

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

INTERDEPARTMENT CORRESPONDENCE

FILE: STP-012-1(81) Forsyth
P.I. No.: 122015
S.R. 306 Widening/Reconstruction

OFFICE: Engineering Services

DATE: January 22, 2008

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

TO: Babs Abubakari, PE, State Program Delivery and Consultant 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
TYPICAL SECTION (TS)				
TS-3	Use a 10' Multi-Use Path (Asphalt) on one side of the road and a 5' Concrete Sidewalk on the other side.	\$183,469	No	Bike Lanes were not included in the proposed design. The future maintenance costs associated with asphalt were not included in the VE Alternative.
TS-6	Delay construction of the Sidewalks (Developers would then be responsible for Sidewalk once it is needed at some point in the future)	\$587,715	Yes	This should be done.
TS-8	Reduce the 6' wide grass strip to a 2' wide grass strip (shoulder would go from 16' to 12')	\$1,360,307	Yes	This should be done.

ALT #	Description	Potential Savings/LCC	Implement	Comments
TYPICAL SECTION (TS) - continued				
TS-9/10	Provide a six lane roadway instead of a four lane roadway	-\$4,699,293 (cost increase)	No	This was studied during the Concept validation and determined that the Design Year traffic would not justify a six lane section.
TS-11	Use a 20' Raised Concrete Median in lieu of a 24' Raised Concrete Median	\$489,164	Yes	This should be done.
TS-13	Use Geogrid Reinforcement Fabric with steep slopes to reduce required Easement	\$835,521	No	Steepening of the slopes was not recommended in the Soil Survey Report.
TS-14	Construct Gravity Walls to reduce required Easement	\$592,372	Yes	This should be done.
GEOMETRY (G)				
G-2	Consolidate S.R. 306 West End Driveways	\$105,496	No	All of the drives referenced are currently permitted drives and the property owner would most likely need to be compensated if any are removed.
G-3	Shift alignment of S.R. 369 approximately 50' to the west	\$3,276,000	No	This would result in Right of Way impacts to a new CVS Drug Store that has just recently opened and additional Utility impacts to Georgia Transmission Company's transmission poles.

ALT #	Description	Potential Savings/LCC	Implement	Comments
GEOMETRY (G) - continued				
G-4	Continue the full typical section to the end of the project (Sta. 337+00 to Sta. 348+91) and stripe out lanes until future project is built	-\$912,774 (cost increase)	Yes	This should be done to better accommodate constructability in the future.
G-7	Line up Driving Lanes across S.R. 306 at Freedom Parkway	Design Suggestion	Yes	This should be done.
G-8	Add an additional Left Turn Lane at Freedom Parkway on S.R. 306 WB	-\$219,407 (cost increase)	No	Traffic counts do not justify an additional turn lane at this time.
DRAINAGE (D)				
D-1	Eliminate the Driveway at Sta. 122+10 Lt.	\$60,729	No	This drive is currently permitted and the property owner would most likely need to be compensated if it is removed.
D-2	Straighten the Double 9' x 9' Concrete Box Culvert Extension at Baldrige Creek	Design Suggestion	No	The culvert extension is skewed in order to better align with the existing stream channel.
D-3	Eliminate the need for the extension by increasing the height of the Parapet and Wingwalls on the South end of the Double 9' x 9' Concrete Box Culvert at Baldrige Creek	\$40,586	No	This would exceed the maximum height that a parapet can be raised per GA Standard 2312.

A meeting was held on January 15, 2008 and Keith Franklin, Jay Simone and John Baxter with Florence and Hutcheson, Stanley Hill and Vinesha Pegram with Consultant Design, and Brian Summers, Ron Wishon and Lisa Myers of Engineering Services were in attendance.

Additional information was provided by the Design Office on January 16, 2008.

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

Approved: Dale M. Ross Date: 2/15/08
Gerald M. Ross, P. E., Chief Engineer

BKS/REW

Attachments

c: Gus Shanine, FHWA
Todd Long
James Magnus
Randall Davis
Jason Dykes
Stanley Hill
Vinesha Pegram
Bill Duval
Ken Werho
Nabil M. Raad
Melanie Nable
Lisa Myers

Wishon, Ron

From: Pegram, Vinesha C.
Sent: Wednesday, January 16, 2008 9:27 AM
To: Myers, Lisa; Wishon, Ron; Summers, Brian
Subject: FW: SR 306 VE Information
Attachments: 122015CV01.pdf

Please see the e-mail below. I am in the process of printing this file out for you.

