

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

INTERDEPARTMENT CORRESPONDENCE

FILE: STPIM-0075-03(210) Gordon **OFFICE:** Engineering Services
P.I. No.: 610930
I-75/SR 136 Interchange and Widening **DATE:** June 16, 2009

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

TO: Bobby Hilliard, PE, State Program Delivery Engineer
Attn.: Kimberly Nesbitt

SUBJECT: IMPLEMENTATION OF VALUE ENGINEERING STUDY ALTERNATIVES

The VE Study for the above project was held on February 2-5, 2009. Responses were received on May 7, 2009. 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
RD-1	Use PCC instead of flexible pavement	\$94,908	No	Based on the pavement condition survey report from OMR, the existing pavement will be utilized along SR 136 between I-75 northbound ramps and US 41. OMR has also indicated this project is a good candidate for crumb rubber asphalt pavement. Additionally, Maintenance of Traffic during the construction of bridge over I-75 requires utilizing final sidewalk as travel way with temporary asphalt paving on north side of SR 136 between southbound and northbound ramps.

ALT #	Description	Potential Savings/LCC	Implement	Comments
RD-3	Reduce paved outside shoulder on ramps from 10' to 8'	\$101,586	No	AASHTO states in Chapter 4, Cross Section Elements that heavily traveled, high-speed highways and highways carrying large number of trucks should have usable shoulders at least 10 feet wide and preferably 12 feet wide with additional 2 feet offset between the outer edge of the usable shoulder and guard rail. AASHTO chapter 10, Grade Separations and Interchanges recommends using a paved shoulder width of 8 to 10 feet for the ramps. GDOT Design Policy Manual requires 4-foot and 10-foot paved shoulders on inside and outside shoulders, respectively (see section 6.2.1).
RD-6	Signalize intersection at SR 136 and Access Rd.	(-\$88,000) cost increase	No	This intersection does not currently meet traffic signal warrants. The signal will be required sometime between 2015 and 2030.
RD-11	Modify geometrics in the transition section at the western terminus to reduce pavement and bridge width	\$398,379	Yes	This will be done.
RD-12	Eliminate sidewalks west of truck stop	\$786,269	No	The town of Resaca is located at the eastern terminus of the project and the Flying J truck stop with the largest convenience store in Resaca is located at the southeastern quadrant of SR136 and I-75 interchange. With development of the Resaca Battlefield Historic Site at the northwestern quadrant of this interchange, pedestrian traffic will be introduced between these sources and the Resaca Battlefield Site.

ALT #	Description	Potential Savings/LCC	Implement	Comments
RD-18	Reduce shoulder width in urban section from 16 ft. to 8 ft.	Proposed = \$1,396,579 Actual = \$698,290	Yes	AASHTO does not allow for 8 ft. shoulders; however, 12 ft. shoulders are acceptable to both GDOT and FHWA. Savings of \$698,290 reflects the use of 12 ft shoulders.
BR-2	Replace 6' raised sidewalks with 4' flush shoulders	\$287,020	No	Raised sidewalks will be constructed on the bridge over I-75 to accommodate pedestrian access into the Resaca Battlefield Site. Bridge staging plans will utilize the area for these 6-foot sidewalks as part of the staged travel way.
BR-4	Remove end spans and use MSE walled abutments	\$171,619	Yes	This will be done.
BR-7	Reduce shoulder width on Camp Creek Bridge from 10' to 6' to match roadway cross section	Proposed = \$207,152 Actual = \$103,576	Yes	GDOT Bridge Design Office revised the bridge shoulder width requirements and reduced the right bridge shoulder width from 10 ft to 8 ft; the design will be revised to comply with the new requirements. Savings of \$103,576 reflects the use of 8 ft shoulder.
BR-8	Replace 10' flush shoulders on Camp Creek Bridge with 4' flush shoulders	\$310,728	No	Since BR-7 will be done, this cannot be done.
BR-9	Provide two 12' through lanes, 6' flush shoulders in each direction, and a flush 14' striped median on Camp Creek Bridge	\$362,516	No	The shoulders will be revised to 8 ft. as indicated in BR-7. The 20 ft. raised median will remain on the bridge to facilitate the tie-in to future widening of the roadway.

The Project Manager met with FHWA and provided additional information at their request.

