DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE EDS00-0084-00(026) Ware County, PI 522770
BHN00-0007-03(028) Ware County, PI 522775
HPPNE-0084-00(027) Ware County, PI 522780
SR 38/US 84 Widening Projects

OFFICE Program Delivery

DATE June 17, 2014

FROM Albert V. Shelby, State Program Delivery Engineer

TO Lisa L. Myers, State Project Review Engineer

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

Recommendations for Implementation of Value Engineering Study Alternatives were approved by letter dated May 13, 2008. Also, the first Request to Reverse Implementation of VE Study Alternative was approved by letter dated January 21, 2010. Upon further evaluation, there are an additional three of the original alternatives that are being recommended to be reversed for project HPPNE-0084-00(027) Ware County, P.I. No. 522780. Please see the table below with the original alternatives, the descriptions, and the proposed reason for reversals. Your review and concurrence of these recommendations is requested.

Alt #	Description	Reason For Reversal
TS-7	Use soil cement base to eliminate graded aggregate base Previous Response: Yes	Per the approved pavement design, 5.74 miles of the 6.06 miles of the total project shall be constructed using Jointed Portland Cement Concrete Pavement (JPCP). GAB is approved to be used as a base for the JPCP.
TS-17	Eliminate graded aggregate base under curb and gutter in Project 27 Previous Response: Yes	Per the approved pavement design, 5.74 miles out of 6.06 miles of the total project shall be constructed using Jointed Portland Cement Concrete Pavement (JPCP). Based on typical GDOT construction practices, the base for JPCP shall be extended 2' beyond the proposed edges of the pavement.
INT-9	Relocate connector from Idaho Avenue to Wyoming Avenue in Project 27 Previous Response: Yes	Relocating the connector from Idaho Avenue to Wyoming Avenue would have eliminated the Missouri Avenue intersection with Wyoming Avenue and cut off the normal flow of truck traffic to the James Company, INC. The Right of Way acquisition for the James Company, INC. along Idaho Avenue has been completed.

