

**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA**



**INTERDEPARTMENT CORRESPONDENCE**

**FILE:** NHIM0-0085-02(164), Gwinnett  
P.I. No.: 110600-  
I-85 Express Lanes  
*Darryl D. VanMeter*  
**FROM:** Darryl D. VanMeter, P.E.  
State Innovative Program Delivery Engineer

**OFFICE:** Innovative Program Delivery

**DATE:** January 17, 2012

**TO:** Ron Wishon, State Project Review Engineer  
ATTN: Lisa Myers, Assistant State Project Review Engineer

**SUBJECT: Request to Reverse Implementation of VE Study Alternatives**

Recommendations for Implementation of Value Engineering Study Alternatives for the above referenced project were approved by letter dated March 18, 2010. Due to a Scope change, three of the original alternatives have been reevaluated and are being recommended for reversal. Below are the three reversals using the original implementation Alternative Number and Descriptions. Your review and concurrence of these recommendations is requested.

ALT #	Description	Potential Savings/LCC	Revised Implementation	Comments
C-7	Defer the southbound extension of the HOT lane to I-985	\$2,838,000	YES	This is being done as part of the Scope change for the project. There will not be an I-985 HOT lane connection.
C-8.2	Relocate I-985 SB HOT lane to new underpass structure under I-85 SB	\$1,591,000	NO	This will not be done. As part of the Scope change, there will not be an I-985 HOT lane connection.
C-9	For Alternate 1 Design option: use I-85 SB detour roadway for permanent alignment	\$493,000	NO	This will not be done. With the Scope change, the existing bridge can be used for staging traffic.

**Reversal of Alternate C-7**

Concur: Ronald E. Wiseman  
State Project Review Engineer

Date: 1-18-12

Concur: Bill R. McManis  
Director of Engineering

Date: 1-19-12

Approve: Dale M. R...  
Chief Engineer

Date: 1-24-12

Approve: Dana Robinson  
FHWA

Date: 2-6-12

**Reversal of Alternate C-8.2**

Concur: Ronald E. Wiseman  
State Project Review Engineer

Date: 1-18-12

Concur: Bill R. McManis  
Director of Engineering

Date: 1-19-12

Approve: Dale M. R...  
Chief Engineer

Date: 1-24-12

Approve: Dana Robinson  
FHWA

Date: 2-6-12

**Reversal of Alternate C-9**

Concur: Ronald E. Wiseman  
State Project Review Engineer

Date: 1-18-12

Concur: Bill R. McManis  
Director of Engineering

Date: 1-19-12

Approve: Dale M. R...  
Chief Engineer

Date: 1-24-12

Approve: Dana Robinson  
FHWA

Date: 2-6-12

If you have any questions, or need additional information, please contact Kelvin Mullins at 404-631-1675.

DVM:MDD:khn

Attachments

Cc: Sherl White, HNTB

General Files

Project Files

**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA**

**INTERDEPARTMENT CORRESPONDENCE**



**FILE:** NHIM0-0085-02(164)(165) Barrow Gwinnett **OFFICE:** Engineering Services  
P.I. Nos.: 110600 & 110610  
I-85 Managed (HOT) Lanes **DATE:** March 18, 2010

**FROM:** Ronald E. Wishon, State Project Review Engineer

**TO:** *Ronald E. Wishon*  
Barry D. VanMeter, PE, State Innovative Program Delivery Engineer

**SUBJECT: IMPLEMENTATION OF VALUE ENGINEERING STUDY ALTERNATIVES**

The VE Study for the above projects was held December 1-4, 2009. Responses were received on February 10, 2010. Recommendations for implementation of Value Engineering Study Alternatives are indicated in the table below. The Project Manager shall incorporate the VE alternatives recommended for implementation to the extent reasonable in the design of the project.