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

Approved: *Gerald M. Ross* Date: *6/16/09*
Gerald M. Ross, PE, Chief Engineer

Approved: *Richard Wayne Fedora* Date: *6/17/2009*
for Rodney Barry, PE, FHWA Division Administrator

REW/LLM

Attachments

- c: R. Wayne Fedora/Aric Mance/Christy Poon-Atkins – FHWA
Genetha Rice Singleton
Bobby Hilliard/Mike Haithcock/Kimberly Nesbitt
Paul Liles/Bill Duvall/Bill Ingalsbe/Joe King
Michael Hester
Kenny Beckworth
Ken Werho
Manuel Madera
Lisa Myers

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

INTERDEPARTMENT CORRESPONDENCE

FILE **STPIM-0075-03(210)/P.I 610930** **OFFICE** Program Delivery
 Gordon County
 I-75/SR 136 Interchange and Widening

FROM Bobby Hilliard, P.E., State Program Delivery Engineer **DATE** May 6, 2009

TO Ron Wishon, State Design Review Engineer
 Attn: Lisa Myers

SUBJECT **VE STUDY RESPONSES**

The following are responses to the Value Engineering Study Report submitted to Wilbur Smith Associates for I-75 at SR 136 Intersection Improvement in Gordon County. 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 Wilbur Smith Associates

- **RD-1 Use PCC pavement instead of flexible pavement-No**

The reasons we have selected to use asphalt pavement versus PCC pavement along SR136 are:

1. Based on the pavement condition survey performed on February 18-20, 2008 and the pavement condition survey report submitted to GDOT Material Lab on April 3, 2008, our initial interest was to utilize the existing pavement structure along SR136 between I-75 northbound ramps and US41 for cost saving measure since the existing pavement in this section consists of about 12.5-inch thick asphalt layer over 4 to 6-inch thick graded aggregate base layer. Crumb rubber asphalt pavement, which showed good performance under heavy truck traffic loading based on the crumb rubber workshop presented by Dr. Peter Wu from GDOT Material Lab at 2007 Georgia Partnership for Transportation Quality Conference in Athens, Georgia, was recommended in our pavement design report submitted to GDOT Material Lab in April, 2008 after discussing it with Dr. Wu and agreed with him that this project will be a good candidate for crumb rubber pavement.
2. Maintenance of Traffic during the construction of bridge over I-75 requires utilizing final sidewalk as travel way with temporary asphalt paving on north side of SR136 between southbound and northbound ramps. PCC Pavement as final surface will bring additional staging challenges in respect to wheel loading on longitudinal joints in PPC pavement

during the construction. This will require additional traffic shift to accommodate PCC paving and maintenance of traffic and will result pushing the tie in point to the existing roadway farther west at the western terminus of the project.

The pavement design report has been submitted to GDOT as rubber crumb asphalt pavement and if it is approved as asphalt pavement, we would like to keep it as asphalt pavement to meet the project schedule. However, if we are asked to use PCC pavement, we have to reconsider our maintenance of traffic plans and most probably there will be additional staging phases and the alignment will need to be pushed further north to accommodate PCC pavement construction which will force us to modify all our plans.

- **RD-3 Reduce paved outside shoulder on ramps from 10-foot to 8-foot-No**

AASHTO states in Chapter 4 Cross Section Elements that heavily traveled, high-speed highways and highways carrying large number of trucks should have usable shoulders at least 10 feet wide and preferably 12 feet wide with additional 2 feet offset between the outer edge of the usable shoulder and guard rail. AASHTO chapter 10, Grade Separations and Interchanges recommends using a paved shoulder width of 8 to 10 feet for the ramps. GDOT Design Policy Manual requires 4-foot and 10-foot paved shoulders on inside and outside shoulders, respectively (see section 6.2.1). Reducing paved outside shoulder from 10 feet to 8 feet brings the following safety and durability concerns:

1. Even though "No Parking" signs will be placed along the ramps, if the large trucks (8.5-foot wide) park on 8-foot ramp shoulder pavement illegally or for emergency, they will encroach into the travel way or clear the travel way and rut the graded shoulder which will cause PCC shoulder to loose side support.
2. If the large trucks park on 8-foot ramp shoulder pavement, PCC ramp pavement and shoulder pavement will be under edge stress from the truck wheel park along the longitudinal joint. This is the most critical loading for PCC pavements. It will cause premature cracking and failure along the longitudinal joint, and shortens the pavement operation life.

Based on the aforementioned reasons, reducing paved outside shoulder on ramps from 10-foot to 8-foot might save some initial construction cost. However, we believe that this recommendation will cause to sacrifice durability, performance life, quality and most importantly safety of this project. Therefore, Wilbur Smith Associates strongly suggests using 10-foot paved outside shoulder on ramps.

- **RD-6 Signalize intersection at SR 136 and Access Road-No**

This intersection does not currently meet traffic signal warrants and the signal would be required sometime between 2015 and 2030.