Reversal of Alternative TS-7

Concur: Lisa L Myers — 6/20/14
State Project Review Engineer — Date

Concur: Glen Bowman — 6/26/14
Director of Engineering — Date

Approved: Neil R McMurray — 7-3-14
Chief Engineer — Date

Reversal of Alternative TS-17

Concur: Lisa L Myers — 6/20/14
State Project Review Engineer — Date

Concur: Glen Bowman — 6/26/14
Director of Engineering — Date

Approved: Neil R McMurray — 7-3-14
Chief Engineer — Date

Reversal of Alternative INT-9

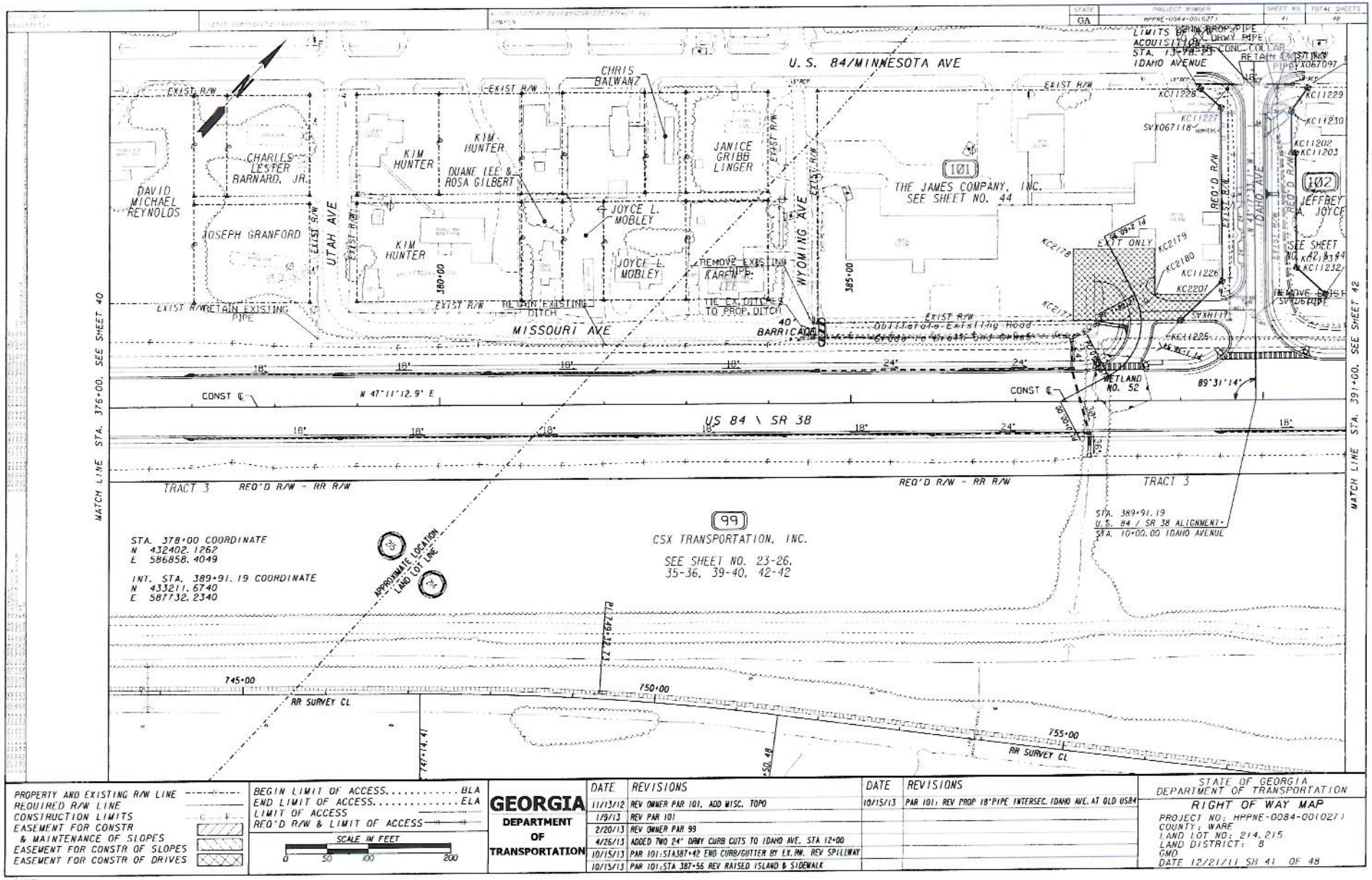
Concur: Lisa L Myers — 6/20/14
State Project Review Engineer — Date

Concur: Glen Bowman — 6/26/14
Director of Engineering — Date

Approved: Neil R McMurray — 7-3-14
Chief Engineer — Date

Attachment:
Right of Way Plan sheet

Cc:
Chris Rudd/Jan Hilliard, Office of Roadway Design



PROPERTY AND EXISTING R/W LINE
REQUIRED R/W LINE
CONSTRUCTION LIMITS
EASEMENT FOR CONSTR & MAINTENANCE OF SLOPES
EASEMENT FOR CONSTR OF SLOPES
EASEMENT FOR CONSTR OF DRIVES

BEGIN LIMIT OF ACCESS.....BLA
END LIMIT OF ACCESS.....ELA
LIMIT OF ACCESS
REQ'D R/W & LIMIT OF ACCESS

SCALE IN FEET
0 50 100 200

GEORGIA DEPARTMENT OF TRANSPORTATION

DATE	REVISIONS
11/13/12	REV OWNER PAR 101, ADD MISC. TOPO
1/9/13	REV PAR 101
2/20/13	REV OWNER PAR 99
4/26/13	ADDED TWO 24' DRWY CURB CUTS TO IDAHO AVE. STA 12+00
10/15/13	PAR 101: STA387+42 END CURB/GUTTER BY EX. RW. REV SPILLWAY
10/15/13	PAR 101: STA 387+56 REV RAISED ISLAND & SIDEWALK
10/15/13	PAR 101: REV PROP 18"PIPE INTERSEC. IDAHO AVE. AT OLD US84

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

RIGHT OF WAY MAP

PROJECT NO: HPPNE-0084-00(027)
COUNTY: WARE
LAND LOT NO: 214, 215
LAND DISTRICT: 8
GMD
DATE 12/21/11 SH 41 OF 48

VALUE ENGINEERING ALTERNATIVE

PROJECT:	**US 84 WIDENING AND RECONSTRUCTION – EDS-84(26) AND EDS-84(27)** *Ware County, Georgia*	ALTERNATIVE NO.:	**TS-7**
DESCRIPTION:	**INCORPROATE SOIL CEMENT BASE TO ELIMINATE GRADED AGGREGATE BASE**	SHEET NO.:	**1 of 3**

ORIGINAL DESIGN:

The preliminary plans call for a 10-in. graded aggregate base (GAB) construction.

ALTERNATIVE:

Use soil cement base construction, 8 in. to eliminate the 10-in. grade aggregate base material for construction. Soil cement base construction is commonly practiced in southeast Georgia.

