

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

INTERDEPARTMENT CORRESPONDENCE

FILE: MSL-0003-00(168) Gwinnett **OFFICE:** Engineering Services
P.I. No. 0003168
S.R. 316 HOV from I-85 to just east of Progress Center Avenue

DATE: April 13, 2006

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

TO: Ben Buchan, PE, 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/PROFILE (RW)				
1.0	Construct HOV without Barrier separation and reduce pavement width	\$27,600,000	No	Not consistent with current policy as outlined in GDOT Board Resolution dated June 16, 2005 concerning Barrier Separated HOV lanes.
1.1	Build Barrier separated HOV without provisions for future two (2) lane HOV	\$16,200,000	No	Not consistent with agreement with FHWA as outlined in letter dated November 18, 2004.
2.0	Retain existing dual lanes in current location in lieu of demolition and resurface with concrete plus construct no separated barrier for HOV lanes	\$32,000,000	No	Not consistent with current policy as outlined in GDOT Board Resolution dated June 16, 2005 concerning Barrier Separated HOV lanes.

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ALT #	Description	Potential Savings/LCC	Implement	Comments
ROADWAY/PROFILE (RW) - continued				
2.1	Mill or grind and resurface with asphalt existing dual lanes in current location in lieu of demolition and construct asphalt concrete with no separated barrier for HOV lanes	\$52,724,000	No	Not consistent with current policy as outlined in GDOT Board Resolution dated June 16, 2005 concerning Barrier Separated HOV lanes.
3.0	Defer any cost provision associated with construction of future Collector-Distributor	Design Suggestion	No	Doesn't satisfy the intent of the project.
4.0	Develop and award project as design, build, and operate toll road now in lieu of 2010	Design Suggestion	No	No apparent advantage to doing this. This project already has a very aggressive schedule.
5.0	Re-evaluate the justification for HOV projections through the corridor	Design Suggestion	No	S.R. 316 met the adopted criteria as stated in the HOV Strategic Implementation Plan.
6.0	Price, identify, and include high mast signage requirements	Design Suggestion	Yes	This will be done.
7.0	Identify and purchase locations for Park and Ride Lots as part of this project	Design Suggestion	Yes	Park and Ride and Park and Pool Lots will be pursued during Design phase.
10.0	Widen to three lanes using existing two lanes without HOV designation	\$47,000,000	No	The project as proposed in the STIP does not include the capacity improvements to the through lanes.
10.1	Widen to three lanes in each direction and construct HOV adjacent to existing pavement without barrier	-\$10,000,000 cost increase	No	The project as proposed in the STIP does not include the capacity improvements to the through lanes.
11.0	Construct a reversible two (2) lane HOV with barriers and gates	Design Suggestion	No	Requires additional work at several existing interchanges that was not considered by the VE Team.
12.0	Consider no build alternate	Design Suggestion	Yes	This was considered during the NEPA Process

ALT #	Description	Potential Savings/LCC	Implement	Comments
ROADWAY/PROFILE (RW) - continued				
13.0	Retain asphalt surface pavement in lieu of changing to concrete surface pavement	\$16,000,000	Defer	The Pavement Design Committee will make the final determination on the required Pavement Design.
14.0	Install fixed concrete barriers in lieu of movable Type 20 Concrete Barriers	\$13,300,000	No	The VE Study did not consider the cost for the additional drainage items. Therefore the potential cost savings is reduced.
STRUCTURAL/BRIDGES (SB)				
1.0	Construct striped HOV section in lieu of barrier: Build Herrington, SR 20, Collins Hill Rd., Hi-Hope Rd., and widen Colonial Pipeline, and Yellow River Bridges	\$7,800,000	No	Not consistent with current policy as outlined in GDOT Board Resolution dated June 16, 2005 concerning Barrier Separated HOV lanes.
1.1	Construct striped HOV section in lieu of barrier; Build SR 20, Collins Hill Rd., Hi-Hope Rd., and Colonial Pipeline Bridges	\$16,320,000 incl in RW-2.0	No	Not consistent with current policy as outlined in GDOT Board Resolution dated June 16, 2005 concerning Barrier Separated HOV lanes.
2.0	Eliminate endrolls and utilize MSE walls instead of a barrier separated HOV section	\$1,700,000	No	Not as favorable for future expansion of the S.R. 316 corridor.
3.0	Use HPC with two (2) span configuration and MSE walls and non barrier separated HOV section	\$11,300,000	No	Not consistent with current policy as outlined in GDOT Board Resolution dated June 16, 2005 concerning Barrier Separated HOV lanes.
4.0	Use precast Arch Culvert over Columbia Gas Pipeline in lieu of bridges	\$250,000	Yes	This will be done.
5.0	Depress SR 316 under Walther Road and utilize a 53' Arch Culvert	\$3,300,000	No	This introduces more complicated constructability issues at this location.

