

# VALUE ENGINEERING REPORT

**Poplar Road at I-85; New Interchange  
CSNHS-0009-00(323); PI No. 0009323  
Coweta County**

April 11, 2012

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## PROJECT OWNERS:



Coweta County  
Development and Engineering  
21 East Washington Street  
Newnan, GA 30263



Georgia Department of Transportation  
600 West Peachtree Street  
Atlanta, GA 30308

## VALUE ENGINEERING CONSULTANT:



**AMEC Environment & Infrastructure, Inc.**  
3200 Town Point Drive NW, Suite 100  
Kennesaw, GA 30144

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# **EXECUTIVE SUMMARY**

# **Executive Summary**

## **VALUE ENGINEERING STUDY**

**Poplar Road at I-85; New Interchange  
CSNHS-0009-00(323); PI No. 0009323**

**Coweta County  
March 26 - 29, 2012**

### **Introduction**

This report presents the results of a value engineering (VE) study conducted on the proposed design for the construction of a new interchange at Poplar Road and I-85 in Coweta County. The Poplar road interchange project was programmed to address increasing congestion and travel times within this central area of Coweta County. The proposed improvements will provide roadway network flexibility and access to a new hospital in the SE quadrant.

This project will construct a new interstate access point on I-85 at Poplar Road just east of downtown Newnan. It will include a fully directional interchange with entrance and exit ramps, widening and/or removal of the existing overpass and construction of an improved crossing structure and roadway approaches. The proposed typical section is comprised of 4, 11-foot lanes separated by a raised 20-foot median and urban, 12-foot shoulders. The proposed cross-section incorporates pedestrian friendly amenities including concrete sidewalks and low level lighting. Also included is high-mast, interchange lighting. The project limits/termini are at the Newnan Crossing Bypass intersection on the west and the Newnan Crossing Blvd on the east, for a project length of about 1 mile along Poplar Road. An Interchange Justification Report (IJR) was prepared, submitted and conditionally approved in 2008. This project is included in the Atlanta Regional Transportation Plan (RTP) "Plan 2040".

Major contract work items include structures, asphalt and concrete paving, earthwork, drainage, sidewalks, lighting and curb and gutter. The total estimated project cost is \$41,007,315 and includes \$17,436,000 for right of way. Coweta County is funding the Preliminary Engineering (PE) and Right-of-Way (R/W) acquisition. The project is following the GDOT Plan Development Process (PDP). The current overall schedule is for R/W authorization in August 2013 and project letting in February 2015 although with the hospital scheduled to begin accepting patients within 2-3 months, advancing the schedule is a strong probability. The design is currently in the concept stage, preparing for final concept plans. The environmental document is not yet approved. The VE study was conducted March 26 - 29, 2012, at the Georgia DOT Headquarters in Atlanta using a four-person VE team.

This report presents the Team's recommendations and all back-up information for consideration by the decision-makers. This Executive Summary includes a brief description of each recommendation. The Study Identification contains information about the project and the team. The Recommendations presents a detailed description and support information about each recommendation. The Appendix includes a complete record of the team's activities and

findings. The reader is encouraged to review all sections of the report in order to obtain a complete understanding of the VE process.

## **Results Obtained**

The VE team focused their efforts on the high cost items of the project. Using function analysis and brain storming techniques, the team generated 51 ideas with 43 identified for additional evaluation as possible recommendations or design considerations. The VE team developed 14 independent recommendations with 3 alternative recommendations. Implementing all the recommendations is not feasible however implementation of the independent, exclusive recommendations has the potential to reduce the project cost approximately \$7,600,000. A detailed write-up of each recommendation is contained in the respective portion of this report. The following is a summary of the recommendations.

## **Recommendation Summary**

**Idea A-1: Construct a loop ramp in SE quadrant; eliminate the NE ramp.**

*The total potential savings is \$2,887,000.*

**Idea A-2: Construct a loop ramp in SW quadrant; eliminate the NW ramp.**

*The total potential savings is \$1,930,000.*

**Idea A-3: Construct a loop ramp in NE quadrant; eliminate the SE ramp.**

*The total potential savings is \$2,312,000.*

**Idea A-4: Construct a loop ramp in NW quadrant; eliminate the SW ramp.**

*The total potential savings is \$4,563,000.*

**Idea A-8: Realign the access driveway to utilize the existing Newnan Crossing Bypass right-of-way.**

The current layout shows the access driveway splitting the parcel and requiring significant right-of-way through this area.

*The total potential savings is \$1,008,000.*

**Idea A-8.1: Alternate to A-8: Realign the access driveway and shorten it providing a right-in/right-out access.**

This recommendation shortens the driveway and ties in with a RIRO access.

*The total potential savings is \$1,653,000.*

**Idea A-12: Consolidate Hickory Drive and Poplar Road typical sections.**

This recommendation will reduce right of way impacts and eliminate an open graded ditch currently proposed between the 2 roadways.

*The total potential savings is \$265,000.*

**Idea B-4: Construct a 2-span new bridge with PSC beams and MSE walls.**

This is the current preferred bridge alternate.

**Idea B-4.1 (Alternate to B-4): Widen the existing steel bridge.**

This recommendation would salvage the existing bridge and widen with steel beams for the required typical section.

*The total potential savings is \$341,000.*

**Idea B-4.2 (Alternate to B-4): Construct a new 2-span bridge with PSC beams and spill-through abutments.**

This recommendation would demolish the existing bridge and construct a new one with PSC beams and spill-through abutments.

*The total potential savings is \$61,000.*

**Idea B-5: Widen the bridge to only one side.**

This recommendation will shift the alignment of Poplar Road about 12 feet south to eliminate a construction stage and only widen the existing bridge to one side.

*The total potential savings is \$128,000.*

**Idea B-6: Eliminate spanning for future or long-term I-85 widening.**

There are currently no I-85 widening or improvement projects programmed.

*The total potential savings is \$208,000.*

**Idea B-7: Eliminate double left turn lanes.**

This recommendation will narrow both the bridge width and approach roadways.

*The total potential savings is \$873,000.*

**Idea B-10: Use flush median.**

This section of Poplar Road, due to the interchange and limited access will not be developed with access on Poplar Road and eliminating the raised median will narrow the overall section width and reduce right-of-way impacts.

*The total potential savings is \$609,000.*

**Idea B-12: Eliminate the drilled shafts in I-85 median.**

Drilled shafts are a construction technique requiring a specialized contractor. Eliminating them, especially for the small quantity will add value to the project.

*The total potential savings is \$0.*

**Idea C-3: Use steeper profile for Ramp D.**

The current profile grade is 2.2 – 2.9 % and the allowable maximum is 5%. Increasing the grade will reduce impacts and save embankment.

*The total potential savings is \$187,000.*

**Idea M-1: Use 24 inch curb and gutter.**

Using narrower curb and gutter will reduce right-of-way impacts and save costs. Poplar Road is not a state route.

*The total potential savings is \$173,000.*

**Poplar Road at I-85; New Interchange**  
**SUMMARY OF POTENTIAL COST SAVINGS**

| IDEA No. | RECOMMENDATION  | ORIGINAL INITIAL COST | PROPOSED INITIAL COST | INITIAL COST SAVINGS | FUTURE SAVINGS | TOTAL LIFE CYCLE SAVINGS |
|----------|---|-----------------------|-----------------------|----------------------|----------------|--------------------------|
| A-1      | Construct SE loop ramp; eliminate NE ramp   | \$4,750,000           | \$1,863,000           | <b>\$2,887,000</b>   | N/A            | <b>\$2,887,000</b>       |
| A-2      | Construct SW loop ramp; eliminate NW ramp   | \$2,952,000           | \$1,022,000           | <b>\$1,930,000</b>   | N/A            | <b>\$1,930,000</b>       |
| A-3      | Construct NE loop ramp; eliminate SE ramp   | \$3,833,000           | \$1,521,000           | <b>\$2,312,000</b>   | N/A            | <b>\$2,312,000</b>       |
| A-4      | Construct NW loop ramp; eliminate SW ramp   | \$6,162,000           | \$1,599,000           | <b>\$4,563,000</b>   | N/A            | <b>\$4,563,000</b>       |
| A-8      | Realign access driveway to utilize existing Newnan Crossing Bypass R/W                                | \$1,670,000           | \$662,000             | <b>\$1,008,000</b>   | N/A            | <b>\$1,008,000</b>       |
| A-8.1    | <b>Alternate to A-8;</b> shorten access driveway; use RIRO  | \$1,890,000           | \$237,000             | <b>\$1,653,000</b>   | N/A            | <b>\$1,653,000</b>       |
| A-12     | Shift access driveway and Poplar Road   | \$420,000             | \$155,000             | <b>\$265,000</b>     | N/A            | <b>\$265,000</b>         |
| B-4      | Construct 2-span bridge with MSE walls: current preferred bridge alternate, as shown on concept plan: | ---                   | ---                   | ---                  | ---            | ---                      |
| B-4.1    | <b>Alternate to B-4;</b> widen existing bridge using steel beams                                      | \$2,589,000           | \$2,028,000           | <b>\$561,000</b>     | \$220,000      | <b>\$341,000</b>         |
| B-4.2    | <b>Alternate to B-4;</b> construct 2-span bridge with spill-through abutments                         | \$2,589,000           | \$2,528,000           | <b>\$61,000</b>      | N/A            | <b>\$61,000</b>          |
| B-5      | Shift Poplar Road alignment; widen bridge to one side only  | \$225,000             | \$97,000              | <b>\$128,000</b>     | N/A            | <b>\$128,000</b>         |
| B-6      | Eliminate spanning for future I-85 widening   | \$208,000             | \$0                   | <b>\$208,000</b>     | N/A            | <b>\$208,000</b>         |

**Poplar Road at I-85; New Interchange**  
**SUMMARY OF POTENTIAL COST SAVINGS**

| <b>IDEA No.</b> | <b>RECOMMENDATION</b>                            | <b>ORIGINAL INITIAL COST</b> | <b>PROPOSED INITIAL COST</b> | <b>INITIAL COST SAVINGS</b> | <b>FUTURE SAVINGS</b> | <b>TOTAL LIFE CYCLE SAVINGS</b> |
|-----------------|--|------------------------------|------------------------------|-----------------------------|-----------------------|---------------------------------|
| B-7             | Eliminate double left turn lanes                 | \$3,072,000                  | \$2,199,000                  | <b>\$873,000</b>            | \$0                   | <b>\$873,000</b>                |
| B-10            | Use flush median                                 | \$690,000                    | \$81,000                     | <b>\$609,000</b>            | \$0                   | <b>\$609,000</b>                |
| B-12            | Eliminate drilled shafts in I-85 median, Stage 1 | \$20,000                     | \$20,000                     | <b>\$0</b>                  | \$0                   | <b>\$0</b>                      |
| C-3             | Use steeper profile at Ramp D                    | \$187,000                    | \$0                          | <b>\$187,000</b>            | \$0                   | <b>\$187,000</b>                |
| M-1             | Use 24-inch curb & gutter                        | \$419,000                    | \$246,000                    | <b>\$173,000</b>            | \$0                   | <b>\$173,000</b>                |

## **STUDY IDENTIFICATION**

## Study Identification

|  |                                |
|--|--------------------------------|
| <b>Project: Poplar Road at I-85; New Interchange</b>     | <b>Date: March 26-29, 2012</b> |
| <b>Study Location: GDOT General Offices, Atlanta, GA</b> |                                |

### VE Team Members

| Name:                    | Title:                               | Organization: | Telephone:   |
|--------------------------|--------------------------------------|---------------|--------------|
| Jim Navis, PE            | Highway Design                       | HMM           | 404-217-8661 |
| Greg Grant, PE           | Structures                           | RS & H        | 678-528-7229 |
| Steve Bitney, PE         | Highway Design /<br>Constructability | Stantec       | 770-813-0882 |
| George Obaranec, PE, CVS | VE Team Facilitator                  | AMEC          | 770-421-3346 |

### **Project Description**

This project will construct a new interstate access point on I-85 at Poplar Road just east of downtown Newnan. It will include a fully directional interchange with entrance and exit ramps, widening and/or removal of the existing overpass and construction of an improved crossing structure and roadway approaches. The proposed typical section is comprised of 4, 11-foot lanes separated by a raised 20-foot median and urban, 12-foot shoulders. The proposed cross-section incorporates pedestrian friendly amenities including concrete sidewalks and low level lighting. Also included is high-mast, interchange lighting. The project limits/termini are at the Newnan Crossing Bypass intersection on the west and the Newnan Crossing Blvd on the east, for a project length of about 1 mile along Poplar Road. An Interchange Justification Report (IJR) was prepared, submitted and conditionally approved in 2008. This project is included in the Atlanta Regional Transportation Plan (RTP) “Plan 2040”.

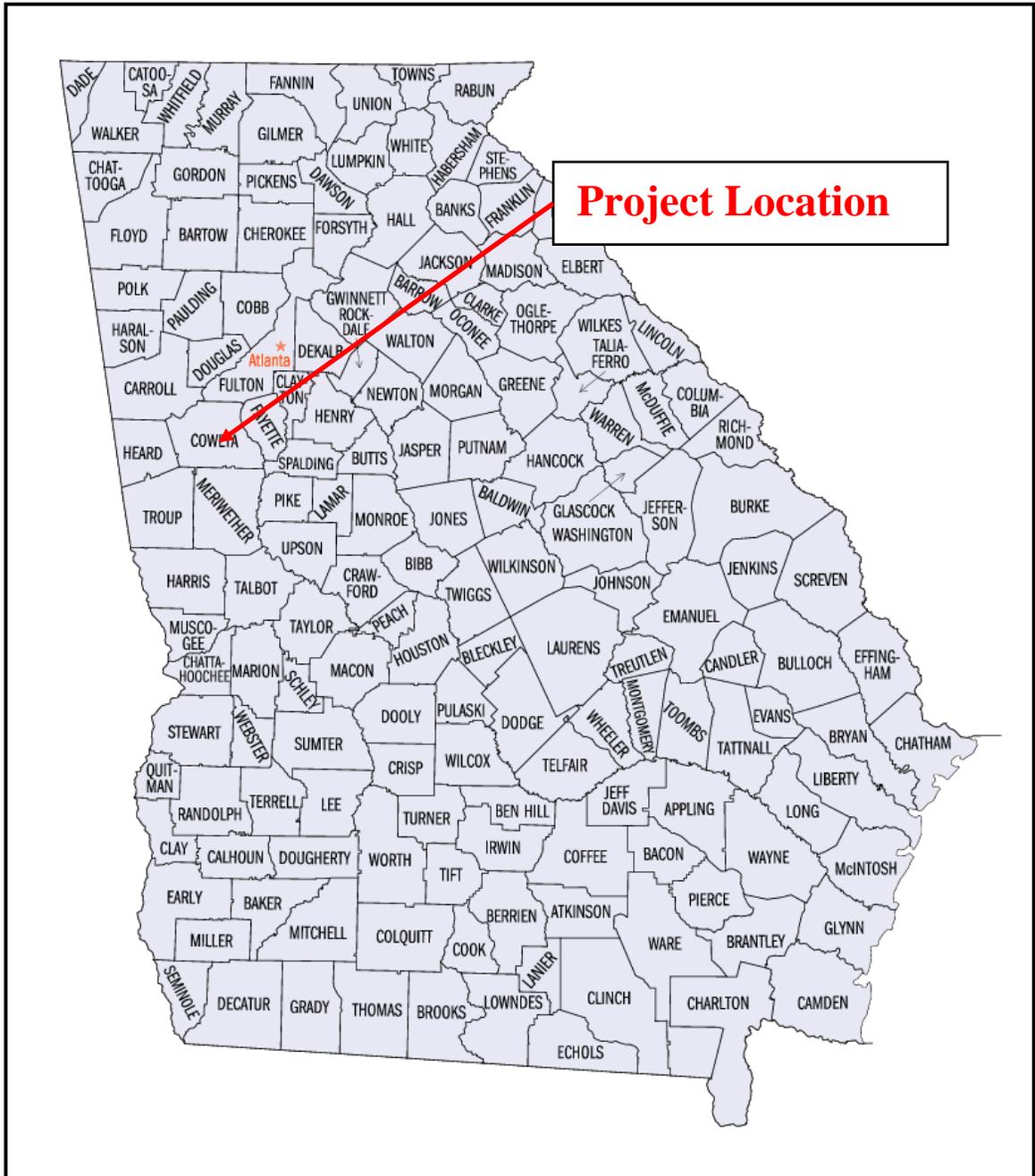
Major contract work items include structures, asphalt and concrete paving, earthwork, drainage, sidewalks, lighting and curb and gutter. The total estimated project cost is \$41,007,315 and includes \$17,436,000 for right of way. Coweta County is funding the Preliminary Engineering (PE) and Right-of-Way (R/W) acquisition. The project is following the GDOT Plan Development Process (PDP). The current overall schedule is for R/W authorization in August 2013 and project letting in February 2015 although with the hospital scheduled to begin accepting patients within 2-3 months, advancing the schedule is a strong probability. The design is currently in the concept stage, preparing for final concept plans. The environmental document is not yet approved. The VE study was conducted March 26 - 29, 2012, at the Georgia DOT Headquarters in Atlanta using a four-person VE team.