ADVANTAGES:

- Reduces costs
- Eliminates GAB

DISADVANTAGES:

- None apparent

DISCUSSION:

Eliminating GAB material for construction reduces costs of trucking in rock material.

The current unit cost shown for GAB in the construction cost estimate is not representative of the unit costs for this item in this region (too low). The VE team has reason to believe that this cost estimate will be a larger savings if correct costs are used.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	$ 4,563,966	—	$ 4,563,966
ALTERNATIVE	$ 3,902,751	—	$ 3,902,751
SAVINGS (Original minus Alternative)	$ 661,215	—	$ 661,215

VALUE ENGINEERING ALTERNATIVE

PROJECT:	**US 84 WIDENING AND RECONSTRUCTION – EDS-84(26) AND EDS-84(27)** *Ware County, Georgia*	ALTERNATIVE NO.:	**TS-17**
DESCRIPTION:	**ELIMINATE GRADED AGGREGATE BASE UNDER CURB AND GUTTER FROM STA 217+00 TO STA 263+00 AND FROM STA 297+00 TO STA 308+00**	SHEET NO.:	**1 of 4**

ORIGINAL DESIGN: (Sketch attached)

The current design shows 10 in. of GAB beneath the curb and gutter.

ALTERNATIVE: (Sketch attached)

Omit the GAB beneath curb and gutter.

ADVANTAGES:

- Reduces cost
- Eases construction
- Reduces grassed width and drainage volumes

DISADVANTAGES:

- None apparent

DISCUSSION:

GAB is typically not used beneath curb and gutter in the southern portions of Districts 4 and 5.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	$ 39,204	—	$ 39,204
ALTERNATIVE	$ 8,712	—	$ 8,712
SAVINGS (Original minus Alternative)	$ 30,492	—	$ 30,492

VALUE ENGINEERING ALTERNATIVE

PROJECT:	**US 84 WIDENING AND RECONSTRUCTION – EDS-84(26) AND EDS-84(27)** *Ware County, Georgia*	ALTERNATIVE NO.:	**INT-9**
DESCRIPTION:	**RELOCATE CONNECTOR FROM IDAHO AVENUE TO WYOMING AVENUE IN PROJECT EDS-84(27)**	SHEET NO.:	**1 of 2**

ORIGINAL DESIGN: (Sketch attached)

The original design provides improvement to Idaho Avenue (STA 290+00) to act as a connector between the existing road and the new road.

ALTERNATIVE: (Sketch attached)

Relocate the connector to Wyoming Avenue (STA 284+20, labeled "Oregon Avenue" in the plans).

ADVANTAGES:

- Evenly spaces access between new and existing roads
- Wyoming Avenue provides greater connectivity

DISADVANTAGES:

- None apparent

DISCUSSION:

Idaho Avenue extends from the new alignment for only two blocks before ending at Illinois Avenue. Wyoming Avenue extends eight blocks to Wadley Road, providing superior connectivity. Also, Wyoming Avenue appears to be a bigger street, so it is possible less construction will be required.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN			
ALTERNATIVE	DESIGN SUGGESTION		
SAVINGS (Original minus Alternative)			

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

INTERDEPARTMENTAL CORRESPONDENCE

FILE: EDS00-0084-00(026) Ware County, PI 522770
BHN00-0007-03(028) Ware County, PI 522775
HPPNE-0084-00(027) Ware County, PI 522780
SR 38/US 84 Widening Projects

OFFICE: Program Delivery

DATE: January 21, 2010

FROM: Bobby K. Hilliard, P.E., State Program Delivery Engineer

TO: Ronald E. Wishon, State Project Review Engineer

SUBJECT: Request To Reverse Implementation of VE Study Alternatives

Recommendations for Implementation of Value Engineering Study Alternatives were approved by letter dated May 13, 2008. Upon further study, three of the original alternatives have been reevaluated and are being recommended to be reversed. Please see the original implementation Alternative Number and Description and the proposed Reason for Reversal below. Your review and concurrence of these recommendations is requested.

Alt #	Description	Reason For Reversal
TS-3	Remove Bike Lanes From Project (27).	SR 38/US 84 is on a Designated Bike Path. (SE Regional Bike and Pedestrian Plan)
TS-14	Use 18" (Curb & Gutter in lieu of 30" Curb & Gutter on Project (27).	Current standards are not designed to accommodate drainage structures for the 24" curb and gutter design. It creates the potential for increased gutter spread and would require additional structures. Cost for additional structures could eliminate the cost savings proposed for the reduction in size for the Curb & Gutter. Another stated disadvantage is that the curb would be placed one foot closer to the edge of travel way.
INT-4	Eliminate Needham Road Addition and upgrade railroad crossing in project (27).	Due to median spacing and minimization of railroad crossings, it is recommended that the Needham Road median opening and railroad crossing remain open (See Attached). The elimination of Ruskin Road (INT-2) & Griffin Road (INT-3) were implemented with the original implementation. Though not noted in the VE Study, leaving Needham Road and the Railroad Crossing open would eliminate the need for the railroad crossing at 17th Street as well. Needham Road is the only existing crossing that is currently paved and is situated in the center of the frontage road system.