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A meeting was held on April 12, 2006 to discuss the above recommendations. Neal O'Brien and Jill Franks of Urban Design, and 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: 4/14/06
David E. Studstill, Jr., P. E., Chief Engineer

BKS/REW

Attachments

c: Gus Shanine, FHWA
Randy Hart
Neal O'Brien
Jill Franks
Lyn Clements
Christa Wilkinson
Nabil Raad
Lisa Myers

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STATE OF GEORGIA

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FILE MSL-0003-00(168), Gwinnett County
P.I. No. 0003168
SR 316 from I-85 to just east of Progress Center Avenue

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

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

SUBJECT **Value Engineering Study Report Response**

OFFICE Urban Design
DATE November 17, 2005

This office has received and reviewed the recommendations of the Value Engineering Study Workshop Report dated April 21, 2005. We are troubled by many of the resulting recommendations, most of which should have not been included in the final report. Below are our responses to the recommendations:

ROADWAY/PROFILE (RW) ALTERNATIVES

1.0 (Variance Required) Construct HOV without barrier separated and reduce pavement width.

This recommendation is contrary to current GDOT policy as outlined in the State Transportation Board Resolution dated June 16, 2005, "The Department shall establish a policy that managed (HOV, HOT, or TOT) lanes will be barrier separated where feasible."

In addition, barrier separation designs are preferred over buffer separated designs for numerous reasons that are well documented in the HOV Strategic Implementation Plan for the Atlanta Region Final Report dated October 2003 (a study from which this project arose.) Preference is given to barrier separation for reasons such as improved safety, improved travel time savings and reliability, improved transit schedule reliability, and lower violation rates/improved enforcement opportunities.

We do not believe this alternative fulfills the Value Engineering definition contained in 23 CFR 627.3 "...to accomplish the original purpose of the project, reliably, and at the lowest life-cycle cost without sacrificing safety, necessary quality, and environmental attributes of the project." We believe **Value Engineering recommendations should only contain alternatives of the same or superior designs which provide the greatest value to the Department and its customers, not only the lowest construction and right of way costs.** This alternative is not the same or superior design.

Finally, the barrier separation advantages such as safety, travel time savings and reliability were not appropriately factored into the total life-cycle cost comparisons and we believe the purported cost savings in the VE Study are greatly exaggerated.

For these reasons, we do not recommend implementing this alternative.

1.1 *Build barrier separated HOV without provision for future two (2) lane HOV.*

This recommendation is contrary to an agreement reached between GDOT and FHWA by letter dated November 18, 2004, concerning the single-lane barrier separated HOV typical section. This section not only provides an additional level of safety and adequacy for breakdown or emergency use in the short term, but it also provides flexibility for a future managed lane that may be needed long term due to the continuing population growth in this corridor.

Again, Value Engineering recommendations should only contain alternatives of the same or superior designs which provide the greatest value to the Department and its customers, not only the lowest construction and right of way costs.

For these reasons, we do not recommend implementing this alternative.

2.0 *(Variance Required) Retain existing dual lanes in current location in lieu of demolition and resurface with concrete plus construct no separated barrier for HOV lanes.*

This alternative requires buffer separated HOV lanes in lieu of barrier separation. For the reasons discussed in RW 1.0 above, this alternative is not recommended.