## **Project Design Briefing**

The VE team received a project briefing by Adam Smith, the GDOT Project Manager and the design team including Tom Karis, Chris Edmonson and Kevin Khale representing Coweta County's consultant Clough, Harbour and Associates (CHA). The CHA representatives provided the majority of the briefing. The following information and comments were presented:

- This project will construct a new, full-access interchange at Poplar Road.
- The current preferred alternate is a full 4-ramp, symmetric diamond layout. During the concept plan phase, several alternatives were analyzed and developed. The design team discussed the alternatives and their respective benefits and drawbacks. They included an asymmetric diamond, a partial cloverleaf and incorporating roundabouts.
- There are 3 bridge alternates; 1) widen the existing bridge with steel beams, 2) construct a new 2 span bridge with PSC beams and spill-through abutments and 3) the preferred alternate of constructing a new 2-span bridge with PSC beams and MSE walls. The design team is deferring a final decision on the preferred alternate until the VE study is completed.
- Poplar Road, an existing 2-lane road will be widened to 4, 11-foot lanes with a raised 20-foot median and 12-foot urban shoulders. The design speed is 45 mph.
- The project termini are the Newnan Crossing Bypass intersection on the west and the Newnan Crossing Boulevard intersection on the east. The project length along Poplar Road is about 6,200 feet.
- An Interchange Justification Report (IJR) has been submitted and approved.
- The traffic data and projections include a comprehensive regional analysis with maximum build-out and growth assumptions including the hospital, other county improvements and a nearby new technical college.
- I-85 through this area has recently been widened and improved. There are no programmed projects for any additional widening.
- The SW ramp will require widening an existing RR bridge. Based on the current analysis, there is ample vertical clearance for the widening.
- The RR is considered historic however the design team is confident that there will not be any significant project permitting issues or delays associated with the RR.
- A new hospital facility is under construction and is scheduled to open within 2-3 months in the SE quadrant of the interstate with access driveways on Poplar Road.
- The adjacent land use within the project limits is zoned for commercial/professional. The anticipated development is expected to be doctor's offices and hospital support facilities.
- The project schedule is for R/W authorization in February 2013 and project letting in August 2013.

# Project Location Map



## LAYOUT #5 - SYMMETRICAL URBAN DIAMOND INTERCHANGE



## Preferred Alternate

## **VE RECOMMENDATIONS**

**DEVELOPMENT AND RECOMMENDATION PHASE**

**Project: Poplar Road at I-85; New Interchange**

|                         |                             |  |              |
|-------------------------|-----------------------------|--|--------------|
| <b>IDEA No.:</b><br>A-1 | <b>Sheet No.:</b><br>1 of 5 | <b>CREATIVE IDEA:</b><br>Construct loop ramp in S/E quadrant; eliminate Ramp B |              |
| Comp By: SSB            | Date: 3/28/12               | Checked By: GAO  | Date: 4-2-12 |

**Original Concept:**

Construct Ramps A, B, C and D in a diamond configuration.

**Proposed Change:**

Construct a loop ramp in the southeast quadrant of the proposed interchange and eliminate Ramp B. Maintain proposed Ramps C and D.

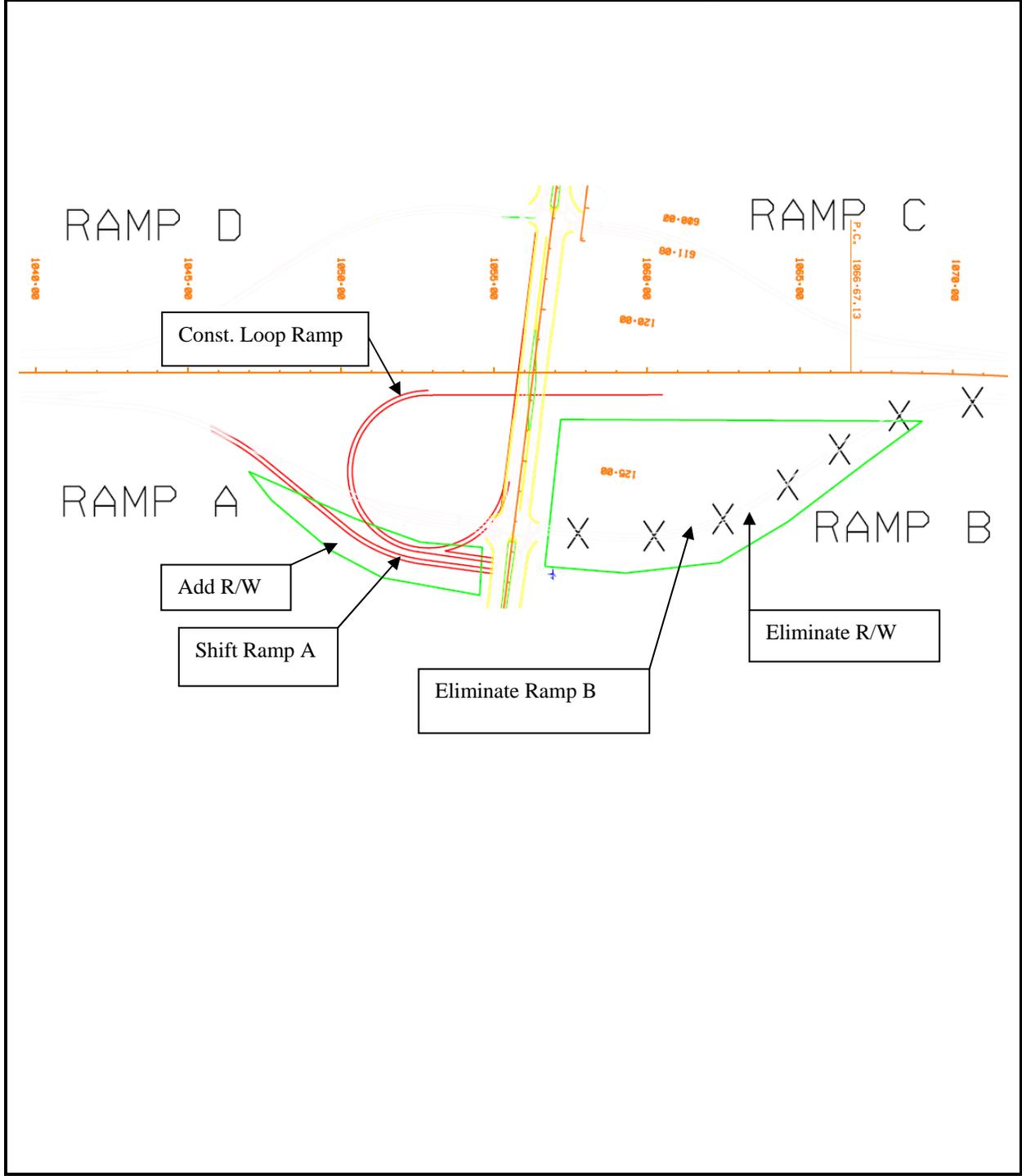
**Justification:** Right of way impacts are the major cost element of this project. Reducing the overall interchange footprint while providing acceptable traffic patterns will provide significant cost savings and conform to the project need and purpose. Some additional right of way will be required for the loop ramp but it will be more than offset by eliminating impacts to an entire quadrant. Based on information received at the presentation and review of the traffic data, the loops should operate at a sufficient level of service.

| <b>COST SUMMARY</b>                | <b>INITIAL COST</b> | <b>FUTURE COST</b> | <b>TOTAL L. C. COST SAVINGS</b> |
|------------------------------------|---------------------|--------------------|---------------------------------|
| <b>Original</b>                    | \$4,750,000         |                    |                                 |
| <b>Proposed</b>                    | \$1,863,000         |                    |                                 |
| <b>Savings</b>                     | \$2,887,000         |                    | \$2,887,000                     |
| <b>FUTURE COST: – Savings</b>      |                     | \$0                | \$0                             |
| <b>TOTAL PRESENT WORTH SAVINGS</b> |                     |                    | <b>\$2,887,000</b>              |

# SKETCH

**Project: Poplar Road at I-85; New Interchange**

Idea No.: A-1  
Client: Coweta Co/GDOT  
Sheet 2 of 5





## CALCULATIONS

**Project: Poplar Road at I-85; New Interchange**

Idea No.: A-1  
Client: Coweta Co/GDOT  
Sheet 4 of 5

### New Loop Ramp

Conc. Pavt.  $1,913\text{ LF} \times 25' = 47,825\text{ SF}$ ,  $47,825/9 = 5,314\text{ SY}$ ,  $5,314 \times \$45 = \$239,130$

Asph. Pavt.  $5,314\text{ SY} \times 220\#/ \text{SY}/\text{Inch} = 1,169,080\#$ ,  $1,169,080/2000 = 585\text{ TN}$   
 $585 \times \$70 = \$40,950$

GAB  $5,314\text{ SY} \times \$20 = \$106,280$

Fill  $((37+87)/2) \times 6.5 \times 1,913/27 = 28,093\text{ CY}$ ,  $28,093 \times \$8/\text{CY} = \$224,744$

Additional R/W  $= 94,699\text{ SF} \times \$9.04/\text{SF} = \$856,079$

Permanent Grassing  $1,913' \times 2 \times 26' = 99,476\text{ SF}$ ,  $99,476 \times 0.64 = \$63,665$

Widen Bridge  $276 \times 12 \times \$100 = \$331,200$

---

### Eliminate Ramp B

Delete R/W  $427,099\text{ SF} \times \$9.04/\text{SF} = \$3,860,975$

Delete Conc. Pavt.  $(1,676\text{ LF} \times 25') + (860\text{ LF} \times 34') = 71,140\text{ SF}$ ,  $71,140/9 = 7,905\text{ SY}$   
 $7,905 \times \$45 = \$355,725$

Delete Asph. Pavt.  $7,905\text{ SY}$ ,  $(7,905 \times 220\#)/2,000 = 870\text{ TN}$ ,  
 $870 \times \$70 = \$60,900$

Delete GAB  $7,905\text{ SY} \times \$20 = \$158,100$

Delete Fill  $20,873\text{ CY} \times \$8 = \$166,984$

Delete Excavation  $15,576\text{ CY} \times \$4 = \$62,304$

Delete Permanent Grassing  $2,536 \times 2 \times 26' = 131,872\text{ SF} \times 0.64 = \$84,398$

## CALCULATIONS

**Project: Poplar Road at I-85; New Interchange**

Idea No.: A-1  
Client: Coweta Co/GDOT  
Sheet 5 of 5

### Cost per Square Yard - Full Depth Paving

#### **Asphalt**

|                   |  |                |
|-------------------|--|----------------|
| 12.5 mm           | 165lbs/sy X 1sy X 1ton/2000lb X \$70/ton = | \$ 5.78        |
| 19 mm             | 220lbs/sy X 1sy X 1ton/2000lb X \$70/ton = | \$ 7.70        |
| 25 mm             | 660lbs/sy X 1sy X 1ton/2000lb X \$70/ton = | <u>\$23.10</u> |
| Sub Total Asphalt |  | \$36.58        |

#### **GAB**

|                      |            |                       |
|----------------------|------------|-----------------------|
| 10" GAB              | \$20/sy    | \$20                  |
| <b>Total SY Cost</b> |            | \$56.58 /sy           |
| <b>USE</b>           | <b>USE</b> | <b>\$57.00 per SY</b> |

### Cost of Right of Way

|   |                         |
|---|-------------------------|
| Total Cost of ROW                               | \$17,436,000.00         |
| Total Area (ROW + ESMT) Required                | 44.27 Acres             |
| Cost Per Acres                                  |                         |
| \$17,436,000 / 44.27 acres = \$393,856 per acre | USE \$ 400,000 per acre |
| = \$9.0417 per sq ft                            |                         |

## DEVELOPMENT AND RECOMMENDATION PHASE

### Project: Poplar Road at I-85; New Interchange

|                         |                             |   |
|-------------------------|-----------------------------|---|
| <b>IDEA No.:</b><br>A-2 | <b>Sheet No.:</b><br>1 of 5 | <b>CREATIVE IDEA:</b><br>Construct loop ramp in S/W quadrant eliminate Ramp C |
|-------------------------|-----------------------------|---|

Comp By: SSB    Date: 3/27/12                      Checked By: GAO                      Date: 4-2-12

**Original Concept:**

Construct Ramps A,B, C and D in a diamond configuration.

**Proposed Change:**

Construct a loop ramp in the southwest quadrant of the proposed interchange and eliminate Ramp C. Maintain proposed Ramps A and B.