This office recommends the reversal of the above implemented alternatives.

Reversal of Alternative TS-3:

Concur: Ronald E Washon — State Project Review Engineer — Date 1/27/10

Concur: James B Bak — Director of Engineering — Date 1/28/10

Approve: Dale M Ro — Chief Engineer — Date 2/1/10

Reversal of Alternative TS-14:

Concur: Ronald E Washon — State Project Review Engineer — Date 1/27/10

Concur: James B Bak — Director of Engineering — Date 1/28/10

Approve: Dale M Ro — Chief Engineer — Date 2/1/10

Reversal of Alternative INT-4:

Concur: Ronald E Washon — State Project Review Engineer — Date 1/27/10

Concur: James B Bak — Director of Engineering — Date 1/28/10

Approve: Dale M Ro — Chief Engineer — Date 2/1/10

BKH: MAH: JTB
Attachments

Cc:
Jason McCook/Brad McManus/Robert Reid, Roadway Design

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE: EDS-84(26), HPPN-EDS-84(27) & NHN-007-03(28) **OFFICE:** Eng. Services
Ware County
P.I. Nos.: 522770, 522780 & 522775
S.R. 38/U.S. 84 Widening/Reconstruction and Bridge Replacement

DATE: May 13, 2008

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

TO: Babs Abubakari, P.E., State 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
TYPICAL SECTIONS (S)				
TS-1	Use 11-ft. travel lanes for typical section in Projects 26 and 27	$2,602,687	No	This is in an area with a 65 mph Design Speed. In addition, the accident rate on this corridor is above the statewide average.
TS-2	Add bike lanes in the urban sections in Project 27	-$201,675 (cost increase)	No	Bike Lanes have been removed from this project.
TS-3	Remove the bike lanes from Project 27	Design Suggestion	Yes	This should be done.
TS-5	Reduce 44-ft. median width to 32-ft. median width in Project 27	$1,142,356	Yes	This should be done.
TS-7	Use soil cement base to eliminate graded aggregate base	$661,215	Yes	This should be done.

ALT #	Description	Potential Savings/LCC	Implement	Comments
TYPICAL SECTIONS (S) - continued				
TS-10	Provide a 3-lane section between Firetower Road (STA 80+00) to STA 365+00 in Project 26	$1,607,436	No	AASHTO generally states that flush medians should only be used in urban settings where operating speeds are relatively low (page 713). This is in an area that has a 32' grassed median with a 65 mph Design Speed.
TS-13	Install a 10-ft. raised median in lieu of a 14-ft. flush median from STA 262+00 to STA 295+00	$39,816	No	This would limit the access to parcels on each side of the roadway.
TS-14	Use 18-in. curb and gutter in lieu of 30-in. curb and gutter in Project 27	$132,847	Yes	This should be done.
TS-15	Provide a minimum width depressed median from STA 262+00 to 295+00 in Project 27	$205,954	No	This would limit the access to parcels on each side of the roadway.
TS-16	Provide one multi-use trail on one side of the roadway in lieu of two bike lanes and two sidewalks in the urban section in Project 27	$337,310	N/A	This does not apply since this corridor is not a designated Bike Route and the Bike Lanes have been removed from the project.
TS-17	Eliminate graded aggregate base under curb and gutter in Project 27	$30,492	Yes	This should be done.

ALT #	Description	Potential Savings/LCC	Implement	Comments
ALIGNMENT (A)				
A-2	Adjust new location alignment to reduce wetland impacts between STA 20+00 and 50+00 in Project 27	Design Suggestion	No	Based on detailed cost analysis, this would end up costing more money. While it would decrease some of the wetland impacts, it would increase the Right of Way and Construction costs by as much as $372,000.
A-3	Adjust new location alignment to reduce wetland impacts between STA 155+00 and 210+00 in Project 27	Design Suggestion	No	The wetland areas shown on the plans are not inclusive of all areas other than those identified along the original corridor. So shifting the alignment would actually increase the wetland impacts since there are other wetland areas located along the proposed VE Alignment.
A-5	Shift roadway alignment adjacent to utility corridor in Projects 26 and 27	Design Suggestion	No	This results in additional costs for Right of Way of approximately $5,000,000. There would also be many unknown Environmental impacts.
A-6	Revisit historical value of resources in the community of Ruskin Road in Project 27	Design Suggestion	Yes	This has been done and the properties in question are still deemed to be historical thus parallel widening is not feasible without impacting the historical properties.