ALT #	Description	Potential Savings/LCC	Implement	Comments
A-1	Reduce full depth inside shoulder width to 1 1/2" north of I-985	\$5,307,000	No	The Managed Lane System Plan (MLSP), based on the Atlanta Regional Commission's (ARC) Envision 6 and adopted by GDOT in 2009, proposes a 3 general purpose lane section in both directions along the corridor. If partial depth pavement is used for the inside shoulders, future widening to install the third general purpose lane would require the removal of the partial depth shoulder pavement before a new lane could be constructed. In addition, a partial depth shoulder would not be adequate if traffic had to be routed onto the shoulders in response to incidents.
A-3	Reduce the 4 ft buffer between the general purpose and HOT lanes to 2 feet	\$1,480,000	No	As indicated by "A Guide for HOT Lane Development" published by FHWA, the desirable cross section for median-based concurrent high occupancy toll (HOT) lane comprises a 4 ft buffer width between a concurrent HOT lane and a general purpose lane. Since a paved median is proposed along the project corridor, the reduction of the buffer width from 4 ft to 2 ft would not result in cost savings. In addition, a 2 ft buffer would prohibit future installation of pylons or traffic channelizers.

A-4	Reduce the 4 ft buffer to 2 ft, reduce the 8 ft shoulder to 4 ft, eliminate the asphalt section in the median and substitute cable rail for the concrete median barrier	\$9,464,000	No	The savings determined by the VE Team included savings from reducing the width of the inside shoulder to 4 ft and utilizing partial depth pavement for the inside shoulders. The 4 ft inside shoulders cannot be achieved given the allowable deflection of the cable barrier system (9 ft minimum, 10 ft preferred). The estimated savings did not take into account the special drainage considerations with regard to the narrower median and shallower median ditch that would result from the implementation of the cable barriers. Longitudinal drainage systems similar to that used for a fully paved median with concrete barriers would be required to address the shallow median ditch. Additionally, the estimated savings also included the savings from implementing A-3, which will not be done. The added costs to address the median drainage and the elimination of the savings associated with A-3 would reduce the savings to \$2,125,543. These savings would be offset by the additional maintenance costs of the grassed median and the replacement costs of the cable barriers should incidents occur.
A-6	Widen proposed HOT lanes using an 11 ft lane versus a 12 ft lane	\$2,033,000	No	The minimum cross section for median based concurrent HOT lane established in "A Guide for HOT Lane Development" indicates a 12 ft HOT lane. A 12 ft lane width would better accommodate the buses using the HOT lanes. Because the median would be paved, no savings would result from reducing the HOT lane width from 12 ft to 11 ft.
B-1	Eliminate general purpose lane milling and resurfacing north of I-985 to SR 211	Proposed = \$6,395,000 Actual = \$5,690,100	Yes	This will be done with a slight modification. The milling and resurfacing along I-85 will be extended to the interchange at SR 20. There are lane transitions, both northbound and southbound, on I-85, south of SR 20 that will require restriping to accommodate the addition of the HOT lanes. The savings have been adjusted to accommodate the revised limits of resurfacing.
C-7	Defer the southbound extension of the HOT lane to I-985	\$2,838,000	<p style="color: red; font-size: 1.5em; margin: 0;">YES</p> No	This ramp inclusion is part of the value and safety added portion of the project for a minimal cost. The proposed ramp will provide revenue as part of the HOT system that would be lost if not constructed at this time. The I-985 southbound HOT connection will eliminate a weave should drivers attempt to cross multiple lanes, after entering I-85 from I-985, to access the HOT lane.

The following VE recommendations apply only if the design exception for the substandard shoulder width along the proposed I-85/I-985 HOT connection is not approved. Currently the proposed I-85/I-985 HOT connection is to utilize existing I-985 northbound; this would result in substandard shoulder widths and constrain the design speed to 45 MPH due to limited horizontal sightline offset. If the design exception is not approved, an additional \$2,203,975 in construction cost would be required in order to construct the proposed I-985 southbound HOT connection, the proposed I-85 southbound bridge to accommodate the proposed I-985 southbound HOT connection, and to replace the existing I-985 northbound bridge over Ivy Creek.