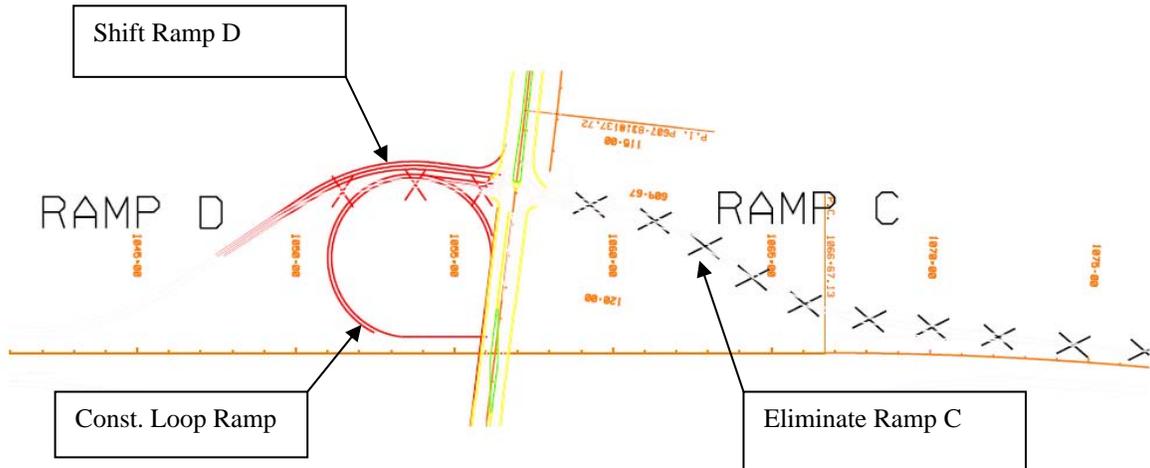
**Justification:** Right of way impacts are the major cost element of this project. Reducing the overall interchange footprint while providing acceptable traffic patterns will provide significant cost savings and conform to the project need and purpose. Some additional right of way will be required for the loop ramp but it will be more than offset by eliminating impacts to an entire quadrant. Eliminating Ramp C will remove the detrimental effects to the residential properties. Based on information received at the presentation and review of the traffic data, the loops should operate at a sufficient level of service.

| COST SUMMARY                       | INITIAL COST | FUTURE COST | TOTAL L. C. COST SAVINGS |
|------------------------------------|--------------|-------------|--------------------------|
| <b>Original</b>                    | \$2,952,000  |             |                          |
| <b>Proposed</b>                    | \$1,022,000  |             |                          |
| <b>Savings</b>                     | \$1,930,000  |             | \$1,930,000              |
| <b>FUTURE COST: – Savings</b>      |              | \$0         | \$0                      |
| <b>TOTAL PRESENT WORTH SAVINGS</b> |              |             | <b>\$1,930,000</b>       |

# SKETCH

**Project: Poplar Road at I-85; New Interchange**

Idea No.: A-2  
Client: Coweta Co/GDOT  
Sheet 2 of 5





## CALCULATIONS

**Project: Poplar Road at I-85; New Interchange**

Idea No.: A-2  
Client: Coweta Co/GDOT  
Sheet 4 of 5

### New Loop Ramp

Conc. Pavt.  $1,200\text{LF} \times 25' = 30,000\text{ SF}$ ,  $18,000/9 = 3,333\text{ SY}$ ,  $3,333 \times \$45 = \$149,985$

Asph. Pavt.  $3,333\text{ SY} \times 220\#/\text{SY}/\text{Inch} = 733,260\#$ ,  $733,260/2000 = 367\text{ TN}$   
 $367 \times \$70 = \$25,690$

GAB  $3,333\text{ SY} \times \$20 = \$66,660$

Fill  $((37+87)/2) \times 6.5 \times 1,200/27 = 17,622\text{ CY}$ ,  $17,622 \times \$8/\text{CY} = \$140,976$

Additional R/W =  $29,500\text{ SF} \times \$9.04/\text{SF} = \$266,680$

Permanent Grassing  $1,200' \times 2 \times 26' = 62,400\text{ SF}$ , Say \$40,000

Widen Bridge  $276 \times 12 \times \$100 = \$331,200$

---

### Eliminate Ramp C

Delete R/W  $249,352\text{ SF} \times \$9.04/\text{SF} = \$2,254,142$

Delete Conc. Pavt.  $(1,700\text{ LF} \times 26') + (330\text{ LF} \times 34') = 55,420\text{ SF}$ ,  $55,420 / 9 = 6,158\text{ SY}$   
 $6,158 \times \$45 = \$277,110$

Delete Asph. Pavt.  $6,158\text{ SY}$ ,  $(6,158 \times 220\#)/2,000 = 678\text{ TN}$ ,  
 $429 \times \$70 = \$30,030$

Delete GAB  $6,158\text{ SY} \times \$20 = \$123,160$

Delete Fill  $20,516\text{ CY} \times \$8 = \$164,128$

Delete Excavation  $11,557\text{ CY} \times \$4 = \$46,228$

Delete Permanent Grassing  $1,700 \times 2 \times 26' = 88,400\text{ SF}$ , Say \$57,000

## CALCULATIONS

**Project: Poplar Road at I-85; New Interchange**

Idea No.: A-2  
 Client: Coweta Co/GDOT  
 Sheet 5 of 5

### Cost per Square Yard - Full Depth Paving

#### **Asphalt**

|                   |  |                |
|-------------------|--|----------------|
| 12.5 mm           | 165lbs/sy X 1sy X 1ton/2000lb X \$70/ton = | \$ 5.78        |
| 19 mm             | 220lbs/sy X 1sy X 1ton/2000lb X \$70/ton = | \$ 7.70        |
| 25 mm             | 660lbs/sy X 1sy X 1ton/2000lb X \$70/ton = | <u>\$23.10</u> |
| Sub Total Asphalt |  | \$36.58        |

#### **GAB**

|                      |            |                       |
|----------------------|------------|-----------------------|
| 10" GAB              | \$20/sy    | \$20                  |
| <b>Total SY Cost</b> |            | <b>\$56.58 /sy</b>    |
| <b>USE</b>           | <b>USE</b> | <b>\$57.00 per SY</b> |

### Cost of Right of Way

|   |                         |  |
|---|-------------------------|--|
| Total Cost of ROW                               | \$17,436,000.00         |  |
| Total Area (ROW + ESMT) Required                | 44.27 Acres             |  |
| Cost Per Acres                                  |                         |  |
| \$17,436,000 / 44.27 acres = \$393,856 per acre | USE \$ 400,000 per acre |  |
| = \$9.0417 per sq ft                            |                         |  |

## DEVELOPMENT AND RECOMMENDATION PHASE

### Project: Poplar Road at I-85; New Interchange

|                         |                             |   |
|-------------------------|-----------------------------|---|
| <b>IDEA No.:</b><br>A-3 | <b>Sheet No.:</b><br>1 of 5 | <b>CREATIVE IDEA:</b><br>Construct loop ramp in NE quadrant; eliminate Ramp A |
|-------------------------|-----------------------------|---|

Comp By: SSB    Date: 3/28/12                      Checked By: GAO                      Date: 4-2-12

**Original Concept:**

Construct Ramps A, B, C and D in a diamond configuration.

**Proposed Change:**

Construct a loop ramp in the northeast quadrant of the proposed interchange and eliminate Ramp A. Maintain proposed Ramps C and D.

**Justification:** Right of way impacts are the major cost element of this project. Reducing the overall interchange footprint while providing acceptable traffic patterns will provide significant cost savings and conform to the project need and purpose. Some additional right of way will be required for the loop ramp but it will be more than offset by eliminating impacts to an entire quadrant. Based on information received at the presentation and review of the traffic data, the loops should operate at a sufficient level of service.

| COST SUMMARY                       | INITIAL COST | FUTURE COST | TOTAL L. C. COST SAVINGS |
|------------------------------------|--------------|-------------|--------------------------|
| <b>Original</b>                    | \$3,833,000  |             |                          |
| <b>Proposed</b>                    | \$1,521,000  |             |                          |
| <b>Savings</b>                     | \$2,312,000  |             | \$2,312,000              |
| <b>FUTURE COST: – Savings</b>      |              | \$0         | \$0                      |
| <b>TOTAL PRESENT WORTH SAVINGS</b> |              |             | <b>\$2,312,000</b>       |





## CALCULATIONS

**Project: Poplar Road at I-85; New Interchange**

Idea No.: A-3  
Client: Coweta Co/GDOT  
Sheet 4 of 5

### New Loop Ramp

Conc. Pavt.  $2,109\text{LF} \times 25' = 52,725\text{ SF}$ ,  $52,725/9 = 5,858\text{ SY}$ ,  $5,858 \times \$45 = \$263,610$

Asph. Pavt.  $5,858\text{ SY} \times 220\#/ \text{SY}/\text{Inch} = 1,288,760\#$ ,  $1,288,760/2000 = 645\text{ TN}$   
 $645 \times \$70 = \$45,150$

GAB  $5,858\text{ SY} \times \$20 = \$117,160$

Fill  $((37+87)/2) \times 6.5 \times 2,109/27 = 31,479\text{ CY}$ ,  $31,479 \times \$8/\text{CY} = \$251,832$

Additional R/W =  $48,838\text{ SF} \times \$9.04/\text{SF} = \$441,496$

Permanent Grassing  $2,109' \times 2 \times 26' = 109,668\text{ SF}$ , Say  $\$70,190$

Widen Bridge  $276 \times 12 \times \$100 = \$331,200$

### Eliminate Ramp A

Delete R/W  $323,471\text{ SF} \times \$9.04/\text{SF} = \$2,924,178$

Delete Conc. Pavt.  $(2,065\text{ LF} \times 25') + (300\text{ LF} \times 24') = 58,825\text{ SF}$ ,  $58,825/9 = 6,536\text{ SY}$   
 $6,536 \times \$45 = \$294,120$

Delete Asph. Pavt.  $6,536\text{ SY}$ ,  $(6,536 \times 220\#)/2,000 = 719\text{ TN}$ ,  
 $719 \times \$70 = \$50,330$

Delete GAB  $6,536\text{ SY} \times \$20 = \$130,720$

Delete Fill  $44,930\text{ CY} \times \$8 = \$359,440$

Delete Excavation  $1,151\text{ CY} \times \$4 = \$4,604$

Delete Permanent Grassing  $2,065 \times 2 \times 26' = 107,380\text{ SF} \times 0.64 = \$68,723$

## CALCULATIONS

**Project: Poplar Road at I-85; New Interchange**

Idea No.: A-3  
Client: Coweta Co/GDOT  
Sheet 5 of 5

### Cost per Square Yard - Full Depth Paving

#### **Asphalt**

|                   |  |                |
|-------------------|--|----------------|
| 12.5 mm           | 165lbs/sy X 1sy X 1ton/2000lb X \$70/ton = | \$ 5.78        |
| 19 mm             | 220lbs/sy X 1sy X 1ton/2000lb X \$70/ton = | \$ 7.70        |
| 25 mm             | 660lbs/sy X 1sy X 1ton/2000lb X \$70/ton = | <u>\$23.10</u> |
| Sub Total Asphalt |  | \$36.58        |

#### **GAB**

|                      |            |                       |
|----------------------|------------|-----------------------|
| 10" GAB              | \$20/sy    | \$20                  |
| <b>Total SY Cost</b> |            | \$56.58 /sy           |
| <b>USE</b>           | <b>USE</b> | <b>\$57.00 per SY</b> |

### Cost of Right of Way

|   |                         |
|---|-------------------------|
| Total Cost of ROW                               | \$17,436,000.00         |
| Total Area (ROW + ESMT) Required                | 44.27 Acres             |
| Cost Per Acres                                  |                         |
| \$17,436,000 / 44.27 acres = \$393,856 per acre | USE \$ 400,000 per acre |
| = \$9.0417 per sq ft                            |                         |

**DEVELOPMENT AND RECOMMENDATION PHASE**

**Project: Poplar Road at I-85; New Interchange**

|                         |                             |   |
|-------------------------|-----------------------------|---|
| <b>IDEA No.:</b><br>A-4 | <b>Sheet No.:</b><br>1 of 4 | <b>CREATIVE IDEA:</b><br>Construct loop ramp in NW quadrant; eliminate Ramp D |
|-------------------------|-----------------------------|---|

Comp By: SSB    Date: 3/29/12                      Checked By: GAO    Date: 4-2-12

**Original Concept:**

Construct Ramps A, B, C and D in a diamond configuration.

**Proposed Change:**

Construct a loop ramp in the northwest quadrant of the proposed interchange and eliminate Ramp D. Maintain proposed Ramps A and B.

**Justification:** Right of way impacts are the major cost element of this project. Reducing the overall interchange footprint while providing acceptable traffic patterns will provide significant cost savings and conform to the project need and purpose. Some additional right of way will be required for the loop ramp but it will be more than offset by eliminating impacts to an entire quadrant. Removing Ramp D will eliminate the RR bridge work. Based on information received at the presentation and review of the traffic data, the loops should operate at a sufficient level of service.

| <b>COST SUMMARY</b>                | <b>INITIAL COST</b> | <b>FUTURE COST</b> | <b>TOTAL L. C. COST SAVINGS</b> |
|------------------------------------|---------------------|--------------------|---------------------------------|
| <b>Original</b>                    | \$6,162,000         |                    |                                 |
| <b>Proposed</b>                    | \$1,599,000         |                    |                                 |
| <b>Savings</b>                     | \$4,563,000         |                    | \$4,563,000                     |
| <b>FUTURE COST: – Savings</b>      |                     | \$0                | \$0                             |
| <b>TOTAL PRESENT WORTH SAVINGS</b> |                     |                    | <b>\$4,563,000</b>              |





## CALCULATIONS

**Project: Poplar Road at I-85; New Interchange**

Idea No.: A-4  
Client: Coweta Co/GDOT  
Sheet 4 of 4

### New Loop Ramp

Conc. Pavt.  $(1147 \times 25) + (686 \times 24) + (167 \times 25) = 49,314$  SF  $49,314/9 = 5,479$  SY,  $5,479 \times \$45 = \$246,555$

Asph. Pavt.  $5,479$  SY  $\times 220\#/SY/Inch = 1,205,380\#$ ,  $1,205,380/2000 = 603$  TN  
 $603 \times \$70 = \$42,210$

GAB  $5,479$  SY  $\times \$20 = \$109,580$

Fill  $((25+53)/2) \times 7.0 \times 2,000/27 = 20,222$  CY,  $20,222 \times \$8/CY = \$161,776$

Additional R/W =  $70,890$  SF  $\times \$9.04/SF = \$640,846$

Permanent Grassing  $2,000' \times 2 \times 26' = 104,000$  SF, Say  $\$66,560$

Widen Bridge  $276 \times 12 \times \$100 = \$331,200$

---

### Eliminate Ramp A

Delete R/W  $403,607$  SF  $\times \$9.04/SF = \$3,648,607$

Delete Conc. Pavt.  $(794 \times 34') + (773 \times 26') + (1,454 \times 24) = 81,990$  SF,  $81,990/9 = 9,110$  SY  
 $9,110 \times \$45 = \$409,950$

Delete Asph. Pavt.  $9,110$  SY,  $(9,110 \times 220\#)/2,000 = 1,002$  TN,  
 $1,002 \times \$70 = \$70,140$

Delete GAB  $9,110$  SY  $\times \$20 = \$182,200$

Delete Fill  $45,805$  CY  $\times \$8 = \$366,440$

Delete Excavation  $554$  CY  $\times \$4 = \$2,216$

Delete Permanent Grassing  $3,021 \times 2 \times 26' = 157,092$  SF  $\times 0.64 = \$100,538$

**DEVELOPMENT AND RECOMMENDATION PHASE**

**Project: Poplar Road at I-85; New Interchange**

|                         |                             |  |
|-------------------------|-----------------------------|--|
| <b>IDEA No.:</b><br>A-8 | <b>Sheet No.:</b><br>1 of 6 | <b>CREATIVE IDEA:</b><br>Reconfigure Hickory Drive to utilize the existing right of way along Newnan Crossing Bypass |
|-------------------------|-----------------------------|--|

Comp By: JSN    Date: 3-27-12                      Checked By: GAO                      Date: 4-5-12

**Original Concept:**

The original proposal is to construct Hickory Drive approximately 550-ft. to the east of Newnan Crossing Bypass and tie it into Newnan Crossing Bypass approximately 1650-ft. to the north of the Poplar Road Intersection.

**Proposed Change:**

The recommendation is to shift Hickory Drive toward Newnan Crossing Bypass to utilize the existing right of way.

