DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE: CSNHS-0009-00(323) Coweta Co. **OFFICE:** Engineering Services
P.I. No.: 0009323
I-85 @ CR103 Poplar Road (New Interchange) **DATE:** May 9, 2012

FROM: Lisa L. Myers, State Project Review Engineer

TO: Bobby K. Hilliard, PE, State Program Delivery Engineer
Attn.: Adam Smith, Project Manager

SUBJECT: IMPLEMENTATION OF VALUE ENGINEERING STUDY ALTERNATIVES

The VE Study for the above project was held March 26-29, 2012. Responses were received on May 2, 2012. 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. Please note, if the implementation of a VE recommendation requires a Design Exception and/or Design Variance, the DE or DV must be requested separately.

ALT #	Description	Potential Savings/ LCC	Implement	Comments
A-1	Construct loop ramp in S/E quadrant; eliminate Ramp B.	$2,887,000	No	The diamond interchange satisfies the Need and Purpose by meeting the operational requirements for performance. The current diamond design has several more advantages than constructing a loop ramp. A comprehensive analysis by the Design team determined that a loop at this location would net a total increase in construction costs of $115,000.
A-2	Construct loop ramp in S/W quadrant; eliminate Ramp C.	$1,930,000	No	The diamond interchange satisfies the Need and Purpose by meeting the operational requirements for performance. The current diamond design has several more advantages than constructing a loop ramp. A comprehensive analysis by the Design team determined that a loop at this location would net a total increase in construction costs of $55,000.

A-3	Construct loop ramp in N/E quadrant; eliminate Ramp A.	$2,312,000	No	The diamond interchange satisfies the Need and Purpose by meeting the operational requirements for performance. The current diamond design has several more advantages than constructing a loop ramp and the comprehensive analysis by the Design team determined that a loop at this location would net a total increase in construction costs of $170,000.
A-4	Construct loop ramp in N/W quadrant; eliminate Ramp D.	$4,563,000	No	The diamond interchange satisfies the Need and Purpose by meeting the operational requirements for performance. The current diamond design has several more advantages than constructing a loop ramp. A comprehensive analysis by the Design team determined that a loop at this location would result in a greater number of residential displacements. The local sponsor (Coweta County) who will be responsible for the acquisition of all right of way and easements also expressed support for the diamond interchange configuration.
A-8	Shift the alignment of Hickory Drive towards Newnan Crossing Bypass to utilize the existing right of way.	$1,008,000	Yes	This will be done.
A-8.1	Shift the alignment of Hickory Drive towards Newnan Crossing Bypass to utilize the existing right of way and provide a right in/right out access to the Bypass about 800' north of Poplar Road.	$1,653,000	No	A-8.1 will not be implemented because A-8 was selected instead.
A-12	Relocate the access road 30' closer to Poplar Road to minimize the amount of required right of way.	$265,000	Yes	This will be done.
B-4	Construct a 2-span bridge using MSE walls as shown in the Concept.	Design Suggestion	No	B-4 will not be implemented because B-4.2 was selected instead.
B-4.1	Widen the existing steel beam bridge instead of replacing it.	$341,000	No	B-4.1 will not be implemented because B-4.2 was selected instead.
B-4.2	Replace the four span bridge with a two span PSC beam bridge and 2:1 end slopes.	$61,000	Yes	This will be done.

B-5	Shift the Poplar Road alignment south 12' to facilitate a two stage bridge construction.	$128,000	No	A shift to the south would conflict with a 24" water line and require 250 feet of relocation which is estimated to cost in excess of $100,000. This shift would impact parking to the Piedmont Newnan Hospital. The design team estimated that 15 spaces would be lost if the construction limits were shifted.
B-6	Reduce the length of the proposed bridge so it does not accommodate future lanes on I-85.	$208,000	Yes	This will be done.
B-7	Eliminate double lefts on the proposed bridge; use a single left turn lane.	$873,000	No	The peak hour left turn volumes from Poplar Road to I-85 SB are 440 vehicles per hour (vph). This exceeds the GDOT maximum left turning volume (300 vph) to design for a single turn lane.
B-10	Use a 5-lane section in lieu of a raised median.	$609,000	No	The design team maintains that much of the cost savings calculated by the VE Team would be nullified for various reasons and the revised savings would be closer to $99,000. Coweta County (the current local sponsor of this project) supports using a raised median section for its operational performance and its reduced maintenance costs for the traffic volumes projected to exceed 24,000 ADT in 2040.
B-12	Eliminate drilled shafts in the I-85 median by using a spread footing.	Design Suggestion	Yes	This will be done however; at this point in the concept development the substructures have not been fully assessed. Consideration will be given to this alternative as the final bridge design is advanced. There is currently no anticipated savings that may be realized during construction.
C-3	Steepen the ramp profile grade to 4.0% for Ramp D to tie into I-85 sooner.	$187,000	Yes	This will be done.
M-1	Replace the 30 inch curb and gutter with 24 inch curb and gutter.	$173,000	Yes	This will be done.

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

Approved: _____ **Date:** 5/9/2012
Gerald M. Ross, PE, Chief Engineer

Approved: _____ **Date:** 6-8-12
Rodney Barry, PE, FHWA Division Administrator

LLM/MJS
Attachments
c: Melinda Roberson/Leon Kim/Kevin Korth/Cody Wilbers/Christy Poon-Atkins - FHWA
Russell McMurry/Paul Liles
Bobby Hilliard/Stanley Hill/Adam Smith
Ben Rabun/Bill Duvall
Melissa Harper
Larry Bowman
David Millen/Ken Robinson/Bill Rountree/Mike England/Kerry Gore/Jack Reed
Ken Werho
Matt Sanders

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE CSNHS000900323, Coweta County
P. I. No. 0009323
I-85 @ Poplar Road/CR103-New Interchange

OFFICE Program Delivery

DATE May 2, 2012

FROM S.H. for Bobby Hilliard, State Program Delivery Engineer

TO Lisa Meyers, State Project Review Engineer
Attn: Matt Sanders, Value Engineering Specialist

SUBJECT **RESPONSE TO VALUE ENGINEERING ALTERNATIVES**

Attached are responses to the Value Engineering Study. The Office of Program Delivery concurs with these responses.