ALT #	Description	Potential Savings/LCC	Implement	Comments
ALIGNMENT (A) - continued				
A-7	Place new location alignment adjacent to railroad from New Mexico Avenue to Idaho Avenue (STA 262+00 to 290+00) in Project 27	$258,795	No	Based on a more detailed cost estimate, this would result in additional Right of Way and Construction costs associated with extending the alignment on two side roads.
A-8	Use one-way pairs with independent alignments in Project 27	-$6,436,078 (cost increase)	No	This results in substantially more costs.
A-9	Provide traffic calming measures west of the urban section in Project 27	Design Suggestion	No	All Signing and Marking items will be in accordance with the MUTCD.
A-10	Move new location alignment closer to the railroad right-of-way from 16th Street to STA 162+50 in Project 27	$179,305	Yes	This should be done.
A-11	Parallel the railroad right-of-way with a new location alignment from 16th Street to Montana Avenue in Project 27	$2,906,534	No	Results in substantial additional wetland impacts since there are two existing ponds and other wetland areas adjacent to the railroad right of way.
A-12	Add a median opening at STA 345+00 in Project 27	Design Suggestion	Yes	This should be done.

ALT #	Description	Potential Savings/LCC	Implement	Comments
ALIGNMENT (A) - continued				
A-13	Increase posted speed limit to design speed limit of 65 mph	Design Suggestion	No	This could be considered at a future date after the corridor has been studied in regards to traveling speeds, accident rates, etc.
A-14	Reduce design speed to 55 mph to match posted speed limit	Design Suggestion	No	Would still require correction of many of the existing sub standard design features to meet a 55 mph Design Speed.
INTERSECTIONS (INT)				
INT-1	Reduce realignment of Ammons Road in Project 26	$96,786	Yes	This should be done.
INT-2	Eliminate intersection and connection of Ruskin Road to new US-84 in Project 27	$246,261	Yes	This should be done.
INT-3	Eliminate Griffin Road addition and upgraded railroad crossing in Project 27	$186,808	Yes	This should be done.
INT-4	Eliminate Needham Road addition and upgrade railroad crossing in Project 27	$123,475	Yes	This should be done.
INT-6	Verify need for railroad gates at 3 proposed railroad crossings in Project 27	Design Suggestion	Yes	This should be done.
INT-7	Use 11-ft. lanes for side road connections in Projects 26 and 27	$32,632	Yes	This should be done.

ALT #	Description	Potential Savings/LCC	Implement	Comments
INTERSECTIONS (INT) - continued				
INT-8	Identify the new and old US-84 connections (3 locations) in Project 27	Design Suggestion	Yes	This should be done.
INT-9	Relocate connector from Idaho Avenue to Wyoming Avenue in Project 27	Design Suggestion	Yes	This should be done.
BRIDGES (B)				
B-1	Shorten bridges in Projects 26 and 28	Design Suggestion	No	This would have an adverse affect on the hydraulics at these bridge sites.
B-2	Lengthen bridges from 50-ft. spans in lieu of the proposed 40-ft. spans in Projects 26 and 28	$234,689	No	Based on a more detailed Cost Estimate, lengthening the spans to 50' would actually increase the overall cost on the bridge by approximately $94,500.
B-4	Review hydrology of bridges in Projects 26 and 28	Design Suggestion	Yes	This should be done.
CONSTRUCTION MANAGEMENT (CM)				
CM-2	Advance railroad reviews and coordination	Design Suggestion	Yes	This should be done.
CM-3	Alternative bid packaging of Projects 26 and 27	Design Suggestion	Yes	This should be done.

A meeting was held on April 14, 2008 and Mark Mobley and Dave Starling with EMC Engineering Services, Inc., Mike Haithcock with Consultant Design, and Brian Summers, Ron Wishon and Lisa Myers of Engineering Services were in attendance.

Additional information was provided by the Project Manager on May 13, 2008.