**Justification:**

The purpose of Hickory Drive is to provide access for the residents along Poplar Road that lie within the proposed limited access limits. This proposed recommendation consolidates and uses some of the available right of way on Newnan Crossing Bypass. Any improvements or redevelopment in this area will most likely reconstruct and/or realign the current layout of Hickory Drive.

| <b>COST SUMMARY</b>                | <b>INITIAL COST</b> | <b>FUTURE COST</b> | <b>TOTAL L. C. COST SAVINGS</b> |
|------------------------------------|---------------------|--------------------|---------------------------------|
| <b>Original</b>                    | \$1,670,000         |                    |                                 |
| <b>Proposed</b>                    | \$662,000           |                    |                                 |
| <b>Savings</b>                     | \$1,008,000         |                    | \$1,008,000                     |
| <b>FUTURE COST: – Savings</b>      |                     | \$0                | \$0                             |
| <b>TOTAL PRESENT WORTH SAVINGS</b> |                     |                    | <b>\$1,008,000</b>              |

SKETCH

Project: Poplar Road at I-85; New Interchange

Idea No.: A-8  
Client: Coweta Co/GDOT  
Sheet 2 of 6





## CALCULATIONS

**Project: Poplar Road at I-85; New Interchange**

Idea No.: A-8  
Client: Coweta Co/GDOT  
Sheet 4 of 6

### Original Design

#### Asphalt Pavement

Sta. 700+11 to Sta. 715+56 = 1545 ft.

2 lanes @ 11 ft. + 2 shoulders @ 2 ft. = 26 ft.

1545 ft. x 26 ft. = 40170 sf = 4464 sy

Sta. 804+50 to Sta. 807+10 = 260 ft.

2 lanes @ 11 ft. + 2 shoulders @ 2 ft. = 26 ft.

260 ft. x 26 ft. = 6760 sf = 751 sy

Total = 4464 sy + 751 sy = 5215 sy

#### Earthwork

-Assume relocated Hickory Drive has the same cut/fill as the one shown on the concept.

-Assume that the access roadway (sta. 804+50 to sta. 807+10) has approximately the same volume per LF of roadway

Cut volume = 10425.17 cy / 1567 ft = 6.65 cy/ft

Fill volume = 1491.09 cy / 1567 ft = 0.95 cy/ft

Total cut volume = 10425.17 cy + (260 ft x 6.65 cy/ft) = 12154 cy

Total fill volume = 1491.09 cy + (260 ft x 0.95 cy/ft) = 1725 cy

#### Right of way

-assume 80 ft wide right of way

1525 ft x 80 ft = 123600 sf

260 ft x 80 ft = 20800 sf

Total Reqd RW = 123600 sf + 20800 sf = 144400 sf

## CALCULATIONS

**Project: Poplar Road at I-85; New Interchange**

Idea No.: A-8  
Client: Coweta Co/GDOT  
Sheet 5 of 6

### VE Design

#### Asphalt Pavement

-Approximately 1500 ft. (length of relocated Hickory Drive)

2 lanes @ 11 ft. + 2 shoulders @ 2 ft. = 26 ft.

1500 ft. x 26 ft. = 39000 sf = 4333 sy

Total = 4333 sy

#### Earthwork

-Assume relocated Hickory Drive has the same cut/fill as the one shown on the concept.

Cut volume = 10425.17 cy / 1567 ft = 6.65 cy/ft

Fill volume = 1491.09 cy / 1567 ft = 0.95 cy/ft

Total cut volume = 10425.17 cy

Total fill volume = 1491.09 cy

#### Right of way

-Assume the first 1000 ft of Hickory Drive can be constructed within the existing right of way

-Assume 80 ft wide right of way

500 ft x 80 ft = 40000 sf

Total Req'd RW = 40000 sf

## CALCULATIONS

**Project: Poplar Road at I-85; New Interchange**

Idea No.: A-8  
 Client: Coweta Co/GDOT  
 Sheet 6 of 6

### Cost per Square Yard - Full Depth Paving

#### **Asphalt**

|                   |  |                |
|-------------------|--|----------------|
| 12.5 mm           | 165lbs/sy X 1sy X 1ton/2000lb X \$70/ton = | \$ 5.78        |
| 19 mm             | 220lbs/sy X 1sy X 1ton/2000lb X \$70/ton = | \$ 7.70        |
| 25 mm             | 660lbs/sy X 1sy X 1ton/2000lb X \$70/ton = | <u>\$23.10</u> |
| Sub Total Asphalt |  | \$36.58        |

#### **GAB**

|                      |            |                       |
|----------------------|------------|-----------------------|
| 10" GAB              | \$20/sy    | \$20                  |
| <b>Total SY Cost</b> |            | \$56.58 /sy           |
| <b>USE</b>           | <b>USE</b> | <b>\$57.00 per SY</b> |

### Cost of Right of Way

|   |                         |
|---|-------------------------|
| Total Cost of ROW                               | \$17,436,000.00         |
| Total Area (ROW + ESMT) Required                | 44.27 Acres             |
| Cost Per Acres                                  |                         |
| \$17,436,000 / 44.27 acres = \$393,856 per acre | USE \$ 400,000 per acre |
| = \$9.0417 per sq ft                            |                         |

**DEVELOPMENT AND RECOMMENDATION PHASE**

**Project: Poplar Road at I-85; New Interchange**

|                           |                             |   |
|---------------------------|-----------------------------|---|
| <b>IDEA No.:</b><br>A-8.1 | <b>Sheet No.:</b><br>1 of 6 | <b>CREATIVE IDEA:</b><br>Reconfigure Hickory Drive to utilize the existing right of way along Newnan Crossing Bypass (right in/right out) |
|---------------------------|-----------------------------|---|

Comp By: JSN    Date: 3-27-12                      Checked By: GAO                      Date: 4-2-12

**Original Concept:**

The original proposal is to construct Hickory Drive approximately 550-ft. to the east of Newnan Crossing Bypass and tie it into Newnan Crossing Bypass approximately 1650-ft. to the north of the Poplar Road Intersection.

**Proposed Change:**

The recommendation is to shift Hickory Drive toward Newnan Crossing Bypass to utilize the existing right of way and provide a right in/right out access on Newnan Crossing Bypass about 800 feet north of the Poplar Road intersection.

**Justification:**

The purpose of the Hickory Drive corridor is to provide access for the residents along Poplar Road that lie within the proposed access limits. This proposed recommendation does not change the purpose of the roadway and provides a similar right in/right out access as currently proposed.

| <b>COST SUMMARY</b>                | <b>INITIAL COST</b> | <b>FUTURE COST</b> | <b>TOTAL L. C. COST SAVINGS</b> |
|------------------------------------|---------------------|--------------------|---------------------------------|
| <b>Original</b>                    | \$1,890,000         |                    |                                 |
| <b>Proposed</b>                    | \$237,000           |                    |                                 |
| <b>Savings</b>                     | \$1,653,000         |                    | \$1,653,000                     |
| <b>FUTURE COST: – Savings</b>      |                     | \$0                | \$0                             |
| <b>TOTAL PRESENT WORTH SAVINGS</b> |                     |                    | <b>\$1,653,000</b>              |

SKETCH

Project: Poplar Road at I-85; New Interchange

Idea No.: A-8.1  
Client: Coweta Co/GDOT  
Sheet 2 of 6





## CALCULATIONS

**Project: Poplar Road at I-85; New Interchange**

Idea No.: A-8.1  
Client: Coweta Co/GDOT  
Sheet 4 of 6

### Original Design

#### Asphalt Pavement

Sta. 700+11 to Sta. 715+56 = 1545 ft.

2 lanes @ 11 ft. + 2 shoulders @ 2 ft. = 26 ft.

1545 ft. x 26 ft. = 40170 sf = 4464 sy

Sta. 801+70 to Sta. 807+10 = 540 ft.

2 lanes @ 11 ft. + 2 shoulders @ 2 ft. = 26 ft.

540 ft. x 26 ft. = 14040 sf = 1560 sy

Total = 4464 sy + 1560 sy = 6024 sy

#### Earthwork

-Assume relocated Hickory Drive has the same cut/fill as the one shown on the concept.

-Assume that the access roadway (sta. 804+50 to sta. 807+10) has approximately the same volume per LF of roadway

Cut volume = 10425.17 cy / 1567 ft = 6.65 cy/ft

Fill volume = 1491.09 cy / 1567 ft = 0.95 cy/ft

Total cut volume = 10425.17 cy + (540 ft x 6.65 cy/ft) = 14016 cy

Total fill volume = 1491.09 cy + (540 ft x 0.95 cy/ft) = 2004 cy

#### Right of way

-assume 80 ft wide right of way

1525 ft x 80 ft = 123600 sf

(540 ft – 50 ft) x 80 ft = 39200 sf

Total Req'd RW = 123600 sf + 39200 sf = 162800 sf

## CALCULATIONS

**Project: Poplar Road at I-85; New Interchange**

Idea No.: A-8.1  
Client: Coweta Co/GDOT  
Sheet 5 of 6

### VE Design

#### Asphalt Pavement

-Approximately 1000 ft. (length of relocated Hickory Drive)

2 lanes @ 11 ft. + 2 shoulders @ 2 ft. = 26 ft.

1000 ft. x 26 ft. = 26000 sf = 2889 sy

-Add 2500 sf to tie into Newnan Crossing Bypass

50 ft x 50 ft = 2500 sf = 278 sy

Total = 2889 sy + 278 sy = 3167 sy

#### Earthwork

-Assume relocated Hickory Drive has the same cut/fill as the one shown on the concept.

Cut volume = 10425.17 cy / 1567 ft = 6.65 cy/ft

Fill volume = 1491.09 cy / 1567 ft = 0.95 cy/ft

Total cut volume = 1000 ft x 6.65 cy/ft = 6650 cy

Total fill volume = 1000 ft x 0.95 cy/ft = 950 cy

#### Right of way

-Assume the 1000 ft of Hickory Drive can be constructed within the existing right of way

-Assume 50 ft x 50 ft required right of way at the tie-in point

50 ft x 50 ft = 2500 sf

Total Reqd RW = 2500 sf

## CALCULATIONS

**Project: Poplar Road at I-85; New Interchange**

Idea No.: A-8.1  
 Client: Coweta Co/GDOT  
 Sheet 6 of 6

### Cost per Square Yard - Full Depth Paving

#### **Asphalt**

|                   |  |                |
|-------------------|--|----------------|
| 12.5 mm           | 165lbs/sy X 1sy X 1ton/2000lb X \$70/ton = | \$ 5.78        |
| 19 mm             | 220lbs/sy X 1sy X 1ton/2000lb X \$70/ton = | \$ 7.70        |
| 25 mm             | 660lbs/sy X 1sy X 1ton/2000lb X \$70/ton = | <u>\$23.10</u> |
| Sub Total Asphalt |  | \$36.58        |

#### **GAB**

|                      |            |                       |
|----------------------|------------|-----------------------|
| 10" GAB              | \$20/sy    | \$20                  |
| <b>Total SY Cost</b> |            | \$56.58 /sy           |
| <b>USE</b>           | <b>USE</b> | <b>\$57.00 per SY</b> |

### Cost of Right of Way

|   |                         |
|---|-------------------------|
| Total Cost of ROW                               | \$17,436,000.00         |
| Total Area (ROW + ESMT) Required                | 44.27 Acres             |
| Cost Per Acres                                  |                         |
| \$17,436,000 / 44.27 acres = \$393,856 per acre | USE \$ 400,000 per acre |
| = \$9.0417 per sq ft                            |                         |

## DEVELOPMENT AND RECOMMENDATION PHASE

### Project: Poplar Road at I-85; New Interchange

|                          |                             |  |
|--------------------------|-----------------------------|--|
| <b>IDEA No.:</b><br>A-12 | <b>Sheet No.:</b><br>1 of 4 | <b>CREATIVE IDEA:</b><br>Relocate the access roadway closer to Poplar Road |
|--------------------------|-----------------------------|--|

Comp By: JSN    Date: 3-28-12                      Checked By: GAO    Date: 4-2-12

**Original Concept:**

The original proposal is to construct a two lane access roadway with a rural shoulder section approximately 50-ft. north of and parallel to Poplar Road.

**Proposed Change:**

The recommendation is to construct the two lane access with an urban shoulder on the south side and shift the roadway approximately 30-ft. closer to Poplar Road to minimize the required right of way and to remove the ditch section between the access road and Poplar Road. The access road is proposed to be constructed with a reverse crown to alleviate the need for additional drainage structures.

**Justification:**

The purpose of the access roadway is to provide access for the residents along Poplar Road that lie within the proposed limited access limits. This proposed recommendation does not change the principle function of the roadway while minimizing the construction of what is most likely to be reconstructed when the area is redeveloped.

| COST SUMMARY                       | INITIAL COST | FUTURE COST | TOTAL L. C. COST SAVINGS |
|------------------------------------|--------------|-------------|--------------------------|
| <b>Original</b>                    | \$420,000    |             |                          |
| <b>Proposed</b>                    | \$155,000    |             |                          |
| <b>Savings</b>                     | \$265,000    |             | \$265,000                |
| <b>FUTURE COST: – Savings</b>      |              | \$0         | \$0                      |
| <b>TOTAL PRESENT WORTH SAVINGS</b> |              |             | <b>\$265,000</b>         |





## CALCULATIONS

**Project: Poplar Road at I-85; New Interchange**

Idea No.: A-12  
Client: Coweta Co/GDOT  
Sheet 4 of 4

### Original Design

#### Asphalt Pavement

Sta. 600+00 to Sta. 609+67 = 967 ft.

2 lanes @ 11 ft. + 2 shoulders @ 2 ft. = 26 ft.

967 ft. x 26 ft. = 25142 sf = 2794 sy

Total = 2764 sy

#### Earthwork

-No change from the original concept

#### Right of way

-relocation will save 30 ft wide of right of way along the entire length to the access roadway

967 ft x 30 ft = 29010 sf

Total Reqd RW = 29010 sf

### VE Design

#### Asphalt Pavement

-Approximately 967 ft. -200 ft. = 767 ft. (adjusted 100 ft. each end)

2 lanes @ 11 ft. + 1 shoulders @ 2 ft. = 24 ft.

767 ft. x 24 ft. = 18408 sf = 2045 sy

Total = 2045 sy

#### Curb and gutter

Total = 767 lf

#### Earthwork

-Assume relocated access road will require additional fill to construct area between access roadway and Poplar Road

-Assume 50% of the fill calculation along Poplar Road will be required (between sta. 107+00 and sta. 117+50)

Fill volume Poplar Rd (107+00 to 117+50) = 6762.48 cy

Total fill volume = 6762.48 cy x (0.50) = 3381 cy

## DEVELOPMENT AND RECOMMENDATION PHASE

### Project: Poplar Road at I-85; New Interchange

|                           |                             |  |
|---------------------------|-----------------------------|--|
| <b>IDEA No.:</b><br>B-4.1 | <b>Sheet No.:</b><br>1 of 5 | <b>CREATIVE IDEA:</b><br>Widen Existing Bridge |
|---------------------------|-----------------------------|--|

Comp By: GCG    Date: 03-27-12    Checked By: GAO    Date: 4-2-12

**Original Concept:**

Poplar Road crosses I-85 on an existing 4-span, steel bridge structure. The roadway profile provided to the VE team considers replacing the existing bridge with a new 2 span PSC beam structure 229'-6" feet long on MSE wall abutments. The beams in the bridge replacement are 54 inch Bulb Tees with a span of 115 feet. This structural approach is identified as Alternate 3 in the CHA Memorandum dated December 22, 2011 from Adam Smith to Chris Edmondson (CHA Memo 12-22-11). The change in structure depth requires raising the grade of Poplar Road to accommodate the increase in beam depth from 36" to 54" (an 18" increase in beam height). For the purposes of the VE evaluation and comparison, this is Idea B-4.