If additional information is needed, please contact Adam Smith, Office of Program Delivery Project Manager, at (706) 621-9704.

S.H/AS
BKH:SSH:AGS

Attachments:
cc: Russell McMurry, Director of Engineering.

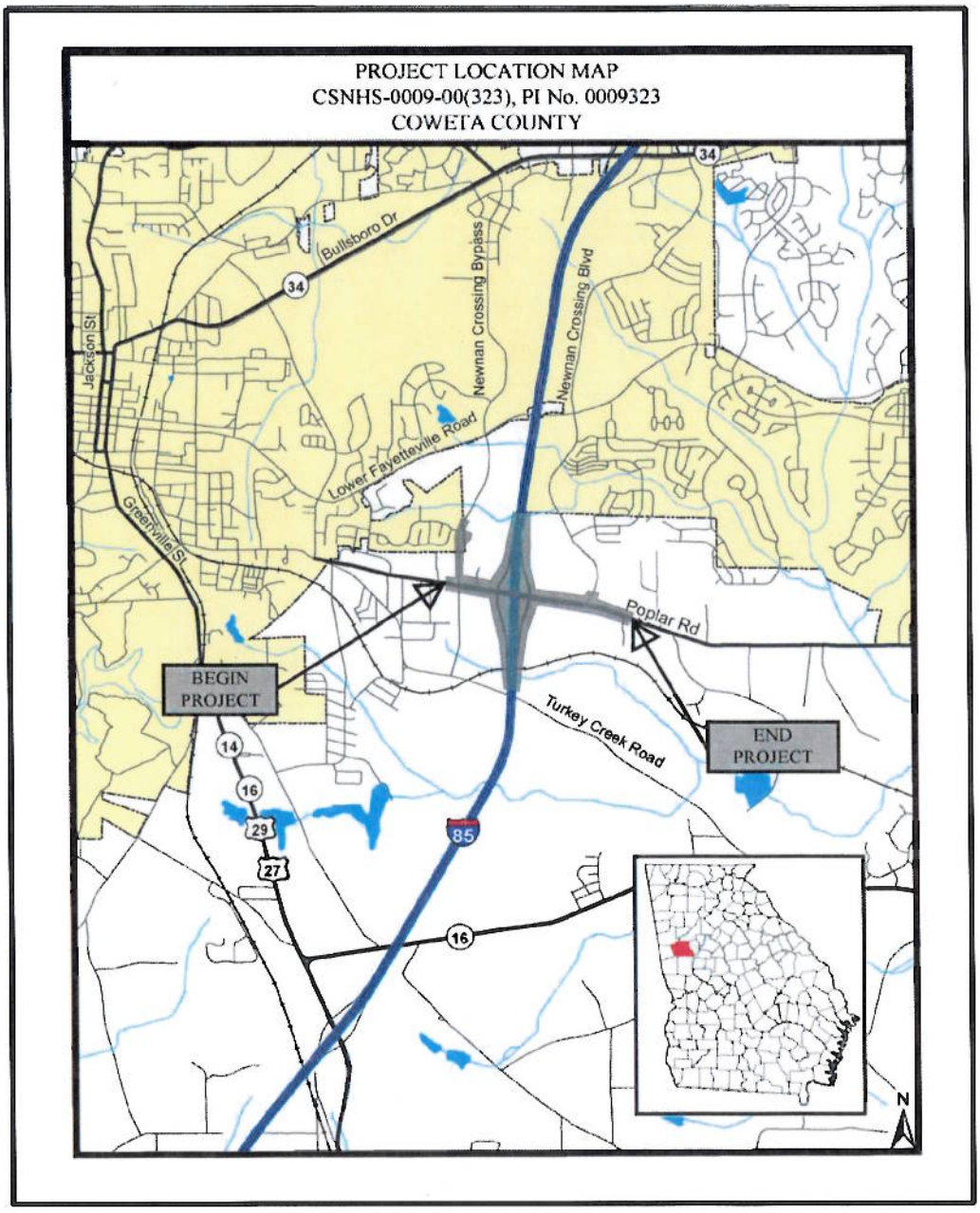
VALUE ENGINEERING STUDY RESPONSES

POPLAR ROAD AT I-85 NEW INTERCHANGE

CSNHS-0009-00(323), COWETA COUNTY

P.I. 0009323

APRIL 27, 2012



May 1, 2012

RE: Project CSNHS-0009-00(323), Coweta County
PI No. 0009323
I-85 Interchange at Poplar Road
Value Engineering Study Responses

Recommendations A-1 through A-4 include the construction of loop ramps as a means to eliminate the ramp in the opposing quadrant and reduce right of way requirements.
A-1: Construct a loop ramp in the SE quadrant (Quadrant A)
A-2: Construct a loop ramp in the SW quadrant (Quadrant D)
A-3: Construct a loop ramp in the NE quadrant (Quadrant B)
A-4: Construct a loop ramp in the NW quadrant (Quadrant C)
Total Life Cycle savings for each loop ramp are as follows; A-1 $2,887,000, A-2 $1,930,000, A-3 $2,312,000 and A-4 $4,563,000.

Response: No, will not implement.

The conventional diamond interchange has been advanced through concept design development as the Preferred Alternative. The diamond interchange satisfies the Need and Purpose for the action and meets the operational requirements for performance as recommended by GDOT and AASHTO design policy.

Chapter 10 of the 2004 AASHTO A Policy on Geometric Design of Highways and Streets (Green Book) discusses grade separations and interchanges, including partial cloverleaf and diamond configurations. The Green Book states that the diamond interchange is "the simplest and most common interchange configuration", and that "the diamond interchange has several advantages over a comparable partial cloverleaf: all traffic can enter and leave the major road at relatively high speeds, left-turning maneuvers entail little extra travel, and a relatively narrow band of right of way is needed, sometimes no more than that needed for the highway alone."