2.1 *(Variance Required) Mill or grind and resurface with asphalt existing dual lanes in current location in lieu of demolition and construct asphalt concrete with no separated barrier for HOV lanes.*

The pavement analysis for an adjacent maintenance project (which included 1/3 of this project area) recommended full-depth replacement of the existing deteriorated pavement with Continuously Reinforced Concrete (CRC) pavement. The pavement type and design for this project will be based on an analysis (to be performed) and final decision of the GDOT Pavement Design Committee (PDC). The PDC will thoroughly consider life-cycle costs and construction staging costs and concerns.

This alternative requires buffer separated HOV lanes in lieu of barrier separation. For the reasons discussed in RW 1.0 above, this alternative is not recommended.

3.0 *Defer any cost provision associated with construction of future collector distributor system.*

This design suggestion is contrary to the FHWA and GDOT philosophy of “get in, get out, and stay out.” We believe that the minimal cost savings today would be offset by

the additional future cost of construction. Building bridges slightly longer today within existing right of way will substantially minimize future staging problems including worker exposure, delays, and costs to the traveling public.

For these reasons, we do not intend to pursue this design suggestion.

4.0 *Develop and award project as a toll road for immediate award and construction in lieu of waiting until normal funding and award in FY 2009. Accept Washington Group PPP proposal.*

The Washington Group proposal has been withdrawn. The current project is identified and funded in the current TIP/STIP for right of way in FY 2006. At this point, right of way (and therefore construction) would not be accelerated by creating a "toll road." Future tolling of the HOV lanes has not been precluded by the proposed design.

For these reasons, we do not intend to pursue this design suggestion.

5.0 *Re-evaluate the justification (18% usage) on HOV projections through this corridor.*

Any corridor with extreme congestion is a candidate for HOV lanes. HOV is part of the Statewide Transportation Implementation Plan as well as the HOV Strategic Implementation Plan. The adopted HOV Strategic Implementation Plan outlined numerous goals and objectives of HOV expansion in the metro region as well as the criteria for a corridor to be recommended for HOV lanes.

The SR 316 corridor met the adopted criteria and we do not intend to pursue this design suggestion.

6.0 *Price, identify, and include high mast signage requirements.*

A Concept Level Guide Sign Plan has since been developed and the cost was included in the Final Concept Report for this project.

7.0 *Identify and purchase locations for Park and Ride lots as part of this project.*

The Department has determined that locations will be identified for Park & Pool lots as part of this project. These locations will be selected near each HOV interchange in coordination with right of way needs. Further discussions during the design phase will occur with the local (Gwinnett County Transit) and regional (GRTA) transit agencies to incorporate their comments/desires/plans/suggestions.

10.0 *(Could be a variance) Widen to three lanes using the existing two lanes without HOV designation*

The stated purpose of this project is to construct additional HOV/managed lanes as part of the overall HOV expansion plans outlined in the adopted HOV Strategic Implementation Plan and TIP/STIP. This project was not proposed to add capacity for

general use. Furthermore, this project is not part of the Statewide Implementation Plan and would not be part of the Conformity Plan because such an alternative would add capacity to the arterial.

Once again, we do not believe this recommendation fulfills the definition of Value Engineering contained in 23 CFR 627.3 "...to accomplish the original purpose of the project..." and **we believe such a recommendation has no place in a final VE report.**

For these reasons, we do not recommend implementing this alternative.

10.1 (Variance Required) Widen to three lanes in each direction and construct HOV adjacent to existing pavement without barrier

Based on the combined reasons noted in the responses to RW 1.0 and RW 10.0 above, we do not recommend implementing this alternative.

11.0 (Could be a variance) Construct a reversible two (2) lane HOV with barriers and gates.

Reversible lanes in the middle would require reconstruction of the Sugarloaf Parkway, Riverside Parkway, and Lawrenceville-Suwanee Road interchanges and it appears that none of these costs were considered in this design suggestion. This fact coupled with the four disadvantages noted on the VE Study also appear to outweigh the one possible advantage that was noted. **We believe the insufficient/inaccurate justification statement for this design suggestion has no place in a final VE report.**

For these reasons, we do not intend to pursue this design suggestion.