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

Approved: _____ **Date:** 5/17/06

Gerald M. Ross, P. E., Chief Engineer

BKS/REW

Attachments

c: Gus Shanine, FHWA
Todd Long
Babs Abubakari
Mike Haithcock
Yun Tang
James Magnus
Richard Marshall
Will Murphy
William Hamilton
Paul Liles
Bill Ingalsbe
Bill Duvall
Vince Wilson
Alexis John
Ken Werho
Cynthia Burney
Lisa Myers

VALUE ENGINEERING STUDY REPORT RESPONSES

FOR

U.S. 84/S.R. 38 Improvements

Project No. EDS-84(26), P.I. No. 522770

Project No. BHN-007-3(28), P.I. No. 522775

Project No. EDS-84(27), P.I. No. 522780

Ware County

February 7, 2008

Prepared by

EMC Engineering Services, Inc.
Savannah, Georgia

April 22, 2008

Mr. Yun Tang
Office of Consultant Design
Georgia Dept. Of Transportation
No. 2 Capitol Square, S.W., Room 433
Atlanta, GA 30334

Re: Project No. EDS-84(26), P.I. No. 522770, Ware County
Value Engineering Study Report Response

Dear Mr. Tang:
We have reviewed the comments submitted by Lewis & Zimmerman Associates, Inc. (LZA) on December 28, 2007. The following are our responses to the 19 alternatives and 18 design suggestions provided by LZA. The responses in red text are for the comments we believe should not be implemented. The responses in blue text are for the comments we believe are feasible and/or show potential for pursuing the issue further.

TYPICAL SECTION (TS)

TS-1 11-ft lanes 3
As per the AASHTO Green Book 12-ft lanes are required based on the design speed and ADT for both projects. AASHTO does permit 11-ft lanes in corridors where the safety record is satisfactory (AASHTO-Geometric Design of Highways and Streets, pg 455). However, the accident history for this corridor is higher than the statewide average.
(See attached Collision Analysis)

TS-2 Add bike lanes to urban shoulders DS
Bike lanes will be removed from the Concept Report as per comment TS-3 as cost saving measure.

TS-3 Remove bike lanes from Concept Report 3
Inclusion of bike lanes will be removed from the Concept Report as a cost saving measure.

TS-4 Not a developed idea 2

TS-5 Build 32-ft. median in lieu of 44-ft. median 3
The typical sections with 44-ft median will be revised to show a 32-ft median.

TS-6 Not a developed idea 1

TS-7 Soil cement base in lieu of GAB 3

We will provide alternate bids for a soil cement base and graded aggregate base.

TS-8 Not a developed idea 1

TS-9 Not a developed idea 1

TS-10 3-lane between Firetower Road (STA 81+20) and STA 365+00, and purchase right –of –way for future 4-lane 2

AASHTO states that traversable medians should only be used in an urban setting where operating speeds are relatively low (AASHTO-Geometric Design of Highways and Streets, pg 713). This section of roadway meets neither the urban setting nor the low operating speed criteria (65 mph speed design). In addition to being outside of AASHTO parameters, transitioning from a 4-lane section to a 3-lane section and then back to a 4-lane section increases the likelihood of driver confusion and creates a safety issue. Although a 3-lane section would sufficiently sustain the projected ADT, this is outweighed by the negative effects in terms of driver safety.

TS-11 Not a developed idea 1

TS-12 Not a developed idea 1

TS-13 10-ft raised median between New Mexico Avenue and Montana Avenue (STA 262 to STA 295) 2

Installing a raised median in this section will effectively remove sufficient ingress and egress from the parcels adjacent to the alignment. By doing this a significant impact will result in right of way acquisition by decreasing existing property values.

TS-14 Use 18-in curb and gutter (verify gutter spread viability) 3

24-in curb and gutter will be removed from the typical sections and replaced with 18-in curb and gutter pending verification of gutter spread viability. A drainage study will be completed before this can be verified.

TS-15 Use a minimum width depressed median between New Mexico Avenue and Montana Avenue (STA 262 to STA 295) 2

Installing a depressed median in this section will effectively remove sufficient ingress and egress from the parcels adjacent to the alignment. By doing this a significant impact will result in right of way acquisition by decreasing existing property values.

TS-16 Build an AC multi-use trail on north side in lieu of sidewalk where urban shoulder is. 2

This corridor is not a designated bicycle route which eliminates the need for the two 4' paved bike lanes. Since bike lanes are not a necessary part of this project the VE team's projected savings of $220,870 for the exclusion of bike lanes will not be realized.
We propose adding concrete sidewalk on the north side only. In doing this the cost savings projected by the VE team would be negligible.

TS-17 Eliminate GAB under curb and gutter on EDS-84(27) 3
GAB under curb and gutter will be removed from the typical sections as suggested.