Comparatively, the Green Book does present consideration of partial cloverleaf and full cloverleaf interchanges as very effective solutions for certain circumstances, which include but are not limited to, unconstrained physical and geographic locations, very high traffic volumes and/or heavy traffic imbalance with predominate left turns. The Green Book goes on to discuss considerable operational advantages of certain ramp arrangements and further implies that before implementation of a partial cloverleaf configuration, the advantages and disadvantages should be considered. The Green Book

suggests that loop ramps are advantageous in accommodating high turning volumes and that the ramp arrangements should enable the major turning movements be made by right-turns.

Recommendations A-1 through A-4 have been presented as a method to reduce right of way costs by providing bi-directional access in one interchange quadrant and eliminating the access in another quadrant. This can be accomplished by constructing a loop ramp and a standard ramp in the same quadrant and removing the ramp in the opposing quadrant of a diamond interchange.

The diamond interchange ramps as advanced in concept development were designed at a 50 mph speed design. The 50 mph ramp design speed is prudent given that this is a new facility, the topography is conducive and there are limited constraints (which were identified and considered in design development) in the immediate proximity of the proposed interchange site. The higher ramp design speed is appropriate for the anticipated speed differentials and acceleration/deceleration considerations between the entrance and exit speeds that would be realized along this section of I-85 with a posted speed limit of 70 mph.

Exhibit 10-56 of the Green Book offers guidance on the selection of design speed for loop ramps. It is not prudent to consider the same 50 mph design speed geometrics (as applied to the diamond interchange ramp geometry) for the loop ramps of the partial cloverleaf interchange. The 50 mph design speed correlates to a minimum radius of 833 ft., which when applied to a cloverleaf loop ramp configuration, significantly expands the interchange footprint. For loop ramp speed design, the Green Book suggests that a design speed of 40 mph is the lower range to be used for a Highway design speed of 75 mph, which is assumed to be consistent with the Interstate posted speed limit of 70 mph. The corresponding minimum radius for 40 mph is 485 ft. Applying the 485 ft. radius as the minimum internal geometry, the signalized intersections at the ramp junctions with Poplar Road will be a minimum of 970 ft. (2x the radius) from the edge of the near side I-85 lane. This requires that the signalized intersections move out from the present location a distance of approximately 525 ft. This effectively extends the required right of way for the loop ramp beyond the limits as calculated by the VE Team.

In the Green Book's presentation of typical loop ramps, specific two-quadrant ramp configurations that place loops on the same side of the Interstate are configurations that should be avoided. Applying the Green Book for preferable and non-preferable loop ramp configurations to the proposed project results in the following scenarios:

Preferable

- Opposing partial cloverleaf ramps in the B and D quadrants
- Opposing partial cloverleaf ramps in the A and C quadrants (not considered due to high level of residential displacements in quadrant C as detailed in the response to recommendation A-4 below)

Non-preferable

- Combined partial cloverleaf ramps in the A and B quadrants
- Combined partial cloverleaf ramps in the C and D quadrants

When applying the Green Book's preferred loop ramp recommendations with the recommendations of the VE Team, the following loop ramp configurations options can be considered:

- A single loop ramp in either Quadrant A, B, or D
- A combination of loop ramps in Quadrants A and D
- A combination of loop ramps in Quadrants B and D

A review of the advantages and disadvantages of recommendations A-1 through A-4 follows:

A-1: Construct a loop ramp in the SE quadrant (Quadrant A) Construct looped entrance ramp for I-85 northbound in the SE quadrant and shift the adjacent I-85 exit ramp to the east. This recommendation was provided by the VE Team as a means to reduce right of way costs by eliminating the need for the diamond interchange entrance ramp for NB I-85 access proposed in the NE quadrant. Although the VE team did not conduct a comprehensive operational analysis, it is assumed that the A-1 recommendation does meet the operational and functional requirements to satisfy the goals and objectives of the proposed action.

Advantages:

- Reduction to the Right of Way costs of $3,004,896

Disadvantages:

- Construct Loop Ramp in Quadrant A/Eliminate Diamond Ramp in Quadrant B – This partial cloverleaf creates a right turn for the eastbound Poplar Road to northbound I-85 movement (220 vph), and a left turn for the WB Poplar Road to northbound I-85 movement (460 vph). The result is that there is a significantly higher volume for left turns (WB Poplar Road to NB I-85) to enter the interstate when compared to the corresponding movement for the diamond interchange. The 460 vph (WB Poplar Road to NB I-85) far exceeds the GDOT recommended threshold of 300 vph as a maximum left turning volume that can be reasonably accommodated in a single left turn. When in excess of 300 vph then the design needs to consider dual left turns. This strategy would require additional width to the ramp to receive the dual left turning traffic. The additional ramp width to receive dual left turning traffic was not clearly identified by the VE Team, and as such, we have assumed that the addition of an additional lane would $65,000 to $75,000 to the VE Team's construction cost estimate.
- Construction of the loop ramp would require an alignment shift of the NB I-85 exit ramp to the east and subsequent lengthening to the south of the NB I-85 exit ramp. The lengthening of the ramp would extend across the I-85 bridge over the Norfolk Southern Railroad, requiring an estimated 10 ft. of additional widening to the bridge. The ramp alignment shift and lengthening consequences were not clearly identified by the VE Team. This ramp alignment shift and

additional ramp lengthening would add $150,000 to $175,000 to the VE Team's construction cost estimate (not including any needed railroad flagman costs).

- An alignment shift of the northbound I-85 exit ramp to the east would have an impact to jurisdictional waters located upstream and to the west of a pond located southwest of the main structure of the Piedmont Newnan Hospital. For the purposes of this assessment it is assumed that the ramp alignment shift would result in an additional 100 ft. of impact at a mitigation cost of $10,000 to $15,000.
- The VE Team did recognize that construction of the loop ramp in Quadrant A would require the widening of the Poplar Road bridge over I-85 to accommodate the right turn approach from Poplar Road. However, the loop ramp may also require the eastern span of the Poplar Road bridge to be lengthened if it is determined that GDOT will retain the future option to add an additional lane to I-85. This consideration would add $275,000 to $325,000 to the VE Team's construction cost estimate.