**Proposed Change:**

Widen the existing steel beam bridge instead of replacing it.

**Justification:**

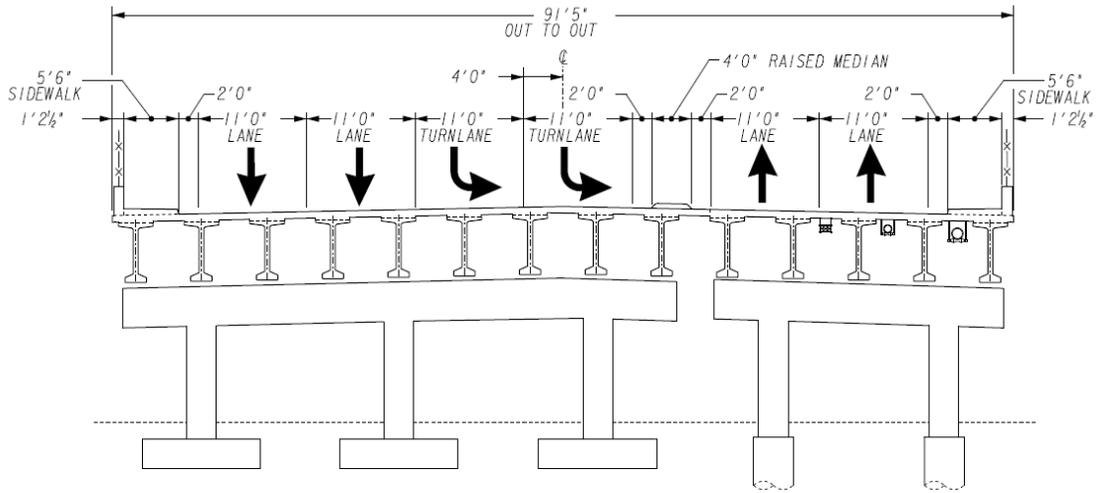
The existing steel bridge has a sufficiency rating of 96.51. One of the concerns expressed in the CHA Memo 12-22-11 was the uncertainty of the deck condition in recommending the retention and widening of the existing bridge. A bridge deck condition survey was conducted by GDOT and found that while the deck had an average clearance to top reinforcing less than standard, the deck was in relatively good condition. The survey recommended sealing transverse cracks, resealing joints and transversely grooving the deck. This recommendation will salvage nearly the entire existing structure, however, at the project's completion, GDOT will be left with a composite bridge made up of both existing (40 year old) and new bridge structure.

| COST SUMMARY                       | INITIAL COST | FUTURE COST | TOTAL L. C. COST SAVINGS |
|------------------------------------|--------------|-------------|--------------------------|
| <b>Original</b>                    | \$2,589,000  |             |                          |
| <b>Proposed</b>                    | \$2,028,000  |             |                          |
| <b>Savings</b>                     | \$561,000    |             | \$561,000                |
| <b>FUTURE COST: – Savings</b>      |              | \$220,000   | -\$220,000               |
| <b>TOTAL PRESENT WORTH SAVINGS</b> |              |             | <b>\$341,000</b>         |

# SKETCH

**Project: Poplar Road at I-85; New Interchange**

Idea No.: B-4.1  
Client: Coweta Co/GDOT  
Sheet 2 of 5



*DECK SECTION - CONSTRUCTION COMPLETE*

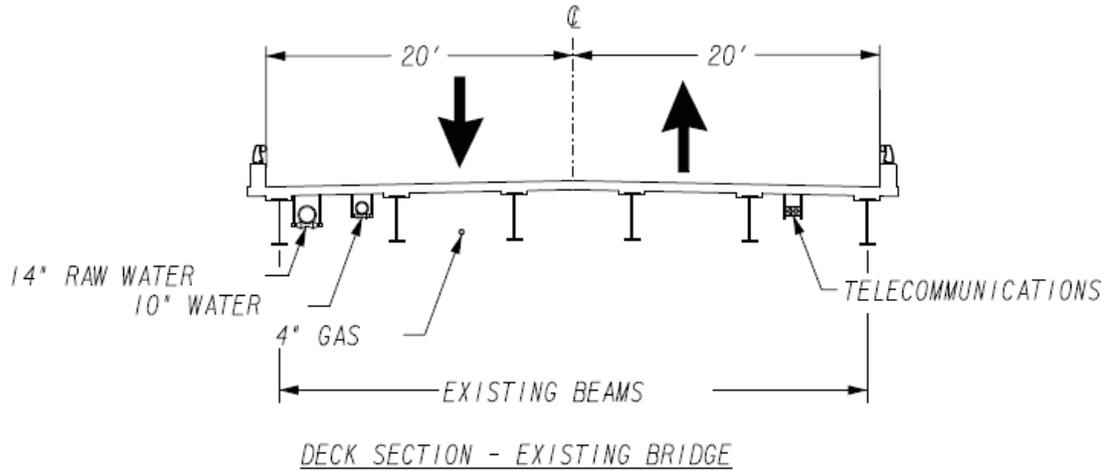
Note: MSE walls at abutments not shown

## ORIGINAL CONCEPT

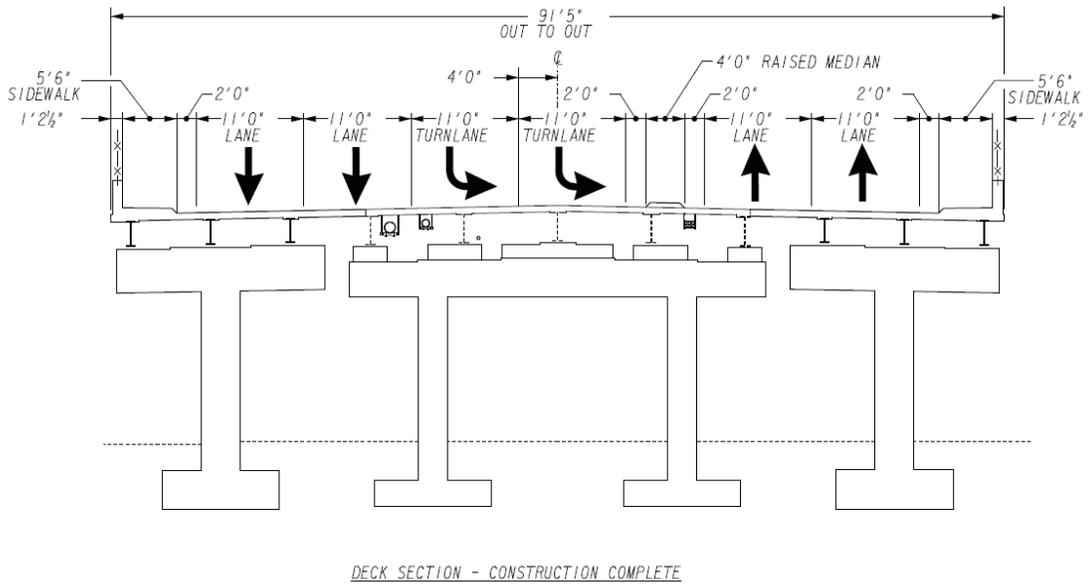
**SKETCH**

**Project: Poplar Road at I-85; New Interchange**

Idea No.: B-4.1  
Client: Coweta Co/GDOT  
Sheet 3 of 5



**EXISTING CONDITION**



**PROPOSED CHANGE**



## CALCULATIONS

**Project: Poplar Road at I-85; New Interchange**

Idea No.: B-4.1  
Client: Coweta Co/GDOT  
Sheet 5 of 5

### **Original Concept:**

Remove Existing Bridge: 275.75 feet long x 42.42 feet wide = 11,697 sq. feet

Construct new prestressed beam bridge: 229.5 feet long x 91.42 feet wide = 20,981 sq. feet

### Construct MSE walls:

2 walls x [ 23 feet high x 91.42 feet wide at top + (200 feet long - 91.42 feet wide at top) x (23 feet high + 5.5 ft structure depth) ] = 10,394 sq. feet

### Earthwork to raise the grade: (say 2 foot grade change at bridge)

91.42 ft wide x 2 feet x 200 feet approx (accounts for both sides)/27 = 1,354 cu yd

### **Proposed Change:**

groove deck = \$6.49/ sq yd x 40 feet wide x 275.75 feet long/27 = \$6.49/ sq yd x 408.5 sy

Rehab cracks and seal joints = Say 40,000 (guess)

Widen Bridge sq ft = 275.5 ft long \* (91.42 ft wide - 40 ft existing) = 14,179

### Paint

11 beams in a cross section, 36" deep x 12" flange => painted surface is 9 feet per foot

9 feet x 11 beams x 275.75 ft = 27,299 sq ft x \$4/sq ft = \$110,000

### Unit costs to use in cost estimate:

Bridge removal = \$10/ sq ft

PSC beam bridge grade separation = \$95 / sq. ft

Steel Bridge grade separation = \$140 / sq ft

Paint Steel Bridge = \$1/ sq ft of beam

Say 50 year bridge life with a paint life of 25 years => paint the steel bridge 2 times

groove deck = \$6.49/ sq yd

Fill = \$8/cu. yd

## DEVELOPMENT AND RECOMMENDATION PHASE

### Project: Poplar Road at I-85; New Interchange

|                           |                             |   |
|---------------------------|-----------------------------|---|
| <b>IDEA No.:</b><br>B-4.2 | <b>Sheet No.:</b><br>1 of 4 | <b>CREATIVE IDEA:</b><br>Construct 2 span PSC beam bridge with 2:1 end slopes |
|---------------------------|-----------------------------|---|

Comp By: GCG    Date: 03-28-12    Checked By: GAO    Date: 4-2-12

**Original Concept:**

Poplar Road crosses I-85 on an existing 4 span steel bridge structure. The roadway profile provided to the VE team considers replacing the existing bridge with a new 2 span PSC beam structure 229'-6" feet long on MSE wall abutments. The beams in the bridge replacement are 54 inch Bulb Tees with a span of 115 feet. This structural approach is identified as Alternate 3 in the CHA Memorandum dated December 22, 2011 from Adam Smith to Chris Edmondson (CHA Memo 12-22-11). The change in structure depth requires raising the grade of Poplar Road to accommodate the increase in beam depth from 36" to 54" (an 18" increase in beam height). For the purposes of the VE evaluation and comparison, this is Idea B-4.

**Proposed Change:**

Replace the existing bridge with a new 2 span PSC beam bridge with 2:1 end slopes (spill-through abutments). The bridge will be 275.75 feet long and 91.42 feet wide. The bridge would be composed of two (2) - 137 ft spans.

**Justification:**

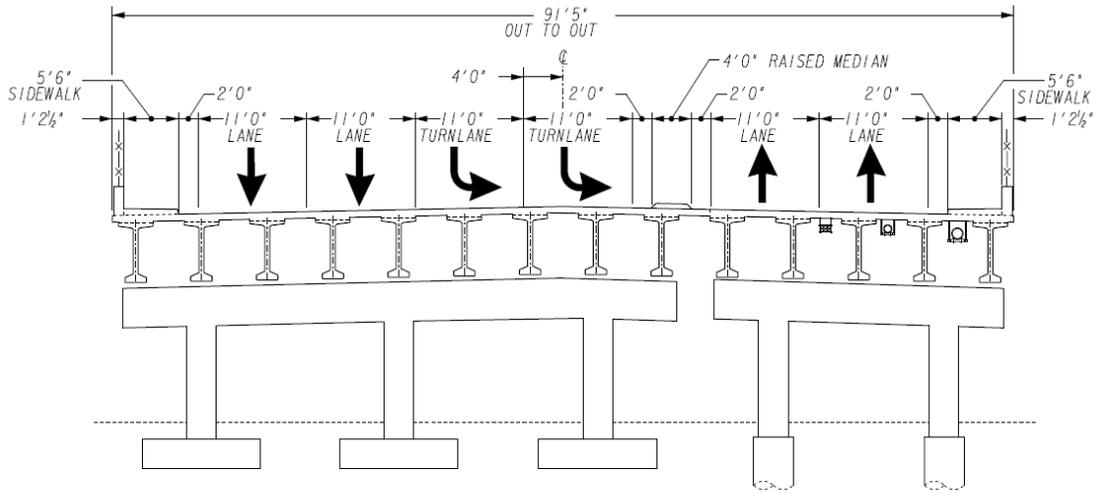
The longer spans would provide for further widen opportunities to add lanes to I-85 without requiring replacement of the Poplar Road bridge. The 2:1 slopes could be removed in the future if needed to provide additional width underneath. The cost savings between the two options is minor, however, the flexibility that the proposed change offers makes the proposed change a more desirable alternative. The final bridge will be an entirely new structure.

| COST SUMMARY                       | INITIAL COST | FUTURE COST | TOTAL L. C. COST SAVINGS |
|------------------------------------|--------------|-------------|--------------------------|
| <b>Original</b>                    | \$2,589,000  |             |                          |
| <b>Proposed</b>                    | \$2,528,000  |             |                          |
| <b>Savings</b>                     | \$61,000     |             | \$61,000                 |
| <b>FUTURE COST: – Savings</b>      |              | \$0         | \$0                      |
| <b>TOTAL PRESENT WORTH SAVINGS</b> |              |             | <b>\$61,000</b>          |

## SKETCH

Project: Poplar Road at I-85; New Interchange

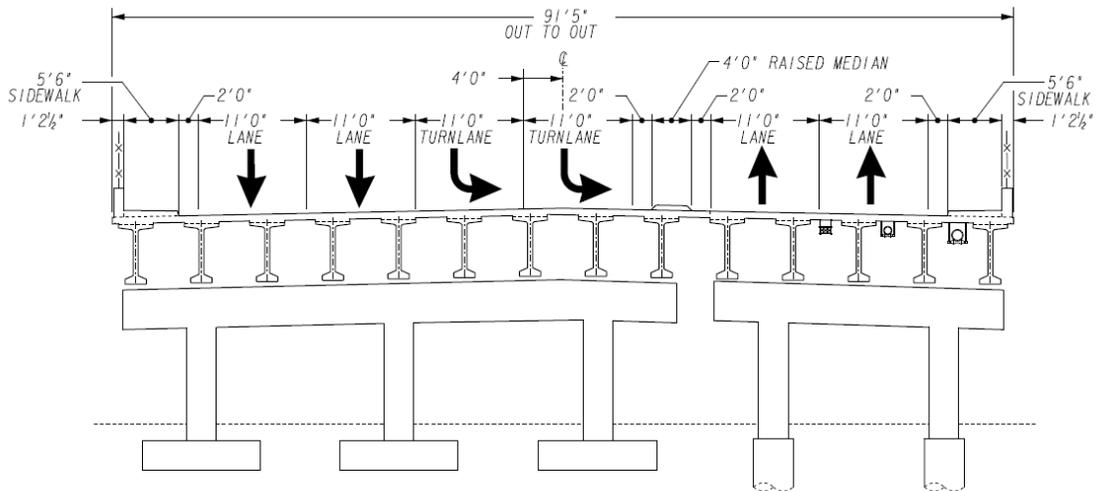
Idea No.: B-4.2  
Client: Coweta Co/GDOT  
Sheet 2 of 4



DECK SECTION - CONSTRUCTION COMPLETE

Note: MSE walls at abutments not shown. Beams are 54" Bulb Tees.