- **RD-11 Modify geometrics in the transition section at the western terminus to reduce pavement width-Yes**

The design provides a full width with two-lane on eastbound direction across the Camp Creek Bridge at the western terminus of the project to accommodate the future project to the west. Initial thought was building the full width bridge with about 700-foot long additional lane and acquiring required right-of-way under this project would be much cost effective compare to the future widening of the

bridge and roadway. West of SR136 and I-75 interchange, the traffic is only about 9,500 ADT and one-lane in each direction will be required to handle projected traffic. Therefore, without any change in westbound lane transition from two-lane to one-lane, one through lane for the eastbound direction will be sufficient as illustrated in VE report. However, additional pavement area ("eyebrow") provided in the design at Frontage Road is for U-turn movements of trucks to access US-41 from the truck repair facilities along the westbound SR136.

- **RD-12 Eliminate sidewalks west of truck stop-No**

Town of Resaca is located at the eastern terminus of the project and the Flying J truck stop (the last truck stop before Tennessee border along northbound I-75 and first truck stop in Georgia along southbound I-75) with the biggest convenient store in Resaca is located at the southeastern quadrant of SR136 and I-75 interchange. With development of the Resaca Battlefield Historic Site at the north western quadrant of this interchange, pedestrian traffic will be introduced between these sources and the Resaca Battlefield Site, and pedestrians need to be accommodated with sidewalks west of truck stop. Therefore, eliminating the sidewalks will reduce the project quality. Also FHWA requires transportation projects to accommodate other types of transportation such as pedestrians. WSA strongly suggest keeping the sidewalks west of truck stop and keeping the pedestrian access to the Resaca Battlefield Site as in original design.

- **RD-18 Reduce shoulder width in urban section (from 16-foot to 8-foot)-Yes**

GDOT Design Policy Manual states that urban shoulder should be minimum 12-foot wide and 16-foot urban shoulder is desirable. Urban shoulder widths can be reduced to 12-foot, if it is requested by GDOT. This will reduce the project footprint and ROW impact. However, WSA likes to point out that this modification, if it is requested, will have great design impacts and require us to change our plans, cross-sections, sign locations, staging cross-sections and outlet location and elevation of drainage structures.

- **BR-2 Replace 6-foot raised sidewalks with 4-foot flush shoulders-No**

Based on comments and reasons aforementioned in RD-12, WSA recommend that raised sidewalks be constructed on the bridge over I-75 to accommodate pedestrian access into the Resaca Battlefield Site. Bridge staging plans utilized this 6-foot sidewalks as part of the stage travel way. WSA does not recommend providing 4-foot flush shoulders to accommodate pedestrians.

- **BR-4 Remove end spans and use MSE-walled abutments-Yes**

WSA believes that a two span bridge over I-75 with MSE-walled abutments is an acceptable and cost effective solution, if provided MSE-walled abutments are located outside of clear zone along I-75 with accommodating the future widening of I-75. Using MSE-walled abutments will require change in structural design of the bridge over I-75, in additional to structural design, and geotechnical foundation investigation and design for these two additional MSE walls.

- **BR-7 Reduce shoulder width on Camp Creek Bridge from 10-foot to 6-foot to match roadway cross section-Yes**

This recommendation brings same safety issue as in recommendation RD-3. If a vehicle make an emergency stop on the bridge with 6-foot shoulder will not have sufficient shoulder width and encroach into the travel way. This is not an issue for 6-foot paved shoulder on the rural roadway sections since there is unpaved graded shoulder next to paved shoulder and the vehicle can utilize unpaved graded shoulder to stop safely. However, GDOT Bridge Design Office has revised bridge shoulder width requirements on July 12, 2008 and reduced the right bridge shoulder width from 10 to 8-foot and we will comply with the new design requirements.

- **BR-8 Replace 10-foot flush shoulders on Camp Creek Bridge with 4-foot flush shoulders to comply with minimum AASHTO requirements-Yes**

Please see our comments for recommendation BR-7 and 4-foot shoulders are not recommended.

- **BR-9 Provide 2-12-foot through lanes, 6-foot flush shoulders in each direction, and a flush 14-foot striped median on Camp Creek Bridge -No**

This recommendation refers to shoulders on Camp Creek Bridge as sidewalks. However, the original design does not have sidewalks on this bridge and it has 10-foot wide flush shoulders. We believe this is typo. As we mentioned in our comments for recommendation BR-7, we will comply with recent GDOT's revised bridge shoulder width requirements and reduce the bridge shoulder widths from 10 to 8-foot. Even though this recommendation contradicts with the recommendation RD-11 and requires 2-12-foot through lanes in each direction same as in the original design to accommodate the transition from this project to the future project to the west. The future project will have design speed of 55 MPH and most probably will be 4-lane divided with 32 or 44-foot depressed median. Keeping 20-foot wide median is suggested to make the transition from 20-foot raised median to future 32 or 44-foot depressed median section easier instead of reducing the 20-foot wide median to 14-foot wide median for about 700-foot long section just before the future wider depressed median section.