The VE Team estimates that Recommendation A-1 will increase construction costs by approximately $115,000. This response evaluated consequential and additional costs not identified by the VE Team. Adding the above estimated construction costs ($500,000 to $590,000) to the VE Team's estimated cost ($115,000) nets a total increase in construction costs of $615,000 to $705,000 when compared to the construction cost of the Preferred Alternative diamond interchange configuration.

A-2: Construct a loop ramp in the SW quadrant (Quadrant D) Construct looped exit ramp for I-85 southbound in the SW quadrant and shift the adjacent I-85 entrance ramp to the west. This recommendation was provided by the VE Team as a means to reduce right of way costs by eliminating the need for the diamond interchange exit ramp for SB I-85 access proposed in the NW quadrant. Although the VE team did not conduct a comprehensive operational analysis, it is assumed that the A-2 recommendation does meet the operational and functional requirements to satisfy the goals and objectives of the proposed action.

Advantages:

- Reduction to the Right of Way costs of $1,987,462
- Construct Loop Ramp in Quadrant D/ Eliminate Diamond Ramp in Quadrant C – This partial cloverleaf creates a right turn movement for the southbound I-85 to eastbound Poplar Road movement (460 vph), and a left turn for the southbound I-85 to westbound Poplar Road movement (410 vph). The result is that the slightly higher turning volume is required to make a right turn providing a slight benefit.

Disadvantages:

- The 410 vph left turn movement far exceeds the GDOT recommended threshold of 300 vph as a maximum left turning volume that can be reasonably accommodated in a single left turn. When in excess of 300 vph then the design needs to consider dual left turns. The additional ramp width to receive dual left turning traffic was not clearly identified by the VE Team, and as such,

we have assumed that the addition of an additional lane would $50,000 to $60,000 to the VE Team's construction cost estimate.

- Construction of the loop ramp would require an alignment shift of the SB I-85 entrance ramp to the west and subsequent lengthening to the south of the I-85 entrance ramp. The lengthening of the entrance ramp to I-85 SB would require 25 ft. of widening to the I-85 bridge over the Norfolk Southern Railroad and 10 ft. of widening to the I-85 bridge over Turkey Creek Road. The ramp alignment shift, lengthening and bridge widening consequences were not clearly identified by the VE Team. This ramp alignment shift and additional ramp lengthening would add $500,000 to $550,000 to the VE Team's construction cost estimate (not including any needed railroad flagman costs).
- The VE Team did recognize that construction of the loop ramp would require the widening of the Poplar Road bridge. However, the loop ramp may also require the western span of the bridge to be lengthened if it is determined that GDOT will retain the future option to add an additional lane to I-85. This condsideration would add $275,000 to $325,000 to the VE Team's construction cost estimate.
- An alignment shift of the southbound I-85 entrance ramp to the west would increase stream impacts to identified jurisdictional waters located to the south and west of the I-85 bridge over Norfolk Southern Railroad. For the purposes of this study it is assumed that there would be an additional 50 ft. of impact at a mitigation cost of $7,000 to $10,000.

The VE Team estimates that Recommendation A-2 will increase construction costs by approximately $55,000. Adding the above estimated construction costs ($782,000 to $895,000) to the VE Team's estimated cost ($55,000) nets a total increase in construction costs of $837,000 to $950,000 when compared to the construction cost of the Preferred Alternative diamond interchange configuration.

A-3: Construct a loop ramp in the NE quadrant (Quadrant B) Construct looped exit ramp for I-85 northbound in the NE quadrant and shift the adjacent I-85 entrance ramp to the east. This recommendation was provided by the VE Team as a means to reduce right of way costs by eliminating the need for the diamond interchange exit ramp for NB I-85 access proposed in the SE quadrant. Although the VE team did not conduct a comprehensive operational analysis, it is assumed that the A-2 recommendation does meet the operational and functional requirements to satisfy the goals and objectives of the proposed action.

Advantages:

- Reduction to the Right of Way costs of $2,482,682

Disadvantages:

- Construct Loop Ramp in Quadrant B/Eliminate Diamond Ramp in Quadrant A – This partial cloverleaf creates a right turn for the northbound I-85 to westbound Poplar Road movement (330 vph), and a left turn for the northbound I-85 to eastbound Poplar Road movement (440 vph). The result is that the higher turning volume is required to make a left turn. The 440 vph

far exceeds the GDOT recommended threshold of 300 vph as a maximum left turning volume that can be reasonably accommodated in a single left turn. When in excess of 300 vph then the design needs to consider dual left turns. This consideration would require that the ramp be widened to accommodate the dual left turns adding approximately $60,000 to $70,000 to the VE Team's cost construction cost estimate.

- Under the Preferred Alternate Diamond Interchange configuration, vehicles destined to the Piedmont -Newnan Hospital from northbound I-85 would be provided with a free flow right turn lane that would facilitate direct access to the hospital's western entrance. Under the A-3 Recommendation this direct access would not be available.
- Construction of a loop ramp would require an alignment shift of the I-85 northbound entrance ramp to the east and lengthening of the ramp to the north. The shift to the east and lengthening to the north would further impact the Georgia Power Transmission easement and transmission poles. The ramp alignment shift and lengthening consequences were not clearly identified by the VE Team. The considerations of the ramp alignment shift and lengthening could add approximately $250,000 to $300,000 to the VE Team's cost estimate.
- The VE Team did recognize that construction of the loop ramp will require widening to the Poplar Road bridge. However, the loop ramp may also require the eastern span of the bridge to be lengthened if it is determined that GDOT will retain the future option to add an additional lane to I-85. This consideration would add approximately $275,000 to $325,000 to the VE Team's construction cost estimate.

The VE Team estimates that Recommendation A-3 will increase construction costs by approximately $170,000. Adding the above estimated construction costs ($585,000 to $695,000) to the VE Team's estimated cost nets a total increase in construction costs of $755,000 to $865,000 when compared to the construction cost of the Preferred Alternative diamond interchange configuration.