Sincerely,

Vinesha C. Pegram, P.E.
Design Group Manager
Office of Consultant Design
ph 404-463-2988
fax 404-463-6136

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From: Jay Simone [mailto:jsimone@flohut.com]
Sent: Tuesday, January 15, 2008 4:29 PM
To: Pegram, Vinesha C.
Subject: SR 306 VE Information

Vinesha,

Attached is a PDF file of the cover sheet ready to print on 11X17.

As far as the utilities that will possibly be located in the shoulder, they are as follow:

On the north side of SR 306 the underground utilities vary between 2 and 3 depending on where you are along the roadway. The underground utilities are telephone, water and traffic control. Also there are some areas of overhead utilities on this side of 306. The overhead utilities are electric and television.

On the south side of 306 the underground utilities vary between 2 and 4 depending on where you are along the roadway. The underground utilities are traffic control, gas, electric and telephone. The overhead utilities on this side vary between none and 3. The overhead utilities are telephone, electric and television.

The utility companies within the project corridor are as follows:

AT&T (telephone), Atlanta Gas Light (natural gas), Sawnee EMC (power distribution), Georgia Power (power distribution), Comcast (cable television), City of Cumming (water and sewer), Forsyth County Department of Water and Sewer (water and sewer), Georgia Department of Transportation (traffic control), and Georgia Transmission Company (power transmission).

Please let me know if you need anything further on this.

Jay

John T. "Jay" Simone, III, P.E.

Project Manager

Florence and Hutcheson, Inc.

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Rec'd Dec 19

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

INTERDEPARTMENTAL CORRESPONDENCE

FILE: STP-012-1(81), Forsyth County OFFICE: Consultant Design
PI No.: 122015
SR 306 Widening and Reconstruction DATE: December 19, 2007

FROM: *Stanley Hill*
Mohammed (Babs) Abubakari, P.E.
State Program Delivery and Consultant Design Engineer

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

SUBJECT: **Value Engineering Study Responses**

Reference is made to the recommendations that were contained in the Value Engineering Study Report dated November 7, 2007 for the above referenced project. Our responses and recommendations are as follows:

1. **Value Engineering Alternative No. TS-3** – Converts the north side SR 306 concrete sidewalk to a 10 ft. asphalt concrete multi-use path. **(Cost Savings of \$183,469)**

Recommendation

Approval of the VE Alternative No. TS-3 is not recommended.

- *The construction of this project will be federally funded. Typically a multi-use path such as this cannot be paid for with federal funds unless it can be proven that it will reduce congestion or be used as an alternative means of transportation. In order to construct a path such as this on this project, an agreement would need to be made with the county for them to pay for and maintain this facility.*
- *The section for the multi-use path that was analyzed for this alternative is sub-standard for a shared use path according to Toolkit 4 of the Georgia Department of Transportation's (GDOT's) Pedestrian and Streetscape Guide. The path should have a 5 foot separation from the edge of pavement, be 12 feet in width (desirable) (14 feet is optimum) and have a 2 foot shoulder. Using a 12 foot path the entire shoulder width would be 19 feet in width which is 3 feet wider than the shoulder proposed in the plans. This additional 3 feet of shoulder and the additional 2 feet of path would eliminate any savings indicated by the VE Study Team for this alternative in increased Right-of-Way (ROW) and paving costs.*
- *The path with only a 5 foot minimum horizontal separation from the edge of pavement would not meet Americans with Disabilities Act (ADA) standards at any valley gutter driveways. The valley gutter driveways have slopes and cross slopes that are greater*

than 12:1 and 2% respectively. Georgia Construction Details A-1 thru A-4 and GDOT's Pedestrian Facilities Design Guide show the proper location of sidewalk in relation to the valley gutter driveway. In order to obtain ADA standards, the path would need to be 8.5 feet from the edge of pavement thus creating a 22.5 foot shoulder, thus increasing ROW costs even more.

