Placing a box culvert behind the wall in the reinforced fill zone is not desirable and may not be possible.*
 - *Use of MSE walls at the railroad will likely require additional railroad review and approval.*
 - *Preliminary plans for this bridge were previously reviewed and approved by the GDOT Office of Bridge and Structural Design.*

6. **Value Engineering Alternative B-5** - Substitute a two-span bridge for the three-span Ramp A curved steel girder bridge and convert the end span of the Sardis Church Road Extension bridge to an earth fill section with a mechanically stabilized earth wall at the bridge end bents.
 - *A significant drainage ditch is present below the "as designed" end span. The end span spans the drainage element. The proposed MSE wall would interfere with the drainage ditch and would likely require a box culvert. Placing a box culvert behind the wall in the reinforced fill zone is not desirable and may not be possible.*
 - *Use of MSE walls at the railroad will likely require additional railroad review and approval.*
 - *Preliminary plans for this bridge were previously reviewed and approved by the GDOT Office of Bridge and Structural Design.*

Wishon, Ron

From: Myers, Lisa
Sent: Friday, September 28, 2007 6:44 AM
To: Wishon, Ron
Subject: FW: Sardis Church Extension VE Costs

I already responded to Nicole and requested a half size cover sheet.

Lisa Myers ☺
Design Review Engineer Manager/VE Coordinator

*GA DOT - Engineering Services
#2 Capitol Square Room 266
Atlanta, GA 30334*

404-651-7468

From: Law, Nicole
Sent: Thursday, September 27, 2007 4:14 PM
To: Myers, Lisa
Subject: FW: Sardis Church Extension VE Costs

Lisa,

Here are the cost break downs for the two VE Study items that we discussed needing a cost estimate for in the meeting yesterday. I will get you a copy of the cover sheet first thing in the morning. Will you need a half-size or a full size?



Nicole S. Law
Design Engineer II
Georgia DOT
Urban Design
Group 7
404-656-5444
nicole.law@dot.state.ga.us

From: Bryon.Letourneau@kimley-horn.com [mailto:Bryon.Letourneau@kimley-horn.com]
Sent: Thursday, September 27, 2007 8:56 AM
To: Law, Nicole
Cc: Simmons, Jeff; David.Stricklin@kimley-horn.com
Subject: Sardis Church Extension VE Costs

Nicole,

Applying percentages to the costs savings derived by the VE Study Team, the agreed to modifications from yesterday's VE Study Implementation meeting result in the following changes.

R-3: Potential savings goes from \$2,000,000 to \$1,420,000. This is due to the narrowing of lanes only occurring from South Walden Road to the end of the project rather than the entire project.

R-4: Potential savings goes from \$4,000,000 to \$810,000. This is due to the removal of bicycle lanes only between Avondale Mill Road and the end of the project rather than removing them on the entire project.

Let me know if you need any additional information.

Thanks,

Bryon Letourneau, P.E.

Kimley-Horn and Associates, Inc.

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Email: Bryon.Letourneau@kimley-horn.com

Wishon, Ron

From: Law, Nicole
Sent: Monday, October 01, 2007 4:28 PM
To: Wishon, Ron
Cc: Holder, Theresa
Subject: STP-0000-00(566), P.I. 0000566-Bibb Co, VE Implementation follow up responses

Ron,

Here are further justifications for alternates R-11/R-12, CG-1 & CG-2, and SB-1 & SB-4, that you requested by phone on 9/28/07.

R-11/R-12 –The profile was set to accommodate the drainage in that area. The ditch proposed by the VE team does not have the capacity necessary for the run off in that area. According to the drainage manual drainage ditches should be designed such that the 10-year frequency high water will not reach the bottom of the pavement structure.

CG-1 & CG-2 – Agreed to reduce the travel lanes to 11 foot in R-3, reducing the gutter pan width as well will increase gutter spread and require redesign of drainage. The potential Savings is offset by an increase in PE costs.

SB-1 – The sidewalks will be deleted in SB-3, the cost saving listed for this suggestion can't be taken into consideration due to the fact we are deleting some of the sidewalk.

SB-4 – The bike facility is a part of Bibb County's Bike Plan and the State Bike Plan, which has presented to the public at the public hearing so we can't completely delete the bike lanes and use the multi-use path.

If you need anything else please let me know.



Nicole S. Law

*Design Engineer II
Georgia DOT
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Group 7
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