A-4: Construct a loop ramp in the NW quadrant (Quadrant C) Construct looped entrance ramp for I-85 southbound in the NW quadrant and shift the I-85 southbound exit ramp to the west. This recommendation was provided by the VE Team as a means to reduce right of way costs by eliminating the need for the diamond interchange entrance ramp to SB I-85 access proposed in the SW quadrant. Although the VE team did not conduct a comprehensive operational analysis, it is assumed that the A-2 recommendation does meet the operational and functional requirements to satisfy the goals and objectives of the proposed action.

In the design of partial cloverleaf interchanges site conditions may limit the locations where the loop ramps can be developed. Quadrant C of the interchange is the only quadrant with habitable structures in the immediate project environment. The structures in Quadrant B are vacant. Construction of a partial cloverleaf in the northwest quadrant (Quadrant C) would result in a greater number of displacements than that which would occur with the conventional diamond interchange. Increased impacts to residential properties to accommodate the partial cloverleaf in Quadrant C cannot be considered the most feasible and prudent alternative, and is therefore dismissed from consideration.

Right of Way Considerations

In weighing the advantages versus disadvantages of the various strategies, the consideration for right of way and construction costs must be accounted for. As presented by the VE Team, the foundation for the significant cost savings was identified through the reduction of right of way by eliminating one of interchange quadrants with the partial cloverleaf configuration. The local project sponsor, Coweta County, will be responsible for acquisition of all right of way and easements. Recognizing that Coweta County has identified their preference for the diamond interchange configuration as the Preferred Alternate and accepts the right of way costs associated with the diamond interchange, and given that there is not a significant operational or constructability advantage associated with any of the partial cloverleaf scenarios over the diamond interchange, then it is recommended that the diamond interchange be retained and advanced as the Preferred Alternate.

Recommendation A-8: Realign access driveway to utilize existing right of way along the east side of Newnan Crossing Bypass. Total Life Cycle Savings $1,008,000

Response: Yes, will implement.

Recommendation A-8.1: (alternate to recommendation A-8) Construct a shorten access driveway along the right of way of Newnan Crossing Boulevard. Provide a right-in/right-out access point north of the intersection of Newnan Crossing Bypass and Poplar Road. Total Life Cycle Savings $1,653,000

Response: No, will not implement. Recommendation A-8.1 is presented as an alternate to Recommendation A-8. Recommendation A-8 has been chosen to be implemented. When compared to A-8, recommendation A-8.1 will eliminate construction of approximately 1200 ft. of roadway which includes construction of a left turn lane for southbound Newnan Crossing Bypass at the intersection of Lakeshore Drive. This in turn reduces the required right of way by 1.2 acres. The estimated cost savings of Recommendation A-8.1 when compared to A-8 is approximately $200,000 for construction and $300,000 for right of way.

The local sponsor of the project, Coweta County, is the current owner of Newnan Crossing Bypass from Turkey Creek Road to approximately 1000 ft. north of the intersection with Poplar Road. This 1000 ft. long segment includes the suggested location of the right-in/right-out access intersection with Newnan Crossing Bypass that was suggested by the VE Team. Coweta County's Access Management policy for Newnan Crossing Bypass is to limit access points to common intersections and or median openings thereby minimizing U-turn movements. Construction of Recommendation A-8.1 would create additional U-turn movements at the intersections of Poplar Road at Newnan Crossing Boulevard and at Lakeshore Drive at Newnan Crossing Boulevard by vehicles travelling from and to the access road right-in/right-out. The right in/right out access and the resulting increase in U-turns is not consistent with the County's Access Management goals and objectives.

Recommendation A-12: Shift the portion of the access road that runs parallel to Poplar Road to reduce required right and drainage. Total Life Cycle Savings $265,000.

Response: Yes, will implement.

Recommendation B-4: Construct 2-span bridge with MSE walls.

Response: No, will not implement. The 2-span bridge with MSE walls is the most expensive of the bridge replacement alternates considered during concept design development. Implementation of this recommendation does not provide appreciable benefit to this project and adds complexity to construction staging for the removal and replacement of the existing bridge at the end bents.

Recommendation B-4.1: Widen the existing Polar Road Bridge over I-85. Total Life Cycle Savings $341,000

Response: No, will not implement. With the opening year of the project being scheduled for 2018, the primary structural elements of the existing steel bridge, which was constructed in 1970, would be approximately 48 years old and approaching the end of their intended service life. Beyond ETC of 2018, the existing steel bridge elements which are retained will likely require a greater commitment of maintenance resources to maintain the intended function and serviceability. Maintenance commitments associated with the existing bridge elements include, but are not limited to: multiple cycles of painting (requiring traffic control and potential disruption to the traveling public), periodic maintenance and sealing of the two deck expansion joints, eventual rehabilitation of the existing bridge deck (the existing deck does not meet current concrete cover requirements and is exhibiting distress and cracking at several locations), and fatigue concerns at the welded connections. Ultimately the existing concrete deck and steel beams will require replacement sooner than would be anticipated with a completely new structure.

A complete bridge replacement using prestressed concrete beams eliminates the need for painting, moves the expansion joints off the bridge deck to the approach slabs, provides a durable concrete deck with sufficient concrete cover, and is not prone to fatigue cracking. Given the age of the existing bridge and inevitable maintenance costs, the additional $341,000 needed to construct a new concrete bridge is a prudent commitment of capital funds.

Recommendation B-4.2: Construct 2-span bridge with spill-through abutments. Original Initial Cost $2,589,000; Proposed Initial Cost $2,528,000; Anticipated Cost Savings $61,000

Response: Yes, will implement

Recommendation B-5: Shift alignment of Poplar Road to the south by 12 ft. to widen the bridge to one side. Original Initial Cost $225,000; Proposed Initial Cost $97,000; Anticipated Cost Savings $128,000.

Response: No, will not implement. As part of the concept development process, alignment shifts to the north and south were initially investigated by the design team as a means to reduce costs for bridge construction. Considerations of the investigations were presented to the VE Team. The considerations and results from the design team during concept development concluded that an alignment shift to the north would impact multiple residential structures that would otherwise not be impacted when retaining the existing horizontal geometry. The considerations and results from the design team during

concept development concluded that an alignment shift to the south would create impacts to the Piedmont Newnan Hospital parking lot that would not otherwise occur when retaining the existing horizontal geometry.