2. **Value Engineering Alternative No. TS-6** – Delay construction of sidewalks. **(Cost Savings of \$587,715)**

Recommendation

Approval of the VE Alternative No. TS-6 is not recommended.

- *According to Chapter 6.7.1 of GDOT's Design Policy Manual, sidewalk will be provided wherever curb and gutter is utilized along the outside edges of pavement of the mainline roadway.*
- *Relying on developers to get the sidewalk constructed as part of obtaining their permit could be risky. The office in charge of permitting would need to ensure that the sidewalk was added to the plans and constructed by the developer. With the number of permits they handle, it is likely that the sidewalk would be left off the plans.*

3. **Value Engineering Alternative No. TS-8** – Reduce urban shoulder green strip by 4 feet. **(Cost Savings of \$1,360,307)**

Recommendation

Approval of the VE Alternative No. TS-8 is not recommended.

- *According to Chapter 6.7.1 of the GDOT Design Policy Manual, a 6 foot grass strip is the desirable design for this type of project. The 2 foot grass strip is the minimum width. If a 2 foot grass strip is used, the sidewalk would need to jog around each valley gutter driveway in order to meet ADA requirements (See Georgia Construction Details A-1 thru A-4 and GDOT's Pedestrian Facilities Design Guide show the proper location of sidewalk in relation to the valley gutter driveway). The 6 foot grass strip gives the pedestrian a larger space between them and the roadway, thus giving the pedestrian an extra feeling of safety.*
- *The current 16 foot urban shoulder with the 6 foot grass strip has been coordinated through concept validation and the public information open house on February 15, 2007.*
- *The 6 foot grass strip/16 foot urban shoulder can accommodate more utilities within the shoulder, thus allowing for easier maintenance of underground facilities.*

4. **Value Engineering Alternative No. TS-9/TS-10** – Design a six-lane urban section along SR 306. **(Cost Increase of \$4,699,293)**

Recommendation

Approval of the VE Alternative No. TS-9/TS-10 is not recommended.

- *The current 4-lane configuration has been coordinated through concept development, concept validation and the public information open house on February 15, 2007.*
- *During the concept validation for this project, the 6-lane configuration was studied. At that time it was decided to design and build the 4-lane section since it would not fail until after the design year of 2032.*
- *Revising the plans at this time to construct a 6-lane section would require a change to the air quality model (it was created using a 4-lane section), all of the environmental special studies would require revision due to the larger footprint of the project, and implementation of the project would be delayed due to the necessity of revising the plans for a 6-lane section.*

5. **Value Engineering Alternative No. TS-11** – Reduce the width of the raised median by 4 feet. **(Cost Savings of \$489,164)**

Recommendation

Approval of the VE Alternative No. TS-11 is recommended.

- *According to Chapter 6.9.2.3 of the GDOT Design Policy Manual, a 24 foot raised median is preferred, but a 20 foot raised median can be construction without a design variance.*

6. **Value Engineering Alternative No. TS-13** – Reduce the slope easement by reducing the fill section slopes by using a 1:1 reinforced slope. **(Cost Savings of \$835,521)**

Recommendation

Approval of the VE Alternative No. TS-13 is not recommended.

- *Slopes steeper than 2:1 have not been approved for use on this project by the Office of Materials and Research (OMR). In order to use a slope steeper than 2:1, even with the geogrid reinforcements, approval by OMR will be necessary. Also, additional geotechnical investigations may be necessary to ensure that the steeper slope could be used.*
- *Steeping of the slope will increase the velocity of the storm water runoff along the slope increasing the potential for erosion.*
- *On this project, gravity walls as discussed in Value Engineering Alternative TS-14 may be a more appropriate solution than the steeper 1:1 slopes with geogrid*

reinforcement. The 1:1 slope will be difficult to maintain, but with a wall the 2:1 slopes can be kept, thus making maintenance of them easier.