12.0 (Variance Required) Consider a No-Build alternate.

As with every project, the NEPA process requires consideration of the No-build alternative. This project is no different and the no-build will be thoroughly considered. The VE Study justification further states, "standard option usually available to any project." Why was this suggestion even included? **We believe this design suggestion has no place in a final VE report.**

13.0 Retain asphalt surface pavement in lieu of changing to concrete surface pavement.

The pavement analysis for an adjacent maintenance project (which included 1/3 of this project area) recommended full-depth replacement of the existing deteriorated pavement with Continuously Reinforced Concrete (CRC) pavement. The pavement type and design for this project will be based on an analysis (to be performed) and final decision of the GDOT Pavement Design Committee (PDC). The PDC will thoroughly consider life-cycle costs and construction staging costs and concerns.

14.0 Install fixed concrete barriers in lieu of movable type 20 concrete barriers.

Barriers intended to be installed for this application are not the moveable Barrier Systems, Inc. type barriers assumed in the VE Study. The details for this precast barrier will be similar to those currently in use in Texas. The costs are expected to be very similar to fixed barrier and will fall well below the \$130/l.f. assumed cost identified in the VE Study. Should two-lanes be required in the future, the costs to remove and construct permanent barrier would far exceed the costs to reset the temporary barrier and this was not factored in the VE Study alternative.

For these reasons, we do not recommend implementing this alternative.

STRUCTURAL/BRIDGES (SB) COMMENTS

1.0 *(Variance Required) Construct striped HOV section in lieu of barrier: Build Herrington, SR 20, Collins Hill Rd, Hi-Hope Rd and widen Colonial Pileline, and Yellow River Bridges.*

Based on the reasons noted in the response to RW 1.0 above, we do not recommend implementing this alternative.

1.1 *(Variance Required) Construct stripped HOV section in lieu of barrier: Build SR 20, Collins Hill Rd, Hi-Hope Rd and Colonial Pileline Bridges.*

Based on the reasons noted in the response to RW 1.0 above, we do not recommend implementing this alternative.

1.2 *(Variance Required) Use HPC with two (2) span configuration & MSE walls non barrier separated HOV section.*

High Performance Concrete will be utilized where possible in the design of the bridges. However, with spans of 80 feet or greater (Type III or Bulb Tee spans) there is only a few percentage points difference in the cost of the shallower beams. If the HPC allows for a reduction in the number of beams or eliminates intermediate bents it will be more cost effective.

This alternative relied primarily on the elimination of the barrier separation for HOV lanes.

Based on the reasons noted in the response to RW 1.0 above, we do not recommend implementing this alternative.

2.0 *Eliminate endrolls and utilize MSE walls instead of a barrier separated HOV section.*

The cost savings of this alternative is tied to the proposed reduction in bridge span lengths which would substantially preclude future expansion.

Based on the reasons noted in the response to RW 3.0 above, we do not recommend implementing this alternative and the use of endrolls instead of MSE walls is more cost effective at this time.

4.0 Use precast Arch culvert over Columbia Gas Pipeline in lieu of bridges.

This alternative will be thoroughly considered in preliminary design and it will likely be implemented.

5.0 Depress SR 316 under Walther Road and utilize a 53' Arch culvert.

We believe the substantial disadvantages to this alternative were not properly considered in the VE Study report including:

1. Based on the sketches provided, additional right of way would likely be required and this was not factored in the cost estimate.
2. Significantly higher maintenance of traffic cost would be incurred and this was not factored in the cost estimate.
3. Walther Boulevard is essentially precluded from widening in the future.
4. Grades are less desirable from an HOV (particularly bus) operations standpoint, i.e., entrance ramps would be on up grades and exit ramps would be on downgrades.

For these reasons, we do not recommend implementing this alternative.

If there are any questions or comments concerning these recommendations, please contact Neal O'Brien or Jill Franks at (404) 656-5442.

JBB:GSB:JLF

cc: Buddy Gratton, Director of Preconstruction
Paul Liles, State Bridge Engineer
Ron Morris w/ PBS&J