## ORIGINAL CONCEPT



DECK SECTION - CONSTRUCTION COMPLETE

Note: MSE walls at abutments not shown. Beams are 72" Bulb Tees.

## PROPOSED CHANGE

## COST WORKSHEET

| <b>Project: Poplar Road at I-85; New Interchange</b> |      |                   |           |             | Idea No.: B-4.2<br>Client: Coweta Co/GDOT<br>Sheet 3 of 4 |           |             |
|--|------|-------------------|-----------|-------------|---|-----------|-------------|
| CONSTRUCTION ELEMENT                                 |      | ORIGINAL ESTIMATE |           |             | NEW ESTIMATE  |           |             |
| Item   | Unit | No. Units         | Cost/Unit | Total Cost  | No. Units   | Cost/Unit | Total Cost  |
| <b>Original Design:</b>                              |      |                   |           |             |   |           |             |
| Remove Existing Bridge                               | SF   | 11,697            | \$10      | \$116,790   |   |           |             |
| Construct New PSC Bridge                             | SF   | 20,981            | \$95      | \$1,993,195 |   |           |             |
| Construct 2 New MSE Walls                            | SF   | 10,394            | \$45      | \$467,730   |   |           |             |
| Fill to raise grade                                  | CY   | 1,354             | \$8       | \$10,832    |   |           |             |
| <b>Proposed Change:</b>                              |      |                   |           |             |   |           |             |
| Remove Existing Bridge                               | SF   |                   |           |             | 11,697  | \$10      | \$116,790   |
| Construct New PSC Bridge with 2:1 end slopes         | SF   |                   |           |             | 25,209  | \$95      | \$2,394,855 |
| Fill to raise grade                                  | CY   |                   |           |             | 2,031   | \$8       | \$16,248    |
| <b>SUBTOTAL</b>                                      |      |                   |           | \$2,588,547 |   |           | \$2,527,893 |
| <b>TOTAL ROUNDED</b>                                 |      |                   |           | \$2,589,000 |   |           | \$2,528,000 |

## CALCULATIONS

**Project: Poplar Road at I-85; New Interchange**

Idea No.: B-4.2  
Client: Coweta Co/GDOT  
Sheet 4 of 4

### **Original Concept:**

Remove Existing Bridge: 275.75 feet long x 42.42 feet wide = 11,697 sq. feet

Construct new prestressed beam bridge: 229.5 feet long x 91.42 feet wide = 20,981 sq. feet

#### Construct MSE walls:

2 walls x [ 23 feet high x 91.42 feet wide at top + (200 feet long - 91.42 feet wide at top) x (23 feet high + 5.5 ft structure depth) ] = 10,394 sq. feet

#### Earthwork to raise the grade: (say 2 foot grade change at bridge)

91.42 ft wide x 2 feet x 200 feet approx (accounts for both sides)/27 = 1,354 cu yd

### **Proposed Change:**

Remove Existing Bridge: 275.75 feet long x 42.42 feet wide = 11,697 sq. feet

Construct new prestressed beam bridge: 275.75 feet long x 91.42 feet wide = 25,209 sq. feet

#### Earthwork to raise the grade: (say 3 foot grade change at bridge)

91.42 ft wide x 3 feet x 200 feet approx (accounts for both sides)/27 = 2,031 cu yd

#### Unit costs to use in cost estimate:

Bridge removal = \$10/ sq ft

PSC beam bridge grade separation = \$95 / sq. ft

Steel Bridge grade separation = \$140 / sq ft

Paint Steel Bridge = \$1/ sq ft of beam

Say 50 year bridge life with a paint life of 25 years => paint the steel bridge 2 times

groove deck = \$6.49/ sq yd

Fill = \$8/cu. yd

**DEVELOPMENT AND RECOMMENDATION PHASE**

**Project: Poplar Road at I-85; New Interchange**

|                         |                             |   |
|-------------------------|-----------------------------|---|
| <b>IDEA No.:</b><br>B-5 | <b>Sheet No.:</b><br>1 of 4 | <b>CREATIVE IDEA:</b><br>Shift Poplar Road to the south to facilitate a 2 stage bridge construction |
|-------------------------|-----------------------------|---|

Comp By: JSN    Date: 3-28-12                      Checked By: GAO                      Date: 4-2-12

**Original Concept:**

The original concept layout widens Poplar Road to both sides of the bridge and generally symmetrically along the road.

**Proposed Change:**

The recommendation is to shift the proposed centerline of Poplar Road 12 ft. to the south to facilitate the construction of the new Poplar Road bridge over I-85.

**Justification:**

The main purpose of the shift was to reduce the number of stages that would be required for the construction of the new Poplar Road Bridge and would provide additional clearance for spread footings to be used during stage 1. A secondary purpose would be to retain a portion of the existing pavement. Note that a pavement evaluation has not been not been completed. The proposed recommendation does not change the purpose of the roadway and will reduce a traffic shift during construction on both sides of the existing structure. Shifting the Poplar Road alignment 12 feet to the south should be facilitated without any significant additional effects to adjoining properties or the hospital and should improve the effects to the several residences on the NW quadrant.

| <b>COST SUMMARY</b>                | <b>INITIAL COST</b> | <b>FUTURE COST</b> | <b>TOTAL L. C. COST SAVINGS</b> |
|------------------------------------|---------------------|--------------------|---------------------------------|
| <b>Original</b>                    | \$225,000           |                    |                                 |
| <b>Proposed</b>                    | \$97,000            |                    |                                 |
| <b>Savings</b>                     | \$128,000           |                    | \$128,000                       |
| <b>FUTURE COST: – Savings</b>      |                     | \$0                | \$0                             |
| <b>TOTAL PRESENT WORTH SAVINGS</b> |                     |                    | <b>\$128,000</b>                |



## CALCULATIONS

**Project: Poplar Road at I-85; New Interchange**

Idea No.: B-5  
Client: Coweta Co/GDOT  
Sheet 3 of 4

### Original Design

#### Asphalt Pavement

-Assumption to retained and overlay 12 ft. of existing pavement on Poplar Road in two locations

Sta. 106+00 to Sta. 117+00 = 1100 ft.

1100 ft. x 12 ft. = 13200 sf = 1467 sy

Sta. 127+00 to Sta. 143+00 = 1600 ft.

1600 ft. x 12 ft. = 19200 sf = 2133 sy

Total = 1467 sy + 2133 sy = 3600 sy

#### Required R/W

-Assume that the location of the access roadway along Poplar Road will also be shifted 12 ft. to toe south.

-Since the 12 ft. shift does not affect the overall typical section, the overall required right of way area is unchanged.

Assume lump sum of \$50,000 for additional traffic shift due to widening on both sides of existing structure.

## CALCULATIONS

**Project: Poplar Road at I-85; New Interchange**

Idea No.: B-5

Client: Coweta Co/GDOT

Sheet 4 of 4

### VE Design

#### Asphalt Pavement

-Assumption to retained and overlay 12 ft. of existing pavement on Poplar Road in two locations

- Assume overlay of an 1 ½ inch and 2” of leveling (\$5.78 + \$7.70 = \$13.48 (use \$14))

Sta. 106+00 to Sta. 117+00 = 1100 ft.

1100 ft. x 12 ft. = 13200 sf = 1467 sy

Sta. 127+00 to Sta. 143+00 = 1600 ft.

1600 ft. x 12 ft. = 19200 sf = 2133 sy

Total = 1467 sy + 2133 sy = 3600 sy

#### Earthwork

-Additional fill required along portions of Poplar Road due to the grade differential between the north and south side

109+00 to 111+00                      Fill volume = 583 cy

115+00 to 118+00                      Fill volume = 1297 cy

119+00 to 120+50                      Fill volume = 324 cy

124+00 to 126+50                      Fill volume = 580 cy

130+00 to 133+00                      Fill volume = 1019 cy

Total fill volume = 3803 cy

#### Retaining wall

-Assume that a 5 ft high above grade by 100 ft long retaining will be required at the hospital parking lot (sta 130+00) to facilitate this shift. Actual grade of lot will determine the final height and length of wall.

-Assume gravity wall cross sectional area of 13 sf per GDOT Standard 9031L (6 ft high wall)

13 sf x 100 ft = 1300 cf = 48 cy

Use item 500-3201 Class B Concrete, Retaining Wall CY \$342/cy

**DEVELOPMENT AND RECOMMENDATION PHASE**

**Project: Poplar Road at I-85; New Interchange**

|                         |                             |   |
|-------------------------|-----------------------------|---|
| <b>IDEA No.:</b><br>B-6 | <b>Sheet No.:</b><br>1 of 4 | <b>CREATIVE IDEA:</b><br>Do not span any future lanes on I-85 |
|-------------------------|-----------------------------|---|

Comp By: GCG    Date: 03-28-12    Checked By: GAO    Date: 4-2-12

**Original Concept:**

Poplar Road crosses I-85 on an existing 4 span steel bridge structure. The roadway profile provided to the VE team considers replacing the existing bridge with a new 2 span PSC beam structure 229'-6" feet long on MSE wall abutments. The beams in the bridge replacement are 54 inch Bulb Tees with a span of 115 feet. This structural approach is identified as Alternate 3 in the CHA Memorandum dated December 22, 2011 from Adam Smith to Chris Edmondson (CHA Memo 12-22-11). The change in structure depth requires raising the grade of Poplar Road to accommodate the increase in beam depth from 36" to 54" (an 18" increase in beam height).

The current bridge span includes an additional 12 feet in each direction to accommodate a future lane on I-85.

**Proposed Change:**

Reduce the length of the proposed bridge so that it does not accommodate a future lane.

**Justification:**

Based on information received during the study, there is no programmed project to add any additional lanes to I-85 through this corridor.

| <b>COST SUMMARY</b>                | <b>INITIAL COST</b> | <b>FUTURE COST</b> | <b>TOTAL L. C. COST SAVINGS</b> |
|------------------------------------|---------------------|--------------------|---------------------------------|
| <b>Original</b>                    | \$208,000           |                    |                                 |
| <b>Proposed</b>                    | \$0                 |                    |                                 |
| <b>Savings</b>                     | \$208,000           |                    | \$208,000                       |
| <b>FUTURE COST: – Savings</b>      |                     | \$0                | \$0                             |
| <b>TOTAL PRESENT WORTH SAVINGS</b> |                     |                    | <b>\$208,000</b>                |

**CONTINUATION**

**Project: Poplar Road at I-85; New Interchange**

Idea No.: B-6  
Client: Coweta Co/GDOT  
Sheet 2 of 4

The existing bridge has main spans over I-85 of 88'-3". From the existing bridge plans, this arrangement allows for 3-12 foot lanes in each direction along I-85 and provided 30 feet of clear zone to the bridge bents along the outside shoulders of I-85.

The new proposed bridge would increase the span to 115 feet with a MSE wall. MSE walls are typically located 6 ft minimum in front of and parallel to bridge ends.

Bridge skew angle is 82.87 degrees. So, the skewed length =  $6/\sin 82.87 = 6.04$ , say 6 ft

115 feet – 6 ft offset – 1.5 ft = 107.5 ft

107.5 ft > 88.25 ft existing span + 12 ft additional lane + additional clear zone

With no programmed widening, reduce the spans to  $115-12 \text{ ft} = 103 \text{ ft}$



## CALCULATIONS

**Project: Poplar Road at I-85; New Interchange**

Idea No.: B-6  
Client: Coweta Co/GDOT  
Sheet 4 of 4

Reduce the length of the proposed concept bridge by the following:

2 x 12 feet x 91.42 feet wide = 2,194 sq. ft.

## DEVELOPMENT AND RECOMMENDATION PHASE

### Project: Poplar Road at I-85; New Interchange

**IDEA No.:**  
B-7

**Sheet No.:**  
1 of 4

**CREATIVE IDEA:**  
Eliminate double lefts on bridge, use single left

Comp By: GCG

Date: 03-28-12

Checked By: GAO

Date: 4-2-12

**Original Concept:**

The current layout incorporate double left turn lanes at bothe the ramp intersections and the project termini intersections. The original concept bridge is 91.42 feet wide and incorporates two left turn lanes. See sketches for typical section

**Proposed Change:**

Revise and convert the alignment to incorporate a longer, single left turn lane. This will reduce the overall roadway and bridge width.

**Justification:**

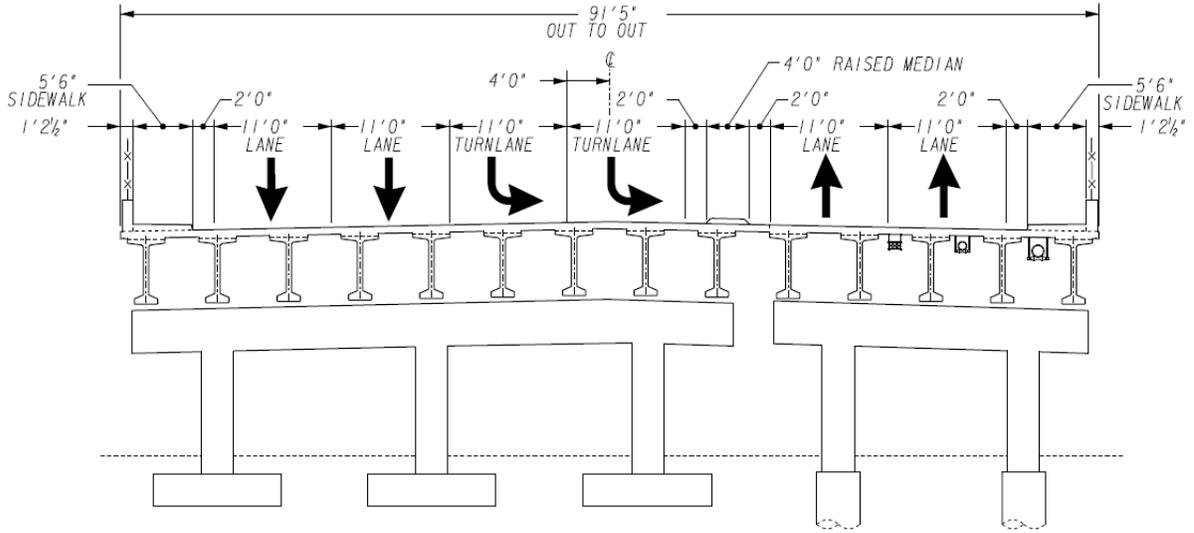
The design template can be reduced by 11 feet if the proposed dual left turns are converted to single left turn lanes. The intersection traffic analysis will have to be verified however significant cost and construction impacts can be realized if reduced. The traffic projections as described to the VE team during the presentation were rather aggressive and optimistic assuming that this entire area will continue experiencing a rapid growth rate and includes anticipated and potential traffic generators. Reviewing and adjusting these projections can result in lower traffic design year volumes further increasing the possibility of incorporating a single left turn lane rather than the duals shown.

| COST SUMMARY                       | INITIAL COST | FUTURE COST | TOTAL L. C.<br>COST SAVINGS |
|------------------------------------|--------------|-------------|-----------------------------|
| <b>Original</b>                    | \$3,072,000  |             |                             |
| <b>Proposed</b>                    | \$2,199,000  |             |                             |
| <b>Savings</b>                     | \$873,000    |             | \$873,000                   |
| <b>FUTURE COST: – Savings</b>      |              | \$0         | \$0                         |
| <b>TOTAL PRESENT WORTH SAVINGS</b> |              |             | <b>\$873,000</b>            |