The concern with an alignment shift to the south is twofold. The first concern is that the new foundations for the proposed bridge would conflict with an existing 24" waterline that runs underneath I-85, parallel and to the south of Poplar Road. The exact location of the existing 24" waterline will be quantified and more accurately identified during detailed design development through SUE services. Relocation of the waterline as an attachment to the proposed bridge was evaluated and eliminated due to size and complexity. Therefore, in order to eliminate the substructure conflict that would result from a southerly alignment shift, approximately 250 ft. of the waterline would require relocation under I-85 through trenchless construction methods. The estimated cost for the waterline relocation is in excess of $100,000.

The second concern is that the alignment shift to the south would impact the parking of the Piedmont Newnan Hospital. The proposed centerline for Poplar Road, as presented in the Preferred Alternate, is typically coincidental with the centerline of the existing road. Construction limits developed from this centerline alignment are anticipated to extend to within 7 ft. of the parking lot of the hospital. An alignment shift of 12ft. would likely result in the elimination of up to 15 parking spaces. As an option to avoid the impacts to the parking lot and the loss of 15 spaces, a retaining wall was proposed as part of the VE Team recommendation. From initial assessment using a templated and modeled surface, the height of wall would need to be approximately 7 ft. high in order to allow for construction of a drainage ditch at the top of the wall. The estimated cost of a 100 ft. long by 7 ft. high cantilevered wall is approximately $20,000.

Cost-to-cure for the loss of 15 parking spaces would likely exceed $70,000.

The adjusted cost savings for a 12 ft. alignment shift to the south would be negligible.

The VE Team did not present a recommendation to shift the alignment to the north.

Recommendation B-6: Eliminate additional proposed span length to the Poplar Road Bridge that supports widening for future projects that are not programmed. Original Initial Cost $208,000; Proposed Initial Cost $0; Anticipated Cost Savings $208,000

Response: Yes, will implement. The proposed length of the 2-span bridge with spill through abutments will be determined based upon the width of the existing I-85 cross section with allowances for clear zone, additional roadside edge treatment for appropriate ditch, and concrete slope-pavement on 2:1 slopes. Future construction of an additional outside lane could be accommodated through use of a retaining wall. See Figure 1 **"Partial Edge Treatment Transverse Section"** below.

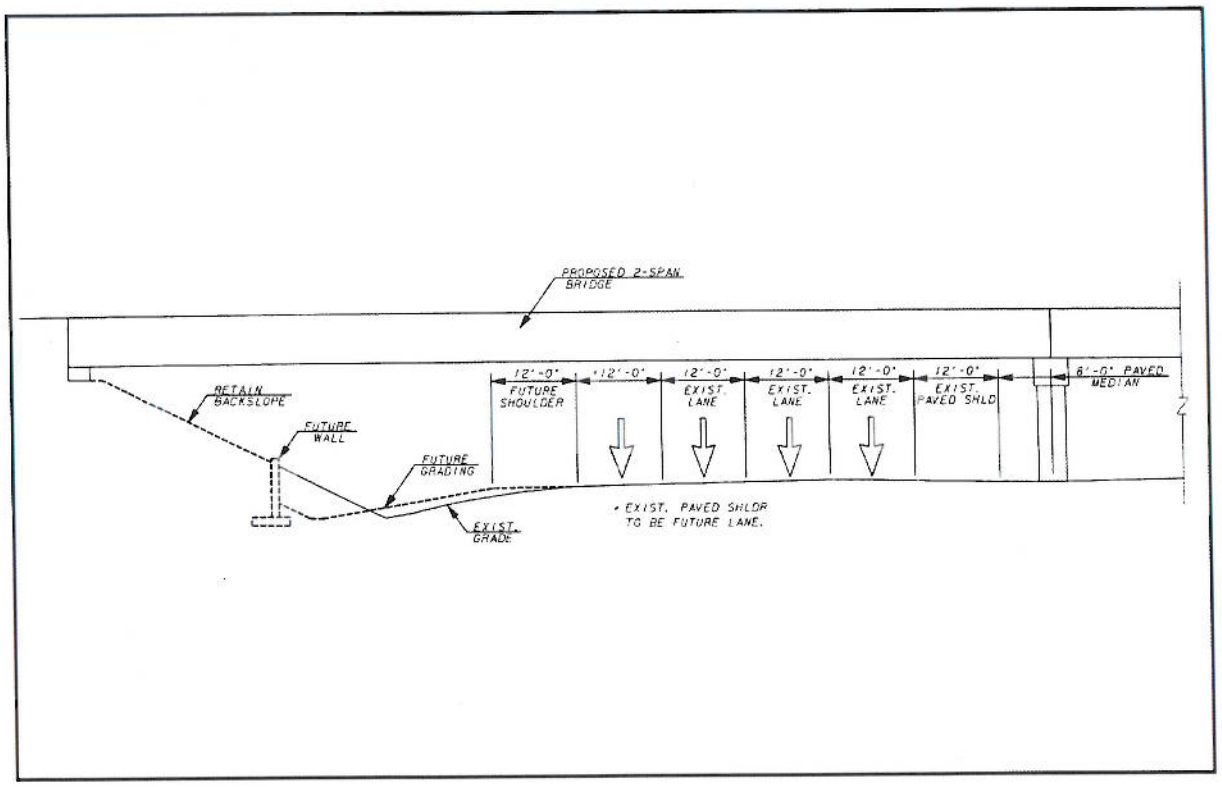


Figure 1 Partial Edge Treatment Traverse Section

Recommendation B-7: Eliminate the dual left turns along Poplar Road at the ramp intersections to reduce the width of the bridge. Original Initial Cost $3,072,000; Proposed Initial Cost $2,199,000; Anticipated Cost Savings $873,000

Response: No, will not implement. The peak hour left turn volumes from Poplar Road to southbound I-85 are 440 VPH. This far exceeds the GDOT recommended threshold of 300 VPH as a maximum left turning volume that can be reasonably accommodated in a single left turn. When in excess of 300 VPH then the design needs to consider dual left turns. With dual left turn lanes at the traffic signal controlled intersection, the Level of Service (LOS) for this particular movement is D in the design year 2040. The elimination of the dual left turn lane through the extension of a single left turn would result in a lesser overall LOS for the intersection.