ALIGNMENT (A)

A-1 Not a developed idea 1

A-2 Reduce impacts to wetlands with new alignment at west end (increase wetlands identification) DS
The wetland areas shown on the plans are not inclusive of all areas other than those impacted by the original corridor. The actual area of wetlands in the surrounding vicinity is much larger. Therefore if the alignment were to be relocated as suggested by this comment, the impacts to wetlands would not be decreased as significantly as it would appear. For the first option the reduction would be 1.73 acres and for the second option the reduction would be 3.71 acres. Furthermore, the overall project costs will be increased due to the increase in required right-of-way as well as the increase in the new location paving quantities. The increase for the first option would be $274,235 and for the second option the increase would be $371,700. (See A-2 attachments)

A-3 Reduce impacts to wetlands with new alignment at east end (increase wetlands identification) DS
The wetland areas shown on the plans are not inclusive of all areas other than those impacted by the original corridor. The impacts caused by the original design are significantly less than indicated on the VE Team's proposed alternate alignment. There are actually more wetlands closer to the CSX Railroad right-of-way in the path of this comment's proposed new alignment. (See attachment A-3)

A-4 Not a developed idea 1

A-5 Build road adjacent to utility corridor DS
This is not a viable suggestion due to significant increases in required right-of-way, labor, and materials necessary to construct the entire roadway on new location. The projected cost increase for the just additional required right-of-way and base & paving is $4,891,930. (See attachment A-5) Additionally, unknown environmental impacts hold potentially higher impacts than the existing corridor.

A-6 Revisit historicity and do parallel widening 3

OEL was consulted and the properties in question are still deemed to be historical. Therefore parallel widening is not feasible without impacts to these historical properties.

A-7 Revisit new location alignment through Emerson Park (4F?) 2
Right-of-way New Mexico Avenue to Idaho Avenue (new alignment along railroad)

This comment incorrectly identifies the parcels to the south of the alignment as landlocked. These parcels will not be landlocked and are capable of being developed as valuable frontage commercial property with possible railway access. Also, the VE team failed to recognize the additional cost of extending the alignment approximately 400'. Nor did the team recognize the required cost of extending the two side roads to meet their proposed alignment. The additional cost for the lengthened alignment would be approximately $182,300. Also, the team did not recognize the additional cost of required right of way which we estimate to be $101,600. To implement this comment, the net increase in cost would be approximately $283,900. (See A-7 attachments)

A-8 One-way pairs at both independent alignments – access in town 2

The cost projected by the VE Team is for this comment is $6,400,000. This is not a cost effective option. The only advantage for this suggestion is improved traffic safety. However, the traffic safety of the current design is adequate. (See VE team's cost analysis within VE Report)

A-9 Use traffic calming before and at urban sections DS

All signing and marking deemed necessary as per the MUCTD will be incorporated. Items suggested that are not mandated by the MUTCD will not be implemented.

A-10 Move alignment closer to railroad from STA 114+00 to 162+50 2

The alignment will be shifted to parallel the railroad right-of-way.

A-11 New alignment along railroad right-of-way from 16th St to New Mexico 2

There are two existing ponds along the railroad right-of-way that will create enormous environmental and wetland impacts if this suggestion is implemented making this an impractical alternative. (See attachment A-11)

A-12 Add additional median opening at STA 345+00 DS

An additional median opening will be added at STA 345+00.

A-13 Change posted speed limit from 55 mph to 65 mph. DS

From a safety standpoint, roadways should be designed for 10 mph over the posted speed. It is common practice for the traveling public to exceed the posted speed limit by up to 10 mph. If the design speed and the posted speed

are the same the traveling public will, in reality, be traveling at up to 10 mph over the design speed. The safety to the travel public can not be quantified by a cost analysis.

A-14 Curve correction may be eliminated with a design speed limit of 55 mph DS
The curve correction may be eliminated for most of the curves by using a design speed of 55 mph. However, the fourth curve on EDS-84-5(26) would still require correction based upon current AASHTO Standards. Also, lowering the design speed would necessitate reducing the posted speed limit to 45 mph to maintain the 10 mph differential between design speed and posted speed limit for the safety purposes noted in the response to comment A-13.

INTERSECTION (INT)

INT-1 Eliminate realignment at Ammons Road 2
The realignment of Ammons Road will be reduced by increasing the super elevation of the approach curve to 4% thereby reducing the radius of the curve to 150 feet.

INT-2 Eliminate intersection and connection of Ruskin Road to new U.S. 84 3
Intersection will be removed.

INT-3 Eliminate Griffin Road railroad crossing 3
Intersection will be removed.