BKH:MAH:kwn

PRECONSTRUCTION STATUS REPORT FOR PI:610930-

1-75 INTERCHANGE @ SR 136 & WIDENING ON SR 136

MGMT LET DATE : 09/15/2011
 MGMT ROW DATE : 09/18/2009
 SCHED LET DATE : 10/26/2011
 WHO LETS? : GDOT Let
 LET WITH :

DOT DIST: 6
 CONG. DIST: 9
 BIKE: N
 MEASURE: E
 NEEDS SCORE: 5
 BRIDGE SUFF:

MPO: Not Urban
 TIP #:
 MODEL YR :
 TYPE WORK: Interchange
 CONCEPT: ADD 4R(MED 20)
 PROG TYPE: Reconstruction/Rehabilitation
 Prov. for ITS: N
 BOND PROJ :

PROJ ID : 610930-
 COUNTY : Gordon
 LENGTH (MI) : 1.50
 PROJ NO.: STPIM-0075-03(210).
 PROJ MGR: Ncs:bitt, Kimberly
 OFFICE : Program Delivery
 CONSULTANT: Consultant Design (DOT contract)
 SPONSOR : GDOT
 DESIGN FIRM: Wilbur Smith Associates, Inc.

SCHED START	SCHED FINISH	ACTIVITY	ACTUAL START	ACTUAL FINISH	%	PROGRAMMED FUNDS					Date Auth	
						Phase	Approved	Proposed	Cost	Fund		Status
		Concept Development	7/24/1995	3/22/2008	100	PE	1996	1996	1,309,823.10	34A	AUTHORIZED	7/11/1995
		Concept Meeting	5/11/2007	5/11/2007	100	ROW	2009	2010	4,091,317.32	L240	PRECAST	
		PM Submit Concept Report	1/10/2008	1/10/2008	100	UTL	NONE	2021	186,769.06	L240	PRECAST	
		Receive Preconstruction Concept Approval	1/11/2008	1/28/2008	100	CST	2009	2021	10,572,834.74	L010	PRECAST	
		Management Concept Approval Complete	2/22/2008	2/22/2008	100	CST	2009	2021	16,912,387.16	L240	PRECAST	
		Value Engineering Study	10/29/2008		83							
		Environmental Approval	5/1/1998		60							
		Mapping	5/13/1997	5/13/1997	100							
		Field Surveys/SDE	6/17/1997	7/7/1997	100							
		Preliminary Plans	9/11/1997		75							
		Preliminary Bridge Design	1/1/2007		95							
		Underground Storage Tanks	5/14/2009		100							
		404 Permit Obtainment	1/7/2000	1/9/2000	100							
		PFPR Inspection			0	PE Cost Est Amt	1,309,823.10	Date:	6/4/2008			
		R/W Plans Preparation			0	ROW Cost Est Amt	3,573,515.00	Date:	1/6/2009			
		R/W Plans Final Approval			0	Utility Cost Est Amt	104,000.00	Date:	2/11/2008			
		L & D Approval			0	CST Cost Est Amt	5,607,000.00	Date:	2/11/2008			
		R/W Acquisition			0	CST Cost Est Amt	8,969,000.00	Date:	2/11/2008			
		Stake R/W			0							
		Soil Survey	3/6/2008	9/11/2008	100							
		Bridge Foundation Investigation			0							
		Final Design			0							
		Final Bridge Plans Preparation			0							
		PFPR Inspection			0							
		Submit PFPR Responses(OES)			0							

Phase	Cost	Fund	STIP AMOUNTS	
			Phase	Fund
PE	0.00	34A		
ROW	4,002,337.00	L240		
UTL	0.00	L240		
CST	5,607,000.00	L010		
CST	9,968,000.00	L240		

District Comments
 CONSTRUCTION IS SPLIT FUNDED 4-98 MTG-NEED RAW IN 00 & CST IN 02 CONVERTED SURVEY FILES TO ENGLISH AND RESUBMITTED TO DESIGN 1/22/99. (\$800)
 In order to improve the operational capacity of SR136, the roadway is proposed to be widened from a point west of I-75 interchange easterly along existing location to the intersection of SR136 with US41/SR 3. Although the bridge on SR 136 over I-75 has a sufficiency rating of 83, it is proposed to be replaced due to substandard sight distance and insufficient lateral clearance to allow for future widening of the interstate.

Pre. Parcel CT:	17	Total Paved in ROW System:		Acquired by:	DOT	NEEDS CT:
Under Review:		Options - Pending:		Acquisition MGR:		
Released:		Condemnations- Pend:		R/W Cert Date:		