- 7. Value Engineering Alternative No. TS-14** – Reduce the slope easement by placing a gravity wall at the back of the sidewalk. **(Cost Savings of \$592,372)**

Recommendation

Approval of the VE Alternative No. TS-14 is recommended

- The designer will investigate areas to install the walls to maximize cost savings.*

- 8. Value Engineering Alternative No. G-2** – The three driveways along westbound SR 306 that service the supermarket, McDonalds' and the Waffle House parking lot be consolidated into a single signalized driveway opposite Freedom Parkway. **(Cost Savings of \$105,496)**

Recommendation

Approval of the VE Alternative No. G-2 is not recommended.

- This parcel, which is owned by Ingles Markets, is currently permitted for three (3) driveways, one (1) of which is signalized. If the number of drives is reduced, the property owner would most likely need to be compensated, which could eliminate any cost savings shown in the VE report. Without additional traffic studies and an appraisal of the property an exact dollar figure cannot be obtained at this time. Potentially the cost of closing two of the driveways could range from nothing to \$560,000 for closing the driveways up to \$5.6 million if the parcel becomes a consequential displacement.*
 - The signalized driveway would remain a full access drive and the remaining drives would become right-in/right-out only.*
- 9. Value Engineering Alternative No. G-3** – Shift the proposed SR 369 roadbed by approximately 50 feet west. **(Cost Savings of \$3,276,000)**

Recommendation

Approval of the VE Alternative No. G-3 is not recommended.

- The current alignment for SR 369 has been coordinated through concept development, concept validation and the public information open house on February 15, 2007.*
- Since the time of the aerial photography and the field survey, a brand new CVS Pharmacy has been constructed in southwest quadrant of the SR 306/SR 369 intersection. In addition there was coordination between the Department and Developer during the driveway permitting process to determine the needed required right-of-way for this project before construction on this site commenced. The developer was given the proposed concept ROW so that he could build his parking lot so that it would not be impacted by the project. If SR 369 were widened towards the*

west, the CVS would lose parking that it had not planned on losing.

- *Shifting the SR 369 alignment 50 feet to the west will impact approximately 5 electric transmission poles owned by Georgia Transmission Company.*

10. Value Engineering Alternative No. G-4 – The southern project limit at SR 369 be built to the full section requirements, including curb and gutter and sidewalk. **(Cost Increase of \$912,774)**

Recommendation

Approval of the VE Alternative No. G-4 is recommended.

- *Construction of the full width section from Station 305+00 to Station 316+60 on SR 369 from Holtzclaw Road north towards SR 306 will eliminate the reconstruction of this section from 4-lane to 2-lane taper when project STP-012-1(106), PI No. 122014 is built. The only work that will be required in this section would be restriping.*

11. Value Engineering Alternative No. G-7 (Design Suggestion) – Line up the through lanes for those exiting the parking lot (from the Ingles Shopping Center) headed south on Freedom Parkway southbound lanes. **(Design Suggestion, no associated cost savings or increase)**

Recommendation

Approval of the VE Alternative No. G-7 (Design Suggestion) is recommended.

- *This can be accomplished by restriping the driveway to the Ingles Shopping Center so that approach and receiving lanes line up.*

12. Value Engineering Alternative No. G-8 – Add additional left turn lane from SR 306 westbound to Freedom Parkway Southbound. **(Cost Increase of \$219,407)**

Recommendation

Approval of the VE Alternative No. G-8 is not recommended

- *The current configuration of the intersection (single left turn lane in the eastbound and westbound direction) will operate at a Level of Service (LOS) E in the AM peak and LOS D in the PM peak in the design year of 2032. A double left turn in the westbound direction is not needed at this time.*
- *An additional left turn lane could be added in the future at this location by reducing the width of the median nose to 2 feet and the turn lanes to 11 feet, if the additional lane becomes necessary.*

13. Value Engineering Alternative No. D-1 – Eliminate driveway at station 124+10 left. (Cost Savings of \$60,729)

Recommendation

Approval of the VE Alternative No. D-1 is not recommended.

