DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE: STP-1336(11) Forsyth
P.I. No.: 121690
S.R. 9 Widening

OFFICE: Engineering Services

DATE: July 30, 2007

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

TO: Babs Abubakari, P.E., State Consultant Design and Program Delivery 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 SECTIONS (S)				
S-1	Add two- 4 ft. bike lanes to the roadway	-$5,842,230 (cost increase)	No	Since S-1 though S-7 and S-10 through S-12 are all variations of the same idea and are mutually exclusive, only one can be implemented. See Alternate S-12.
S-2	Provide for a 10 ft. multi-use trail on one shoulder in lieu of two 4 ft. bike lanes	$2,109,630	No	Since S-1 though S-7 and S-10 through S-12 are all variations of the same idea and are mutually exclusive, only one can be implemented. See Alternate S-12.
S-3	Provide four - 11 ft. travel lanes with a 10 ft. multi-use trail in lieu of two 4 ft. bike lanes	$5,102,550	No	Since S-1 though S-7 and S-10 through S-12 are all variations of the same idea and are mutually exclusive, only one can be implemented. See Alternate S-12.

ALT #	Description	Potential Savings/LCC	Implement	Comments
TYPICAL SECTIONS - continued				
S-4	Use 12 ft. lanes with 24 ft. median and 8 ft. multi-use path on both sides	$1,477,130	No	Since S-1 though S-7 and S-10 through S-12 are all variations of the same idea and are mutually exclusive, only one can be implemented. See Alternate S-12.
S-5	Use 11 ft. lanes with a 20 ft. median and an 8 ft. multi-use path on both sides	$7,745,900	No	Since S-1 though S-7 and S-10 through S-12 are all variations of the same idea and are mutually exclusive, only one can be implemented. See Alternate S-12.
S-6	Use 12 ft. lanes with a 20 ft. median and a 10 ft. multi-use path on one side	$6,926,610	No	Since S-1 though S-7 and S-10 through S-12 are all variations of the same idea and are mutually exclusive, only one can be implemented. See Alternate S-12.
S-7	Use 11 ft. lanes with a 20 ft. median, 5 ft. sidewalks and a 10 ft. multi-use path on one side	$10,078,500	No	Since S-1 though S-7 and S-10 through S-12 are all variations of the same idea and are mutually exclusive, only one can be implemented. See Alternate S-12.
S-8	Provide enough right-of –way for ultimate six-lane urban section	-$19,306,000 (cost increase)	No	No project is currently programmed for the ultimate six-lane section.
S-9	Build section with 44 ft. median to provide enough right-of-way for ultimate six-lane urban section	-$19,306,000 (cost increase)	No	No project is currently programmed for the ultimate six-lane section.

ALT #	Description	Potential Savings/LCC	Implement	Comments
TYPICAL SECTIONS - continued				
S-11	Reduce the median width to 16 ft.	$5,459,010	No	Since S-1 though S-7 and S-10 through S-12 are all variations of the same idea and are mutually exclusive, only one can be implemented. See Alternate S-12.
S-12	Build section with 12 ft. lanes, 16 ft. median, and 8 ft. multi-use paths on both sides	$7,000,000	Yes	This should be done.
ALIGNMENT (A)				
A-2	Reduce the left-turn storage length on S.R. 9 going south at Pendly Road from 1000 ft. to 700 ft.	$20,000	No	According to the Design Consultant, the 1000 feet is required for the turning volumes from S.R. 9 to Pendly Road.
A-4	Use 8" x 24" curb and gutter in lieu of 8" x 30" curb in the medians	$188,400	Yes	Pending approval of a new standard for 8" x 24" curb and gutter.
TRAFFIC (T)				
T-1	To maximize traffic flow, synchronize the traffic lights between North Old Atlanta Road and Buford Highway	Design Suggestion	Yes	This should be done.
RIGHT OF WAY (RW)				
RW-1	To improve safety, combine the two subdivision access roads at Piney Grove Road and the east side of S.R. 9	Design Suggestion	No	This change would result in additional right of way impacts.

ALT #	Description	Potential Savings/LCC	Implement	Comments
RIGHT OF WAY (RW) - continued				
RW-2	To improve safety, combine Highland Gate Drive and Lexington Lane at Sta. 45+00	Design Suggestion	No	There are two separate property owners and this change would require additional right of way in order to make the realignment.
RW-3	To control access, eliminate the four driveway entrances for the single parcel community north of Redi Road	Design Suggestion	Yes	This should be done pending final right of way negotiations.
RW-4	Combine two driveway entrances at Sta. 35+00 and one driveway entrance opposite Holly Park Drive	Design Suggestion	Yes	The two outside driveways should be retained and the one in the middle at the Shirey Trust Parcel should be deleted.
RW-5	Identify possible locations for storm water detention ponds and new drainage facilities	Design Suggestion	No	Storm water detention is not normally included on GDOT projects.
CONSTRUCTION MANAGEMENT (CM)				
CM-1	Require Contractor to recycle existing pavement	Design Suggestion	No	The Specifications address this work.
CM-2	To minimize through traffic during construction on S.R. 9, detour traffic to GA 400 during construction	Design Suggestion	No	Due to the large amount of traffic on S.R. 9, this is not feasible.
CM-3	To minimize risk to the Contractor, identify and negotiate temporary easements for Contractor lay down/staging areas	Design Suggestion	No	The normal work areas are within right of way provided for the project.