INT-4 Eliminate intersection at Needham Road 3
Intersection will be removed.

INT-5 Not a developed idea ABD

INT-6 Review railroad gates at crossings (existing conditions??) DS
There are no existing gates at any of the crossings. Therefore, we will develop a concept that minimizes the crossing and installs gates on only those that justify them.

INT-7 11-ft lanes on side roads being reconstructed 3
11-ft lanes can be used on all side roads.

INT-8 Use signals at intersections where "bypass" and existing road tie-in DS
There are no proposed tie-ins where the existing corridor and "bypass" diverge. The current design routes local traffic from the existing corridor, which will no longer be part of US-84, back to the proposed US-84 corridor via three local roads between Sta. 30+00 and Sta. 195+00. However, since two of the three proposed extensions will be removed per this study the tie-ins at the referenced station numbers can be incorporated to provide better access to local traffic. Traffic signals are most likely not warranted at these

intersections, however, a warrant study will be completed to make a final determination.

INT-9 Relocate connector (roadway extension) from Idaho Ave to Wyoming Ave2
The connector will be relocated from Idaho Avenue to Wyoming Avenue.

BRIDGES (B)

B-1 Shorten bridges in Projects EDS-84(26) and EDS-84(28) 3
The designed bridge lengths are for No-rise Condition.
Alternate designs would have the following impacts:

No Rise = 1120 ft bridge on Big Alligator with a 400 ft bridge over Little Alligator = 0.03 ft rise over Existing conditions and 0.3 ft rise over Natural conditions

Intermediate Rise = 1040 ft bridge on Big Alligator with a 400 ft bridge over Little Alligator = 0.5 ft rise over Natural conditions and 0.1 ft rise over Existing conditions

Maximum rise = 400 ft bridge on Big Alligator with a 400 ft bridge over Little Alligator = 1.0 ft rise over Natural conditions and 0.5 ft rise over Existing Conditions.

To shorten the bridges, GDOT will have to explicitly direct the consultant to design for shorter bridges. Shorter bridges would increase water surface levels thereby creating a floodplain on adjacent properties which is a legal trespass. (See B-1 attachments)

B-2 Lengthen bridges spans (50' spans) 2
Increasing the bridge spans will increase the overall cost of bridge construction by a total of approximately $94,500. Increasing the span length will make it necessary to raise the profile to compensate for the required deeper superstructure. An increase in the profile grade line will result in an increase in the cost of fill material. Also, increasing the spans from 40 ft to 50 ft will more than marginally increase the beam cost, with the concrete strength going up to a more expensive level, or another beam line required. For cost estimating Type II beams were used for the 50' spans since an extra Type I Mod or significantly higher concrete release strength would be needed to use Type I beams on 50' spans. (See B-2 attachments)

B-3 Not a developed idea 1

B-4 Revisit hydrology (wetlands, railroad down stream crossings) DS
The hydrology has been revisited and there are no changes. The downstream railroad bridge controls the flood elevations upstream of it in this area. The US 84 existing bridges are currently overtopped by the 100-yr storm flow

because of the railroad bridge, and they need to get considerably longer to route the current overtopping weir flow under the roadway and through the bridge to meet current GDOT Hydraulic Design Criteria. Since the flow is sub-critical the railroad bridge is the controlling constriction. As noted previously, we cannot knowingly create a rise on property outside the GDOT Right-of-Way, creating a legal trespass, as a consultant. We would need direction and responsibility acceptance from GDOT to do this. We also have an option of reducing the bridge lengths significantly if easements or agreements are obtained from affected landowners. A savings of approximately $4.5 million minus the required additional modeling and easement/agreement costs is a possibility if GDOT wishes to pursue this option.

Additionally, properly designing the proposed bridges, increasing the proposed bridge lengths, does not greatly increase the velocity for the overtopping flows, and can decrease the velocities when the existing backwater does not meet current GDOT Design Criteria. Generally, the proposed velocities are decreased for the longer proposed bridges compared to the existing bridges, and modeling supports this.

CONSTRUCTION MANAGEMENT (CM)

CM-1 Not a developed idea 1

CM-2 Advance the railroad review timeframe and railroad coordination DS
Railroad review and coordination will be advanced to facilitate acquisition of necessary railroad permits.

CM-3 Alternative bids –single versus dual contracts DS
Alternate bids will be implemented at the discretion of the GDOT project manager.

Please distribute our responses to the OFL for their analyses. If you have any questions or comments on any of the above responses please feel free to contact me at your convenience.

Sincerely,

Aaron D. Starling, E.I.T.
Project Manager