DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE: STP-2984(1) Hall **OFFICE:** Engineering Services
P.I. No.: 162430
S.R. 347/Friendship/Thompson Mill Road Reconstruction

DATE: January 29, 2008

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

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
PROFILE (P)				
P-1	Raise the profile in areas of rock at Sta. 391+00 and Sta. 402+00 to reduce the volume of unclassified excavation by more than 75,000 CY and significantly reduce the risk of rock excavation.	$525,830	Yes	This should be done.
P-2	Raise the sag vertical curves to create more area for fill at Sta. 415+00 and to reduce the volume of unclassified excavation and Waste by 40,000 CY.	$260,320	Yes	This should be done.

ALT #	Description	Potential Savings/LCC	Implement	Comments
PROFILE (P) – continued				
P-3	Raise the profile in the vicinity of Sta. 137+00 and Sta. 275+00 to reduce the amount of unclassified excavation by 19,000 CY and Waste by 257,000 CY.	-$104,770 (cost increase)	No	This would require additional Right of Way in certain areas which results in a net cost increase.
TYPICAL SECTION (S)				
S-1	Design for six lanes, but defer the final two lanes until traffic counts warrant from Sta. 100+00 to Sta. 205+00. Build the section from the outside in, placing the sidewalks and curbs & gutters in their final location for the six-lane section. The median would initially be grassed.	$2,810,423	No	Updated traffic volumes justify the six lane section is needed prior to the 20 year Design Year.
S-2	Use a 10 ft. wide multi-use path on each side of the road instead of the 5 ft. sidewalk and the 4 ft. bike lane to save 4 ft. of Right of Way on each side of the road.	$6,245,670	Yes	This route is not a designated Statewide Bicycle Route so this VE Alternative eliminates the 4 ft. of additional full depth paving on each side of the road for Bike Lanes but still provides a 10 ft. multi-use path on each side of the road to accommodate bicycles.

ALT #	Description	Potential Savings/LCC	Implement	Comments
TYPICAL SECTION (S) – continued				
S-3	Reduce the width of the outside lanes from 12 ft. to 11 ft. on both sides of the road. The 2 ft. gutter and 4 ft. wide bike lanes would not be affected. All other lanes would remain 12 ft.	$1,994,845 (original) $3,989,690 (revised)	Yes	This should be done since the project is in an urban area with minimum truck traffic. In addition to the two outside lanes being changed to 11 ft. the two inside lanes will be changed to 11 ft.
S-4	Use a 24 in. wide curb & gutter in lieu of 30 in. to save 6 in. of Right of Way along each side of the road.	$1,931,067	No	This would require a redesign of the Drainage Systems.
S-9	Use a grassed median in lieu of a 7 ½ in. thick concrete median. Use a 4 in. thick concrete median only in areas directly adjacent to the turn lanes for added protection and improved visibility.	$2,548,523	Yes	This should be done.
S-10	Use a 4 in. thick concrete median in lieu of 7 ½ in. concrete.	$1,606,232	Yes	This should be done.
DRAINAGE (D)				
D-1	Use precast sedimentation vaults in lieu of purchased Right of Way for ponds.	Design Suggestion	No	Since this project has changed from a rural design to an urban design, most Sediment Basins have now been deleted.

ALT #	Description	Potential Savings/LCC	Implement	Comments
DRAINAGE (D) – continued				
D-2	Reduce the number of catch basins by increasing the gutter spread from 8 ft. to 10 ft. as allowed by GDOT criteria. This 25% increase in gutter spread could result in a net 10% savings in catch basins and pipe.	$894,520	No	Since VE Alternative S-2 is recommended which eliminated the 4 ft. Bike Lanes, this no longer is applicable.
CONSTRUCTION MANAGEMENT (CM)				
CM-1	Bid the project as one large job in lieu of two smaller pieces. The west half of the project is a net Borrow job, while the east half is a net Waste job. To reduce the extra cost from excessive Borrow and Waste, combine the project into a single contract.	Design Suggestion	Yes	This has already been done.
RIGHT-OF-WAY (RW)				
RW-1	Generally, reduce the cut and fill areas in the profile to minimize extensive slopes and Right of Way takes.	Design Suggestion	Yes	This should be done.

A meeting was held on January 7, 2008 and Mike Reynolds, Fred Enloe, and Jayaram Kottapally with Kisinger Campo & Associates, Mike Haithcock with Consultant Design, and Brian Summers, Ron Wishon and Lisa Myers of Engineering Services were in attendance.

Additional information was provided on January 23, 2008.

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

Approved: Donald M Ross **Date:** 2/14/08
Gerald M. Ross, P. E., Chief Engineer

BKS/REW

Attachments

c: Gus Shanine, FHWA
Todd Long
James Magnus
Randy Davis
Brandon Kirby
Hiral Patel
Ken Werho
Nabil M. Raad
Funmi Adesesan
Lisa Myers

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FILE **STP-2984(1) Hall County**
SR 347/Friendship/Thompson Mill Road Reconstruction
P.I. No. 162430

OFFICE Consultant Design

FROM M. Babs Abubakari, P.E.,
State Consultant Design / Program Delivery Engineer

DATE November 13, 2007

TO Brian Summers, State Design Review Engineer
Attn: Lisa Myers

SUBJECT **VE STUDY RESPONSES**

The following are responses to the Value Engineering Study Report dated October 23, 2007 for the Reconstruction of SR 347/Friendship/Thompson Mill Road from I-985 to SR 211. The intention of these responses are to provide rationale for accepting, rejecting, or modifying the Value Engineering proposals listed throughout the report. These responses reflect input from GDOT and Kissinger Campo, and Associates.