- *This parcel, which is owned by Ingles Markets, is currently permitted for three (3) driveways, one (1) of which is signalized. If the number of drives is reduced, the property owner would most likely need to be compensated, which could eliminate any cost savings shown in the VE report. Without additional traffic studies and an appraisal of the property an exact dollar figure cannot be obtained at this time. Potentially the cost of closing two of the driveways could range from nothing to \$560,000 for closing the driveways up to \$5.6 million if the parcel becomes a consequential displacement.*
- *The signalized driveway would remain a full access drive and the remaining drives (including the one at Sta 124+10) would become right-in/right-out only.*

14. Value Engineering Alternative No. D-2 (Design Suggestion) – Straighten double 9 ft. x 9 ft. concrete box culvert extension at Baldrige Creek. (Design Suggestion, no associated cost savings or increase)

Recommendation

Approval of the VE Alternative No. D-2 (Design Suggestion) is not recommended

- *The culvert extension is skewed in order to align the culvert with the channel of the creek.*
- *The hydraulic analysis of the culvert takes into account the skew of the culvert and demonstrates that the culvert will work hydraulically.*

15. Value Engineering Alternative No. D-3 – Eliminate the extension of the double 9 ft. x 9 ft. concrete box culvert raising the existing headwall and wingwalls. (Cost Savings of \$40,586)

Recommendation

Approval of the VE Alternative No. D-3 is not recommended

- *According to Georgia Standard 2312, the maximum height that a parapet can be raised is 2.5 feet. The parapet at this location will need to be raised at least 6 feet.*

Wishon, Ron

From: Pegram, Vinesha C.
Sent: Monday, February 11, 2008 12:17 PM
To: Wishon, Ron
Subject: RE: VE Implementation --- STP-012-1(81) Forsyth

Ron,

Please forgive the delay. I have been in class/meetings for the majority of last week.

- 1) From looking at the pictures that we have taken, there is no evidence of pedestrian traffic. (i.e. no worn path along the shoulder)
- 2) No pedestrians were counted during the traffic counts.
- 3) The only existing sidewalk along SR 306 is between northbound ramps for SR 400 and Freedom Parkway. The distance between these two roadways is approximately 900 feet with only 250 feet of that containing sidewalk. This sidewalk is located on the south side of SR 306 and ends at Freedom Parkway.
- 4) According to Forsyth County's Future Land Use Map with is for years 2004 – 2025, the entire corridor along SR 306 is slated to be zoned General Commercial. At the eastern end of the project near Martin Road there are some current farms that are zoned Medium Density Residential. In addition there is a subdivision going in on the south of SR 306 at Martin Road. I could not find any information on how many homes are going to be in that subdivision. Also, along Holtzclaw Road is the next closest are that is zoned residential (is shown as medium density). There are existing homes and subdivisions along Holtzclaw along with an elementary school. There are in easily over 500 homes along Holtzclaw and in those subdivision. Holtzclaw Road is less than a half a mile from SR 306, but the closest homes are over a half a mile away from SR 306.

Sincerely,

Vinesha C. Pegram, P.E.
Design Group Manager
Office of Consultant Design
ph 404-463-2988
fax 404-463-6136

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From: Wishon, Ron
Sent: Friday, February 08, 2008 6:54 AM
To: Pegram, Vinesha C.
Subject: RE: VE Implementation --- STP-012-1(81) Forsyth

Vinesha:

Have you had a chance to look back at this one? Thanks!

Ron

From: Pegram, Vinesha C.
Sent: Friday, February 01, 2008 1:55 PM
To: Wishon, Ron
Subject: RE: VE Implementation --- STP-012-1(81) Forsyth

Ron,

I'm going to have to handle this one later. Buddy asked for some information on a project for a Boardmember.

Sincerely,

Vinesha C. Pegram, P.E.
Design Group Manager
Office of Consultant Design
ph 404-463-2988
fax 404-463-6136

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From: Wishon, Ron
Sent: Friday, February 01, 2008 1:54 PM
To: Hill, Stanley; Pegram, Vinesha C.
Subject: VE Implementation --- STP-012-1(81) Forsyth

Stanley/Vinesha:

The Chief Engineer sent this one back with a question. His question is - "Are sidewalks needed now?" We will need some additional justifications if we are going to leave the sidewalks off. If the sidewalks are definitely needed now then we will change this to "No".

TS-6	Delay construction of the Sidewalks (Developers would then be responsible for Sidewalk once it is needed at some point in the future)	\$587,715	Yes	This should be done.
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Thanks!

*Ron Wishon
Assistant Project Review Engineer
Engineering Services
Room 261*

404-651-7470

404-463-6131 (FAX)