C-8.1	Relocate I-985 SB HOT lane to new flyover structure over I-85 SB	\$1,495,000	No	The contour information was not available at the time of the VE Study. This option incorrectly assumes that 30 ft high walls can be used; based on the contour information now available these walls would be 50 ft or more. The recommendation also assumes that no walls will be needed along the approaches when in fact they are. The proposed bridge length would be 1200 ft, not 600 ft as suggested. With the implementation of C-9 below, the southbound detour cost will be reduced by half. Given these conditions, the implementation of this recommendation would actually result in an increase of construction costs by \$1,172,960.
C-8.2	Relocate I-985 SB HOT lane to new underpass structure under I-85 SB	\$1,591,000	Yes <sup>NO</sup>	This will be done.
C-9	For Alternate 1 Design option: use I-85 SB detour roadway for permanent realignment	\$493,000	Yes <sup>NO</sup>	This will be done.
C-10	Reduce the length of the I-85 SB bridge over I-985 HOT lanes	\$498,000	No	Since C-8.2 will be implemented, C-10 is no longer a feasible option.
J-2	Widen and rehabilitate the existing I-985 SB Bridge over Ivy Creek	Cost increase (-\$792,000)	No	The proposed improvements cannot be accomplished while maintaining two operational lanes on the existing bridge; therefore this would not be a simple widening. An additional stage would be required during staging making the proposed cost increase even larger.

The Office of Engineering Services concurs with the Project Manager's responses.

Kendra Bunker with FHWA submitted a question: For Recommendation B-1, reducing the mill and resurface areas along I-85, the VE Study states that the pavement in this area is in good condition and does not require resurfacing. What kind of analysis was done to determine the condition of the pavement, and what is the remaining life of the pavement? If the pavement still has several years left, the implementation of this recommendation makes sense, but if it will need resurfacing in 2-3 years, it might make more sense to do so during construction.

The Project Manager responded with the following which was deemed satisfactory by Ms. Bunker:

The PACES pavement evaluation provided by the District office indicated the pavement surface is still in good shape. The PACES reports are attached. The asphalt sections received ratings between 84 and 86 through the project area. The roadway was resurfaced last in 2000 and 2002. Project PI M001007 was a deep mill project where the asphalt was removed to the old concrete pavement and resurfaced with new base, binder and topping.

Project	PI	Description	Let Date
NHS-M000-00(459)	M000459	I-85 FM N OF SR 20 TO BARROW CO LN	7/28/2000
NHS-M001-00(007)	M001007	I-85 FM OLD PEACHTREE RD N TO SR 20	1/25/2002
NHS-M001-00(027)	M001027	I-85 FM S OF SR 211/BARROW TO S OF SR 15/US 441/BANKS	2/22/2002

Additional comments were submitted by David Painter with FHWA: I agree with all the HNTB recommendations. I think that the VE actually went beyond the normal purpose of VE in that it proposed eliminating important features and functions of the project. Fortunately, HNTB rejected all of those VE recommendations. I do think that FHWA can add some value to this process in the following areas:

1. As opposed to the HNTB recommendation - M&I south of 20 and nothing north - I recommend Micromilling south of 20 and 12" wide Micromilling of the inside edge line to the north. The Micromilling would remove only the PEM with its associated striping, which would no longer be correct with the construction of the HOV/HOT facility. Micromilling would be faster and cheaper than M&I. It would still allow construction of a "staggered" joint in the HMA structure that is being widened by this project to the inside.
2. While the VE packet did not have all background information, I recall that retaining the existing bridge and reuse of it as an HOV/HOT bridge was originally a FHWA suggestion. It makes sense to me that it would need to be made slightly wider to avoid a Design Exception for shoulder width and offset sight distance. The estimated cost to modify, \$0.79M as opposed to replace, \$2.35M also makes sense and is money well spent. This is the course that I would recommend that GDOT follow.