**SKETCH**

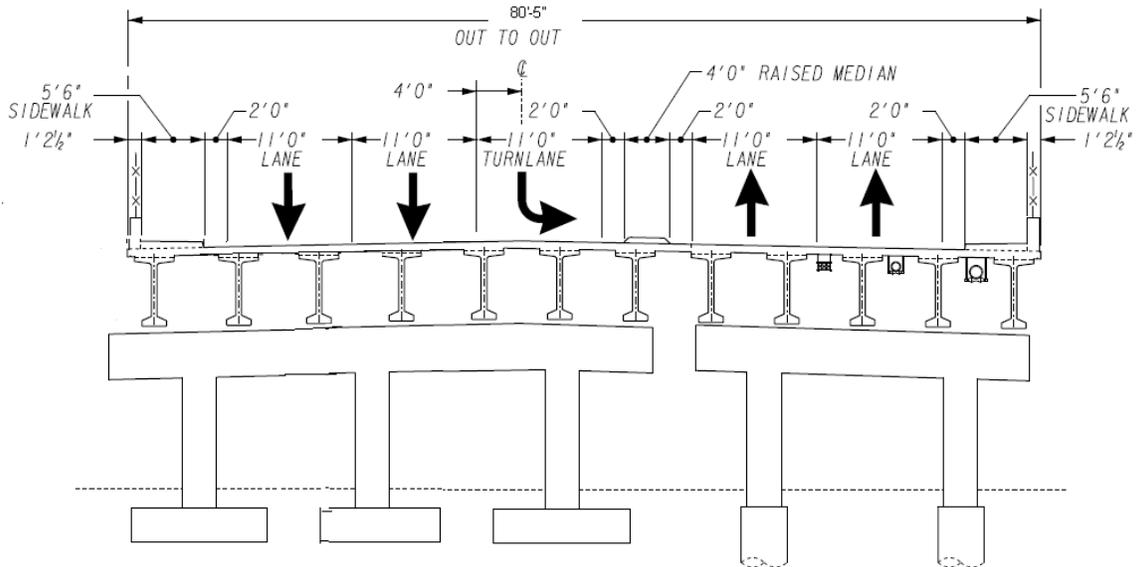
**Project: Poplar Road at I-85; New Interchange**

Idea No.: B-7  
Client: Coweta Co/GDOT  
Sheet 2 of 4



DECK SECTION - CONSTRUCTION COMPLETE

**ORIGINAL CONCEPT**



DECK SECTION - CONSTRUCTION COMPLETE

**PROPOSED CHANGE**



## CALCULATIONS

**Project: Poplar Road at I-85; New Interchange**

Idea No.: B-7  
Client: Coweta Co/GDOT  
Sheet 4 of 4

### BRIDGE:

#### **Original Concept:**

Construct new prestressed beam bridge: 229.5 feet long x 91.42 feet wide = 20,981 sq. feet

#### Construct MSE walls:

2 walls x [ 23 feet high x 91.42 feet wide at top + (200 feet long - 91.42 feet wide at top) x (23 feet high + 5.5 ft structure depth) ] = 10,394 sq. feet

#### **Proposed Change:**

Construct new prestressed beam bridge: 229.5 feet long x 80.42 feet wide = 18,456 sq. feet

#### Construct MSE walls:

2 walls x [ 23 feet high x 80.42 feet wide at top + (189 feet long - 80.42 feet wide at top) x (23 feet high + 5.5 ft structure depth) ] = 9,888 sq. feet

#### Unit costs to use in cost estimate:

PSC beam bridge grade separation = \$95 / sq. ft

MSE wall = \$45/SF

### ROADWAY / RIGHT-OF-WAY

Assume 12 foot reduction in R/W for project length between intersections, 3,700 ft

$$3,700 \times 12 = 44,400 \text{ sq ft}$$

#### Cost of Right of Way

|                                  |                 |
|----------------------------------|-----------------|
| Total Cost of ROW                | \$17,436,000.00 |
| Total Area (ROW + ESMT) Required | 44.27 Acres     |

#### Cost Per Acre

|   |                         |
|---|-------------------------|
| \$17,436,000 / 44.27 acres = \$393,856 per acre | USE \$ 400,000 per acre |
| = \$9.0417 per sq ft                            |                         |

#### Reduction in Paving / Median costs

$$44,400 \text{ sq ft} = 4,933 \text{ sq yds}$$

Cost of pavement (\$57 per sq yd) and concrete median (\$50 per sq yd) average; USE \$55

## DEVELOPMENT AND RECOMMENDATION PHASE

### Project: Poplar Road at I-85; New Interchange

|                               |                             |  |  |
|-------------------------------|-----------------------------|--|--|
| <b>IDEA No.:</b><br>B-10      | <b>Sheet No.:</b><br>1 of 3 | <b>CREATIVE IDEA:</b><br>Use a 5 lane, flush median section in lieu of a raised median |  |
| Comp By: JSN    Date: 3-28-12 |                             | Checked By: GAO    Date: 4-3-12  |  |

**Original Concept:** Use a 20 foot, raised median section for Poplar Road

**Proposed Change:** Use a 5-lane flush median section for Poplar Road; eliminate the raised median. Nearly the entire length is no-access and will be left-turn/storage lanes.

**Justification:** The area between Newnan Crossing Bypass and Newnan Crossing Blvd. will be no access due to the new interchange ramps and access restrictions. The traffic volumes for the design year 2040 are 25,500 ADT which are at the threshold for consideration for a 5-lane section based on GDOT Design Policy Manual, Tables 6.3 and 6.6. Eliminating the raised median will reduce the roadway typical width, bridge area and required right-of-way.

| COST SUMMARY                       | INITIAL COST | FUTURE COST | TOTAL L. C. COST SAVINGS |
|------------------------------------|--------------|-------------|--------------------------|
| <b>Original</b>                    | \$690,000    |             |                          |
| <b>Proposed</b>                    | \$81,000     |             |                          |
| <b>Savings</b>                     | \$609,000    |             | \$609,000                |
| <b>FUTURE COST: – Savings</b>      |              | \$0         | \$0                      |
| <b>TOTAL PRESENT WORTH SAVINGS</b> |              |             | <b>\$609,000</b>         |



## CALCULATIONS

**Project: Poplar Road at I-85; New Interchange**

Idea No.: B-10  
Client: Coweta Co/GDOT  
Sheet 3 of 3

Generally, this recommendation will narrow the roadway and bridge template from 20 feet to 12 feet; a reduction of 8 feet.

Reduced right-of-way:

Newnan Crossing Bypass - SB ramps = 900 ft

NB ramps to Newnan Crossing Blvd. = 1,400 ft

$1,400 + 900 \text{ ft} = 2,300 \text{ ft} \times 8 = 18,400 \text{ sq ft} = 0.422 \text{ acre}$

Right of way cost:

Total Cost of ROW \$17,436,000.00

Total Area Required 44.27 Acres

Cost Per Acre

$\$17,436,000 / 44.27 \text{ acres} = \$393,856 \text{ per acre}$       USE \$ 400,000 per acre  
= \$9.0417 per sq ft

Reduced bridge area; bridge length is 276 ft x 8 ft = 2,208 sq ft

Reduced concrete median area;

$(300+300+300+600)4 + (800+200+800)8 = 6,000 + 14,400 = 20,400 \text{ sq ft} = 2,267 \text{ sq yds}$

Reduced curb and gutter;

$(300+800+300+200+300+800+600) 2 = 6,600 \text{ ft}$

Additional pavement;

$(800+200+600) 8 = 12,800 \text{ sq ft} = 1,422 \text{ sq yds}$

Asphalt pavement cost:

12.5 mm      165lbs/sy X 1sy X 1ton/2000lb X \$70/ton =      \$ 5.78

19 mm      220lbs/sy X 1sy X 1ton/2000lb X \$70/ton =      \$ 7.70

25 mm      660lbs/sy X 1sy X 1ton/2000lb X \$70/ton =      \$23.10

Sub Total Asphalt \$36.58

GAB

10" GAB      \$20/sy \$20

Total SY Cost \$56.58 /sy

USE \$57.00 per SY

**DEVELOPMENT AND RECOMMENDATION PHASE**

**Project: Poplar Road at I-85; New Interchange**

|                          |                             |  |
|--------------------------|-----------------------------|--|
| <b>IDEA No.:</b><br>B-12 | <b>Sheet No.:</b><br>1 of 4 | <b>CREATIVE IDEA:</b><br>Eliminate Drilled shafts in I-85 median for Stage 1 |
|--------------------------|-----------------------------|--|

Comp By: GCG    Date: 03-27-12    Checked By: GAO    Date: 4-5-12

**Original Concept:**

The original concept constructs Stage 1 adjacent to the existing bridge. Portions of the existing bridge are removed, but the existing spread footings are in close proximity to the substructure columns for Stage 1. Drilled shafts are proposed to eliminate the conflict which occurs only at Bent 2 for the original concept, a 2-span bridge.

**Proposed Change:**

Adjust the column spacing of the Stage 1 substructure and use a combined spread footing to eliminate the use of drilled shafts at Bent 2.

**Justification:**

The drilled shafts are only required at I-85 center bent (Bent 2). End bents are expected to be driven pile, similar to the existing bridge end bents. It should be expected that with the limited quantity on the project the cost of the shafts would be higher than normal.

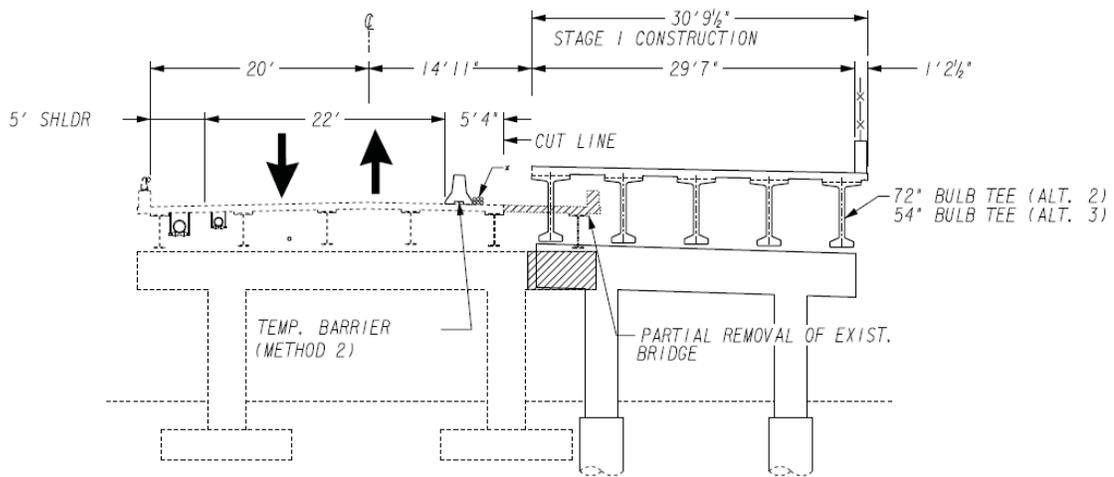
Drilled shafts are an item performed by a specialty contractor and often create scheduling difficulty and require additional inspection by GDOT, whereas spread footings are more commonly constructed by the general bridge contractor.

| <b>COST SUMMARY</b>                | <b>INITIAL COST</b> | <b>FUTURE COST</b> | <b>TOTAL L. C. COST SAVINGS</b> |
|------------------------------------|---------------------|--------------------|---------------------------------|
| <b>Original</b>                    | \$20,000            |                    |                                 |
| <b>Proposed</b>                    | \$20,000            |                    |                                 |
| <b>Savings</b>                     | \$0                 |                    | \$0                             |
| <b>FUTURE COST: – Savings</b>      |                     | \$0                | \$0                             |
| <b>TOTAL PRESENT WORTH SAVINGS</b> |                     |                    | <b>\$0</b>                      |

## SKETCH

**Project: Poplar Road at I-85; New Interchange**

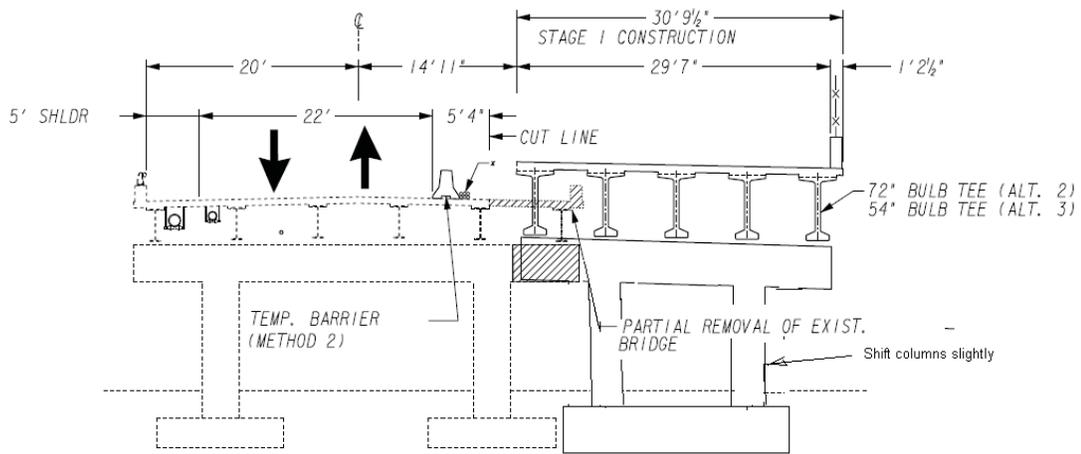
Idea No.: B-12  
 Client: Coweta Co/GDOT  
 Sheet 2 of 4



\* TEMPORARILY RELOCATE TELECOMMUNICATIONS IN STAGE 1 CONSTRUCTION.

DECK SECTION - STAGE 1

## ORIGINAL CONCEPT



\* TEMPORARILY RELOCATE TELECOMMUNICATIONS IN STAGE 1 CONSTRUCTION.

DECK SECTION - STAGE 1

## PROPOSED CHANGE



## CALCULATIONS

**Project: Poplar Road at I-85; New Interchange**

Idea No.: B-12  
Client: Coweta Co/GDOT  
Sheet 4 of 4

### **Original Design:**

Expect 2 drilled shafts. The existing bent columns are 3 ft x 3 ft.

Expect the drilled shaft to be 42" round

No BFI, but existing spread footings are designed for 6000 PSF.

Would expect a minimum 12 foot shaft (2 ft below grade and 10 feet into rock.)

Say shaft is \$1000/ ft

2 x 10 ft into rock = 20 ft

### **Proposed Change:**

Use one combined footing

Say 3.5 ft thick x 20 feet long x 12 ft wide/27 = 31 yd<sup>3</sup>

Say, rebar at 150#/yd<sup>3</sup> => 31 x 150 = 4,650 #

**DEVELOPMENT AND RECOMMENDATION PHASE**

**Project: Poplar Road at I-85; New Interchange**

|                         |                             |   |
|-------------------------|-----------------------------|---|
| <b>IDEA No.:</b><br>C-3 | <b>Sheet No.:</b><br>1 of 4 | <b>CREATIVE IDEA:</b><br>Use steeper ramp profile grade for Ramp D - SW |
|-------------------------|-----------------------------|---|

Comp By: JSN    Date: 3-28-12                      Checked By: GAO                      Date: 4-3-12

**Original Concept:**

Current ramp grade for Ramp D is 2.2 and 2.9 %. Maximum allowable grade is 5.0%.