Alternative Number **Description / Response**

P-1 ***Raise the profile in areas of rock***

We recommend against this suggestion for the following reasons:

- The proposed grade at Station 170+00 drops at 4.3% grade in the area of the proposed entrance to Blue Circle Quarry. The alignment and grade at this point has been coordinated with the quarry and raising the grade at this location would be a hazard for loaded trucks that must climb the already steep profile.
- Revising the grade would make construction staging and access to existing driveways more difficult in the area of Station 165+00 to Station 167+00.
- The current profile is tying into an existing 4-lane section at Station 373+44 and to a sidestreet at Station 406+35.
- The current grade at Station 402+00 is controlled by the sidestreet of Reunion Way at Station 406+35.

P-2 *Raise the sag vertical curves and create more fill areas at Sta. 415+00.*

We recommend against this suggestion for the following reasons:

The proposed grade at Station 415+00 is a sag vertical curve in the vicinity of the Celebration Baptist Ministries property, but raising the grade would increase the length of of a proposed culvert at Station 412+00 and the height of fill and Right of Way impacts on the church property.

P-3 *Raise the profile in the vicinity of Sta. 137+00 and Sta. 275+00.*

We recommend against this suggestion for the following reasons:

- The proposed grade at this location is controlled by a historical boundary 80 feet left of Station 140+50 and raising the grade could force a retaining wall next to the historic property. Raising the grade in this area would also result in greater impacts to ball fields on school property at Station 137+00 120 feet to the right.
- The proposed grade at Station 275+00 is controlled by a residence 94 feet to the left and a residence 96 feet to the right of Station 280+00 both in fill just beyond current construction limits. The use of a wall would eliminate the driveway in both cases making raising the grade unfeasible without displacements.

S-1 *Design for 6-lanes, but build only 4-lanes – Sta. 100+00 to Sta. 205+00 with 44' median.*

We recommend against this suggestion for the following reasons:

- Six lanes with a raised median from sta. 100+00 to sta. 205+00 as is currently designed minimizes right of way impacts consistent with operational requirements of heavy truck traffic from Blue Circle Quarry and with agreements already made with the management of the quarry.
- Six lanes are required to meet the needs of 20 year projections of traffic thru Hog Mountain Road.

S-2 *Use a 10' multi-use path on both sides of the road in place of bike lanes and sidewalks.*

We recommend against this suggestion for the following reasons:

The PIOH held for this project indicated overwhelming support for bike lanes and sidewalks and they have been added to the project by GDOT in response. 10' multi-use path will require a center barrier to separate opposing pedestrians and bicyclists, and probably a wider path to accommodate all. Keeping bike lanes lends weight to agreeing to **Alternates D2 and S3.**

S-3 *Reduce outside lanes from 12' to 11' wide on both sides of the road.*

We recommend against this suggestion for the following reasons:

GDOT Design Manual and policy states 11' lanes can only be used in an "Urban Area Type A", otherwise a design variance will be required for widths less than 12'. ADT for this project is 62,000, well above AASHTO 'Green Book' minimum for 12' lanes.

S-4 *Use 24" curb and gutter in lieu of 30" curb and gutter.*

We recommend against this suggestion for the following reasons:

The current GDOT catch basin standards call for a 2' gutter to effectively handle storm flow and reduce gutter spread. All standards and construction details reference a 2' minimum. A 2' offset to barrier curb has been considered a safety requirement for state routes and other high class roadways for some time. Transition to 18" gutter is sometimes used to tie to existing curb and gutter on side roads placed by local governments and developers.

S-9 *Use a grass median in lieu of 7 ½" thick median pavement.*

We agree to this suggestion for the following reasons:

The use of grass median with curb and gutter has been recommended as the locally preferred option at the PFPR and is to be included in the plans at this time. Medians will be paved only at left turn bays as detailed in the Median Cross Over Construction Detail M-3.

S-10 Use a 4" thick concrete median in lieu of 7 ½" thick concrete.

We agree to this suggestion for the following reasons:

Curb and gutter with 4" median paving adjacent to median turn lanes will be used at all median openings as per choice of GDOT District 1 in final plans.

D-2 *Reduce the number of catch basins by increasing the gutter spread from 8' to 10'.*

We agree to this suggestion for the following reasons:

Considering a 2' gutter spread, 4' bike lane, and half lane width of 6'. That equals 12', so the recommended 10' is conservative. Many of the "apparent excess" catch basins are functioning as junction boxes intercepting water from drop inlets and others are in place to intercept back slope runoff.

CM-1 *Bid the project as one large project.*

We agree to this suggestion for the following reasons:

However, funding and coordination with development as well as early re-routing of SR 347 may lead to a split project or an 'exception length'.

RW-1 *Reduce the cut and fill areas in the profile to minimize extensive slopes and right of way.*

We agree to this suggestion for the following reasons:

Coordination is ongoing with many development tracts to reduce the project's cut and fill requirements , thus reducing construction limits and R/W.