Recommendation B-10: Eliminate the raised median and construct a flush median. Original Initial Cost $690,000; Proposed Initial Cost $81,000; Anticipated Cost Savings $609,000.

Response: No, will not implement. Coweta County has stated that it is their preference to retain the raised median based upon the operational performance of raised medians, the reduced maintenance costs, and the overall appearance that a raised median provides.

In addition to Coweta County's preference to retain the raised median, the requirements of constructing a flush median as it pertains to the project result in additional costs not accounted for by the VE Team that cancel out projected cost savings. The 2040 Annual Daily Traffic of Poplar Road exceeds 24,000 VPD. Section 6.8.2 of the *GDOT Design Manual* does allow for construction of a flush median on arterials with traffic volumes exceeding 24,000 VPD. However, the *Manual* requires that the design and right of way acquisition will be completed such that a future 20ft. raised median could be constructed if it is determined by the GDOT Safety Engineer that, based upon required five-year cycle investigations, traffic volumes and or accidents warrant construction of a raised median. This consideration requires a right of way corridor width equivalent to that which was identified in the Preferred Alternate, thereby nullifying the VE Team's estimated right of way cost savings of $168,800.

For practical reasons the GDOT mandate necessitates that design of the flush median be constructed to a width of 20 ft. thereby eliminating the potential future need to the reconstruct existing longitudinal drainage systems, curb and gutter, and sidewalks if it is determined that traffic volumes and or accidents warrant a 20 ft. raised median. Increasing the width of the flush median to 20 ft. adds approximately 40% to the VE Team's estimated asphalt cost of $81,000, making the final cost approximately $115,000. This increase in cost nullifies the estimated cost savings of $113,350 when compared to the concrete median.

An additional VE Team estimated cost savings for recommendation B-10 includes $309,120 based upon a reduction in deck area to the proposed Poplar Road bridge as a resultant of a narrower median. However, the width of this bridge is ultimately controlled by the lane configurations that are required to achieve the desirable operations and capacity. The lane configuration will include 4-through lanes and 2 left turn lanes (required as determined in the response to Recommendation B-7) which eliminates any reductions in bridge area and therefore nullifies the $309,120 in estimated cost savings.

The revised cost savings for Recommendation B-10 is $99,000. This reflects the removal of 6,600 ft. of curb and gutter as part of flush median construction.

Recommendation B-12: Eliminate drilled shaft construction in the I-85 median for stage 1. Original Initial Cost $20,000; Proposed Initial Cost $20,000; Anticipated Cost Savings $0.

Response: Yes, will implement; however at this point in the concept design development process, the substructures have not been fully assessed, nor designed, and as such the feasibility of a drilled shaft alternate cannot be fully vetted. Further investigations and due consideration will be afforded this recommendation as the final design of the bridge is advanced.

Recommendation C-3: Increase the grade, up to 4%, of the profile for ramp D (southbound on ramp) to reduce the earthwork. Original Initial Cost $187,000; Proposed Initial Cost $0; Anticipated Cost Savings $187,000.

Response: Yes, will implement.

Recommendation M-1: Use 24 inch curb and gutter in lieu of the 30 inch curb and gutter. Original Initial Cost $419,000; Proposed Initial Cost $246,000; Anticipated Cost Savings $173,000.

Response: Yes, will implement.

U.S. Department of Transportation
Federal Highway Administration

Georgia Division

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Suite 17T100
Atlanta, Georgia 30303
404-562-3630
404-562-3703
Georgia.fhwa@dot.gov

June 8, 2012

In Reply Refer To:
HTA-GA

Mr. Keith Golden, P.E., Commissioner
Georgia Department of Transportation
One Georgia Center
600 West Peachtree St, NW
Atlanta, GA 30339

Dear Commissioner Golden:

The Implementation of Value Engineering (VE) Study Alternatives letter for project CSNHS-0009-00(323) received on May 16, 2012 has been reviewed within the FHWA Georgia Division Office. The project documents noted that the proposed project is expected to construct a new interstate access point along I-85 at Poplar Road just east of the City of Newnan. As noted within the proposed project Concept Report, the proposed action will improve the regional system capacity and functionality, as well as enhance operational access to the Piedmont Newnan Hospital and other surrounding land uses throughout Central Coweta County and the City of Newnan.

The VE Implementation letter presents several opportunities to potentially realize additional cost savings on the overall project proposal with the recommendation of various alternatives. However, based on the conceptual idea, the functionality of the project area, as well as GDOT's confirmation of adequacy in operational, design, and safety; the Georgia Division Office concurs that the symmetrical alignment of a conventional diamond interchange will adequately provide access to the area. In consideration of the location of the emergency facility in the area and the emergency travel to the facility, a conventional diamond ramp may be considered more conducive than a loop ramp for an emergency high speed vehicle.

If you have any questions or would like to meet to discuss the comments provided, please contact Christy Poon-Atkins, P.E. at 404-562-3638.