ALT #	Description	Potential Savings/LCC	Implement	Comments
CONSTRUCTION MANAGEMENT (CM) - continued				
CM-4	Split the project into two segments; build high priority segments now and defer the other for future funding allocations	$31,113,172 defer to future	No	This does not meet the Need and Purpose of the project.
CM-5	To minimize through traffic on S.R. 9 during construction, use Pendley and North Old Atlanta Roads as detours	Design Suggestion	No	All detours, if needed, will be provided within the proposed right of way for this project.
CM-6	To accommodate phasing, increase the cost estimate line item for traffic control from $150,000 to $500,000	-$350,000 (cost increase)	Yes	This should be done.
RISK REDUCTION (RR)				
RR-1	Clarify the amount of unsuitable soils on site through a soil boring program; establish a budget line item	Design Suggestion	Yes	This should be done.
RR-2	Project funds are limited. Consider phasing the project into multiple segments	Design Suggestion	Yes	This should be done.
RR-3	Further investigate construction impacts around the dam site	Design Suggestion	Yes	This should be done.
RR-4	Clarify that there are no other historic properties along the alignment	Design Suggestion	Yes	This should be done.

ALT #	Description	Potential Savings/LCC	Implement	Comments
RISK REDUCTION (RR) - continued				
RR-5	Clarify the impact of retaining walls along the alignment	Design Suggestion	Yes	This should be done.
RR-6	Prepare phasing concepts to identify the amount of temporary pavement necessary	Design Suggestion	Yes	This should be done.
RR-7	Review vertical alignment and impact upon the net amount of Borrow necessary	Design Suggestion	Yes	This should be done.
RR-8	Perform earthwork analysis as soon as possible to clarify net import/export of soil	Design Suggestion	Yes	This should be done.

A meeting was held on July 27, 2007 and Bryon Letourneau with Kimley-Horn and Associates, Inc., Stanley Hill, and Vinesha Pegram of Consultant Design, and Brian Summers, Ron Wishon and Lisa Myers of Engineering Services were in attendance.

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

Approved: _____ **Date:** 9/2/07
David E. Studstill, Jr., P. E., Chief Engineer

BKS/REW

Attachments

c: Gus Shanine, FHWA
Todd Long
Randall L. Hart
Stanley Hill
Vinesha Pegram
Randall Davis
Melanie Nable
Nabil M. Raad
Lisa Myers

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

INTERDEPARTMENTAL CORRESPONDENCE

FILE: STP-1336(11), Forsyth County
PI No.: 121690
SR 9 Widening from SR 141 to SR 20

OFFICE: Consultant Design

DATE: June 29, 2007

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

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

SUBJECT: **Value Engineering Study-Responses**

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

1. **Value Engineering Alternative S-1** - Add two 4-ft. bike lanes to the roadway typical section.
   Approval of VE Alternative S-1 is recommended.
   - *Forsyth County has a Bicycle and Pedestrian Plan that includes the project area and therefore this project will need to provide bicycle facilities.*

2. **Value Engineering Alternative S-2:** Provide a 10-ft. multi-use trail on one shoulder in lieu of using two 4-ft. bike lanes.
   Approval of VE Alternative S-2 is not recommended.
   - *Two (2) 4-ft. bike lanes will be added to the roadway typical section.*

3. **Value Engineering Alternative S-3:** Provide four 11-ft. lanes with a 10-ft. multi-use trail in lieu of two 4-ft. wide bike lanes.
   Approval of VE Alternative S-3 is not recommended.
   - *Due to the percentage of trucks and the overall vehicular traffic, 12' lanes is preferred for this project.*
     - *The design year ADT ranges from 30,758 to 38,502.*
     - *The truck traffic on this section of SR 9 is 11%.*
   - *Two (2) 4-ft. bike lanes will be added to the roadway typical section.*

4. **Value Engineering Alternative S-4:** Use two 8-ft.multi-use trails (one in each direction) in lieu of 5-ft. sidewalks and 4-ft. bike lanes.
   Approval of VE Alternative S-4 is not recommended.
   - *Two (2) 4-ft. bike lanes will be added to the roadway typical section.*