Sincerely,

for Rodney N. Barry, P. E.
Division Administrator

PRECONSTRUCTION STATUS REPORT FOR PI:0009323

PROJ ID : 0009323 **COUNTY :** Coweta **LENGTH (MI)** 0.40 **PROJ NO.:** CSNHS000900323 **PROJ MGR:** Smith, Adam **AOHD Initials:** SSH **OFFICE :** Program Delivery **CONSULTANT:** Local Design, Local PE funds **SPONSOR :** Coweta County **DESIGN FIRM:** Clough Harbour & Associates LLP

I-85 @ CR 103/POPLAR ROAD - NEW INTERCHANGE

MPO: Atlanta TMA **TIP #:** CW-AR-003 **MODEL YR :** 2020 **TYPE WORK:** Interchange **CONCEPT:** INTERCHANGE **PROG TYPE:** New Construction **Prov. for ITS:** Y **BOND PROJ :**

PRIORITY CODE: TIA **DOT DIST:** 3 **CONG. DIST:** 3 **BIKE:** N **MEASURE:** **NEEDS SCORE:** **BRIDGE SUFF:**

MGMT LET DATE : 02/15/2015 **MGMT ROW DATE :** 08/15/2013 **BASELINE LET DATE:** 02/13/2015 **SCHED LET DATE :** 2/2/2015 **WHO LETS?:** GDOT Let **LET WITH :**

BASE START	BASE FINISH	LATE START	LATE FINISH	TASKS	ACTUAL START	ACTUAL FINISH	%
	2/15/2012		6/14/2012	Concept Development	11/30/2010		89
9/14/2011	9/14/2011			Concept Meeting	12/19/2011	1/16/2012	100
12/21/2011	12/21/2011			PM Submit Concept Report	5/23/2012	5/23/2012	100
12/22/2011	2/15/2012		6/14/2012	Concept Report Review and Comments	11/15/2011		100
2/15/2012	**2/15/2012**	**6/14/2012**	**6/14/2012**	**Management Concept Approval Complete**			**0**
9/16/2011	2/16/2012			Value Engineering Study	1/17/2012	6/8/2012	100
2/1/2013	2/1/2013			Public Information Open House Held	7/21/2011	7/21/2011	100
8/17/2011	1/3/2013		6/14/2012	**Environmental Approval**	**10/14/2011**		25
7/18/2012	9/11/2012		6/14/2012	Pub Hear Held/Comm Resp (EA/FONSI, GEPA)	11/4/2011		25
3/29/2012	4/18/2012			Mapping	4/21/2011	5/30/2011	100
4/20/2012	5/24/2012			Field Surveys/SDE	2/2/2011	6/30/2011	100
6/1/2012	**11/29/2012**	**6/25/2012**	**12/21/2012**	**Preliminary Plans**			0
7/27/2012	11/22/2012	8/20/2012	12/14/2012	Preliminary Bridge Design			0
2/16/2012	6/27/2012			Underground Storage Tanks	9/13/2011	1/27/2012	100
4/14/2014	9/26/2014	4/1/2014	9/15/2014	404 Permit Obtainment			0
2/1/2013	2/1/2013	1/21/2013	1/21/2013	PFPR Inspection			0
2/4/2013	5/24/2013	1/22/2013	5/13/2013	R/W Plans Preparation			0
5/27/2013	**7/25/2013**	**5/14/2013**	**7/12/2013**	**R/W Plans Final Approval**			**0**
3/12/2013	3/14/2013	2/27/2013	3/1/2013	L & D Approval			0
7/8/2013	8/2/2013	6/25/2013	7/22/2013	R/W Authorization			0
11/11/2013	11/22/2013	10/29/2013	11/11/2013	Stake R/W			0
9/7/2012	4/23/2013	10/1/2012	5/15/2013	Soil Survey			0
2/2/2012	8/6/2013		8/28/2013	Bridge Foundation Investigation	5/2/2012		0
3/15/2013	**2/25/2014**	**3/4/2013**	**3/19/2014**	**Final Design**			0
8/7/2013	1/21/2014	8/29/2013	2/12/2014	Final Bridge Plans Preparation			0
3/26/2014	3/26/2014	4/17/2014	4/17/2014	FFPR Inspection			0
4/3/2014	4/16/2014	4/25/2014	5/8/2014	Submit FFPR Responses (OES)			0

PROGRAMMED FUNDS

Activity	Approved	Proposed	Cost	Fund	Status	Date Auth
PE	2013	2013	1,144,440.00	LOC	PRECST	
PE	2010	2010	52,500.00	L010	AUTHORIZED	1/25/2010
ROW	2015	2015	22,670,239.00	LOC	PRECST	
CST	2016	2016	26,160,974.49	L050	PRECST	

Cost Estimate Amount

Activity	Amount	Date
PE	$52,500.00	12/10/2010
PE	$1,100,000.00	12/10/2010
ROW	$22,670,239.00	9/27/2011
CST	$24,168,696.62	9/27/2011

STIP AMOUNTS

Activity	Cost	Fund
PE	52,500.00	L010
PE	1,144,440.00	LOC
ROW	4,504,649.68	LOC
CST	0.00	L050

Bridge: BRIDGE REQUIRED
Design: [5-29-12] VE RESP AT FHWA, LT FORMS UNDER REVIEW
EIS: EA\NotApvd\NotOnSchedule-BaseEnv 01.03.13\Bowman 06.01.12
LGPA: REV PFA SGN COWETA DO PE|ROW & UTIL/GDOT TO FUND CST 11-23-09.
Planning: Coweta doing PE/RW. IJR approved 1/7/08; Work Zone Safety: project considered significan; PE oversight $ set-up
Programming: #1 5-2010
Utility: SUE?
Engr Services: VE Implementation Letter Approved 6/8/12

District Comments

(5-29-12) CONCEPT REPORT SUBMITTED FOR APPROVAL 5-23-12: TIA[3-14-12] ICTM HELD. STAKEHOLDER MEETINGS UNDERWAY [1-27-11] REEVAL OF IJR NOT REQUIRED: ADDRESSING LAND USE AND TRAFFIC MODEL/TAZ[12-28-10] COLLECTING TRAFFIC DATA[11-22-10] COORD. SHED. AND ICTM: AGS: [4-14-10] LOCALS ADVERTISED CONS. CONTR. (11/24/09) DISTRICT RE-ROUTING PFA; PFA EXECUTED 11/23/09

Prel. Parcel CT: 27 **Total Parcel in ROW System:** **Cond. Filed:** **Acquired by:** LOC ***DEEDS CT:***
Under Review: **Options - Pending:** **Relocations:** **Acquisition MGR:** Franklin, Jeff (LOC)
Released: **Condemnations- Pend:** **Acquired:** **R/W Cert Date:**