5. **Value Engineering Alternative S-5:** Use a typical section with a 20-ft median, 11-ft lanes and 8-ft sidewalks with a multi-use trail.
   Approval of VE Alternative S-5 is not recommended.
   - *Due to the percentage of trucks and the overall vehicular traffic, 12-ft lanes with a 24-ft median is preferred for this project.*
     - *The design year ADT ranges from 30,758 to 38,502.*
     - *The truck traffic on this section of SR 9 is 11%.*
   - *Two (2) 4-ft. bike lanes will be added to the roadway typical section.*
   - *Five foot sidewalks will be provided in accordance with GDOT guidelines.*

6. **Value Engineering Alternative S-6:** Narrow the median to 20-ft and reduce one shoulder to 12-ft with a 5-ft sidewalk. The other would be 21-ft with a 10-ft multi-use trail.
   Approval of VE Alternative S-6 is not recommended.
   - *The high traffic volumes on this road make a 24-ft median desirable.*
   - *The 24-ft median significantly improves left turning sight distance at intersections. With the high volumes and high number of left turning vehicles the safety along the corridor would be improved.*
   - *With the high concentration of utilities in the corridor it is desirable to keep at least a 16' shoulder on both sides of the road.*
   - *Two (2) 4-ft. bike lanes will be added to the roadway typical section.*

7. **Value Engineering Alternative S-7:** Reduce the travel lanes to 11-ft, the median to 20-ft, and one shoulder to 12-ft, and increase one shoulder to 21-ft for a multi-use trail.
   Approval of VE Alternative S-7 is not recommended.
   - *Due to the percentage of trucks and the overall vehicular traffic, 12-ft lanes with a 24-ft median is preferred for this project.*
     - *The design year ADT ranges from 30,758 to 38,502.*
     - *The truck traffic on this section of SR 9 is 11%.*
   - *With the high concentration of utilities in the corridor it is desirable to keep at least a 16' shoulder on both sides of the road.*
   - *Two (2) 4-ft. bike lanes will be added to the roadway typical section.*

8. **Value Engineering Alternative S-8:** This alternative proposes 132-ft of R/W (minimum) to build a four-lane roadway on a six-lane urban section R/W width. Rural shoulders with a ditch.

Approval of VE Alternative S-8 is not recommended.

- *The current STIP shows the project as four-lane road and there is currently no project planned or programmed to widen this road to a six-lane section.*
- *The proposed R/W is 105' for this roadway.*

9. **Value Engineering Alternative S-9:** This alternative proposes 132-ft of R/W (minimum) to build a four-lane roadway on a six-lane urban section R/W width with a 44' depressed median.
   Approval of VE Alternative S-9 is not recommended.
   - *The current STIP shows the project as four-lane road and there is currently no project planned or programmed to widen this road to a six-lane section.*
   - *The traffic dictates that a 24' raised median be used for this roadway.*
     - *The design year ADT ranges from 30,758 to 38,502.*

10. **Value Engineering Alternative S-11:** Reduce the median to 16-ft.
    Approval of VE Alternative S-11 is not recommended.
    - *A 20-ft to 24-ft raised median is preferred for the proposed traffic volumes.*
    - *The 24-ft median significantly improves left turning sight distance at intersections. With the high volumes and high number of left turning vehicles the safety along the corridor would be improved.*

11. **Value Engineering Alternative S-12:** Modify the typical section to include 12-ft lanes, a 16-ft median, and an 8-ft multi-use path on both sides. The total R/W required is 96-ft.
    Approval of VE Alternative S-12 is not recommended.
    - *A 20-ft to 24-ft raised median is preferred for the proposed traffic volumes.*
    - *The 24-ft median significantly improves left turning sight distance at intersections. With the high volumes and high number of left turning vehicles the safety along the corridor would be improved.*
    - *Two (2) 4-ft. bike lanes will be added to the roadway typical section.*

12. **Value Engineering Alternative A-2:** Instead of 1,000-ft of storage length, provide 700-ft of storage length (enough for 35 vehicles on average). This will save 300-ft of 12-ft wide asphalt pavement.
    Approval of VE Alternative A-2 is not recommended.
    - *The 1,000-ft of storage is there to accommodate the high left hand turn volume from southbound SR 9 to eastbound Pendley Road as analyzed in the current traffic study for the project.*
    - *The Design Year AM Peak Hour volume turning left at this intersection is 792 vph and will require this storage to adequately handle this volume.*

13. **Value Engineering Alternative A-4:** Use 8" x 24" Type 7 curb and gutter in the median. This will cost $11.55 per ft.

Approval of VE Alternative A-4 is not recommended.

- *The Department does not have an approved standard for an 8"x24" curb and gutter.*

15. **Value Engineering Alternative CM-6:** To accommodate phasing, increase the cost estimate line item for traffic control from $150,000 to $500,000.
Approval of VE Alternative CM-6 is recommended.
    - *After further consideration and review this line item will be changed to the specified amount.*

MBA:SH:VP