**Proposed Change:**

Use a 4.0% proposed grade.

**Justification:**

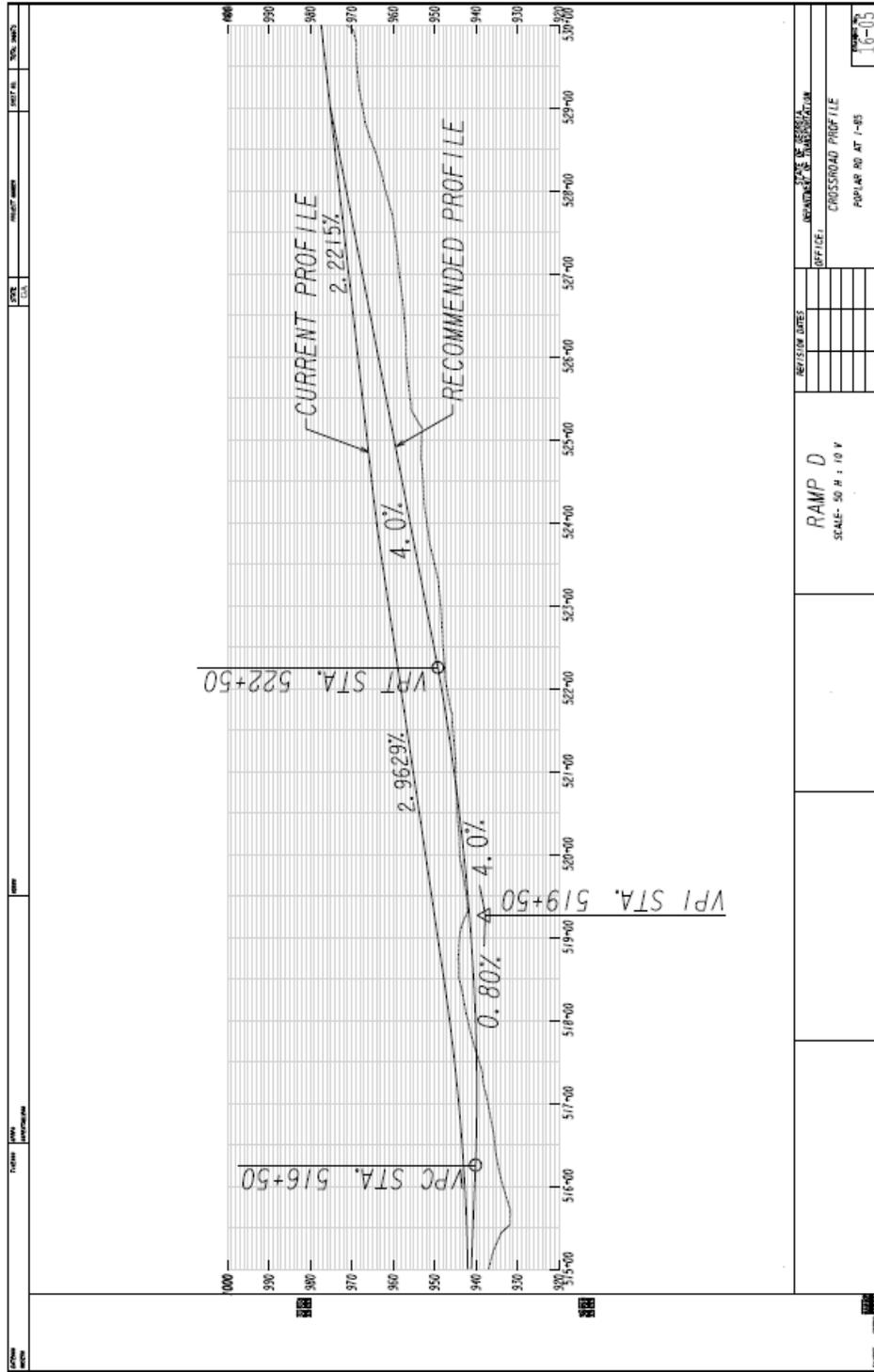
Using a steeper ramp grade will tie-in quicker, meeting the mainline profile which will generally reduce earthwork and the overall footprint and will be especially useful when trying to shorten ramp distance to eliminate or reduce the RR bridge work. If conditions allow, the ramp profile can be increased to 5 % for additional savings.

| <b>COST SUMMARY</b>                | <b>INITIAL COST</b> | <b>FUTURE COST</b> | <b>TOTAL L. C. COST SAVINGS</b> |
|------------------------------------|---------------------|--------------------|---------------------------------|
| <b>Original</b>                    | \$187,000           |                    |                                 |
| <b>Proposed</b>                    | \$0                 |                    |                                 |
| <b>Savings</b>                     | \$187,000           |                    | \$187,000                       |
| <b>FUTURE COST: – Savings</b>      |                     | \$0                | \$0                             |
| <b>TOTAL PRESENT WORTH SAVINGS</b> |                     |                    | <b>\$187,000</b>                |

# SKETCH

**Project: Poplar Road at I-85; New Interchange**

Idea No.: C-3  
 Client: Coweta Co/GDOT  
 Sheet 2 of 4





## CALCULATIONS

**Project: Poplar Road at I-85; New Interchange**

Idea No.: C-3

Client: Coweta Co/GDOT

Sheet 4 of 4

Reduce ramp profile to 4%; earthwork reduction between sta 514 to 528; 1,400 ft

Average height reduction = 6 feet

Average ramp template width = 75 feet

Reduced earthwork:

$$1,400 \times 6 \times 75 = 630,000 \text{ cu ft} = 23,333 \text{ cu yds}$$

**DEVELOPMENT AND RECOMMENDATION PHASE**

**Project: Poplar Road at I-85; New Interchange**

|                         |                             |   |
|-------------------------|-----------------------------|---|
| <b>IDEA No.:</b><br>M-1 | <b>Sheet No.:</b><br>1 of 3 | <b>CREATIVE IDEA:</b><br>Replace the 30 inch curb and gutter with a 24 inch curb and gutter |
|-------------------------|-----------------------------|---|

Comp By: JSN    Date: 3-28-12                      Checked By: GAO    Date: 4-3-12

**Original Concept:**

The typical section outlined in the original concept report incorporates a 30 inch concrete curb and gutter along the median and the outside edges of pavement on Poplar Road.

**Proposed Change:**

The recommendation is to use a 24 inch curb and gutter in place of the 30 inch curb and gutter.

**Justification:**

The purpose of the concrete curb and gutter is to capture and convey the roadway runoff as part of the closed drainage system. This purpose can be accomplished with a 24 inch curb and gutter and since this is not a state route, some reductions can be incorporated. Included are costs for additional roadway inlets if required.

| <b>COST SUMMARY</b>                | <b>INITIAL COST</b> | <b>FUTURE COST</b> | <b>TOTAL L. C. COST SAVINGS</b> |
|------------------------------------|---------------------|--------------------|---------------------------------|
| <b>Original</b>                    | \$419,000           |                    |                                 |
| <b>Proposed</b>                    | \$246,000           |                    |                                 |
| <b>Savings</b>                     | \$173,000           |                    | \$173,000                       |
| <b>FUTURE COST: – Savings</b>      |                     | \$0                | \$0                             |
| <b>TOTAL PRESENT WORTH SAVINGS</b> |                     |                    | <b>\$173,000</b>                |





## **APPENDIX**

## Approving/Authorizing Persons

| Name:                     | Position:                          | Telephone:   |
|---------------------------|------------------------------------|--------------|
| Wayne Kennedy/Tod Handley | Coweta County                      | 770-254-3775 |
| Adam Smith                | Project Manager – Program Delivery | 706-621-9704 |
| Lisa Myers                | State Project Review Engineer      | 404-631-1770 |

## Personal Contacts

| Name:          | Telephone:           | Notes:   |
|----------------|----------------------|--|
| Andy Casey, PE | In-person discussion | State Roadway Design Engineer;<br>Office of Roadway Design |
|                |                      |  |

## Documents/Abstracts

| Reference:   | Reference:                                    |
|--|---|
| Concept plans including cover, typical sections, schematic/aerial plans, profiles and cross-sections | Concept R/W Cost Estimate                     |
| Concept Cost Estimate  | Earthwork volumes summary                     |
| Draft Concept Report   | Custom Soil Resource Report                   |
| Concept Traffic Study including traffic flow diagrams  | VE Study constraints worksheet                |
| Interchange Justification Report   | Poplar Road bridge jacking plans              |
| Concept bridge staging sections  | I-85 over NS Railroad - existing bridge plans |

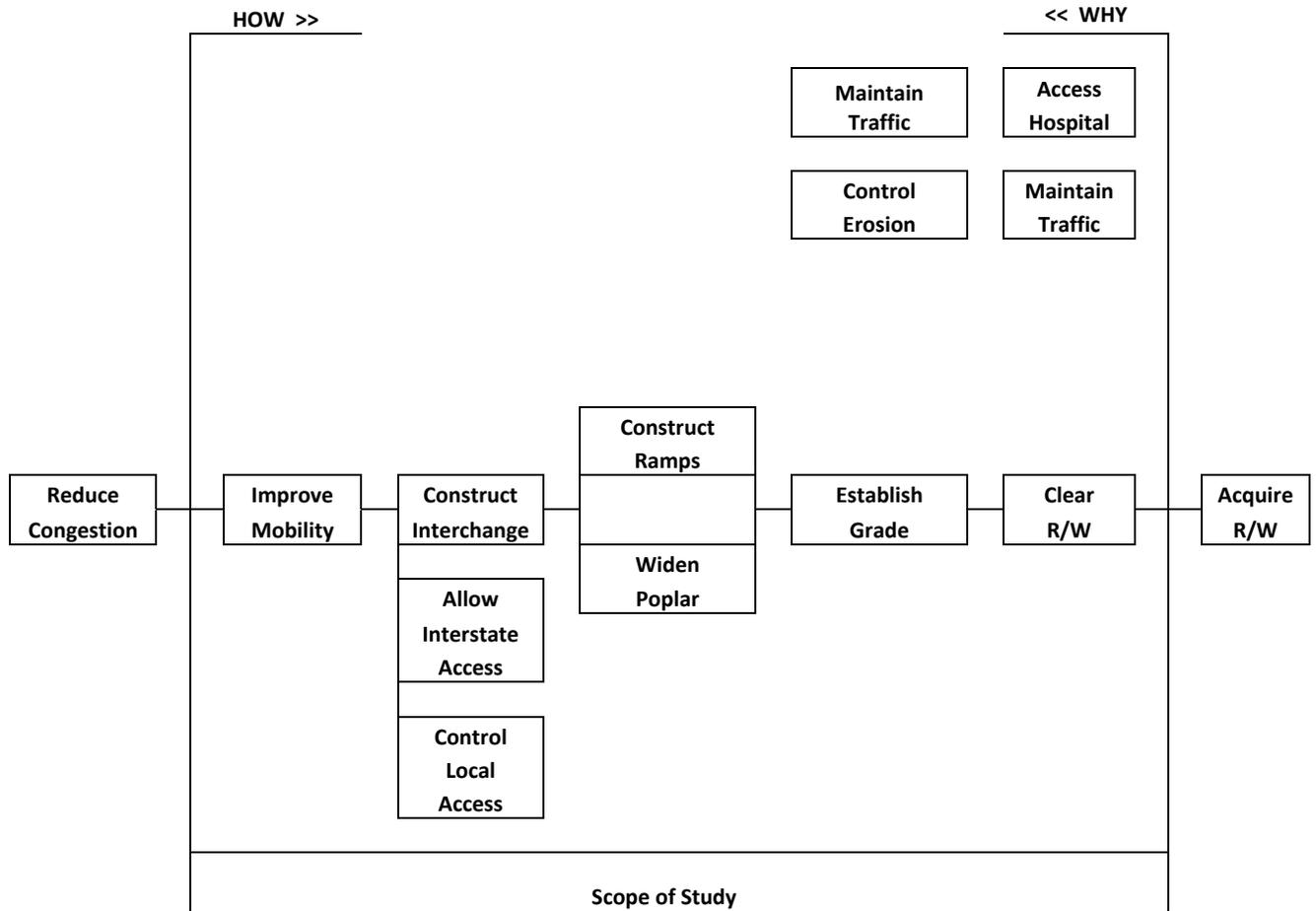
## Poplar Road at I-85; New Interchange

### Cost Model / Distribution

| Item     | Description              | Amount       | % of Total Project |
|----------|--------------------------|--------------|--------------------|
| <b>A</b> | Right-of-Way             | \$17,436,000 | 42.52              |
| <b>B</b> | Interstate bridge        | \$3,846,425  | 9.38               |
| <b>C</b> | Clearing/Earthwork       | \$3,420,000  | 8.34               |
| <b>D</b> | Asphalt pavement         | \$3,321,410  | 8.10               |
| <b>E</b> | Traffic Control          | \$2,486,875  | 6.06               |
| <b>F</b> | Concrete pavement        | \$2,362,500  | 5.76               |
| <b>G</b> | Erosion control          | \$2,000,000  | 4.88               |
| <b>H</b> | RR bridge                | \$1,381,900  | 3.37               |
| <b>I</b> | GAB                      | \$1,300,000  | 3.17               |
| <b>J</b> | Roadway drainage         | \$755,930    | 1.84               |
| <b>K</b> | Lighting                 | \$693,725    | 1.69               |
| <b>L</b> | Signing/markings/signals | \$494,550    | 1.21               |
| <b>M</b> | Concrete curb            | \$460,500    | 1.12               |
| <b>N</b> | Concrete median          | \$355,000    | 0.87               |
| <b>O</b> | Concrete sidewalk        | \$245,000    | 0.60               |
| <b>P</b> | Landscaping/Irrigation   | \$200,000    | 0.49               |
| <b>Q</b> | Miscellaneous            | \$157,500    | 0.38               |
| <b>R</b> | Miscellaneous concrete   | \$90,000     | 0.22               |
|          |                          |              |                    |
|          |                          |              |                    |
|          | Total Project Cost       | \$14,724,200 |                    |
|          |                          |              |                    |
|          |                          |              |                    |
|          |                          |              |                    |
|          |                          |              |                    |
|          |                          |              |                    |

**Note:** This cost model is based on the construction cost estimate prepared by Clough Harbor and Associates (CHA) Preferred Alternate as included in the review package.

# FAST DIAGRAM



## INFORMATION PHASE – FUNCTION ANALYSIS

**Project:** Poplar Road at I-85; New Interchange

**Basic Function:** Improve mobility

| ITEM No. | DESCRIPTION               | FUNCTION    |                       | INITIAL DOLLARS |            |            |
|----------|---------------------------|-------------|-----------------------|-----------------|------------|------------|
|          |                           | Verb        | Noun                  | Cost            | % of Total | Worth/Save |
| <b>A</b> | <b>Right of Way</b>       | store       | project               | \$17,436,000    | 42.52%     | Yes        |
|          |                           | control     | access                |                 |            |            |
|          |                           | allow       | construction          |                 |            |            |
|          |                           | allow       | access (ramps)        |                 |            |            |
|          |                           | establish   | corridor              |                 |            |            |
| <b>B</b> | <b>Interstate bridge</b>  | span        | interstate            | \$3,846,425     | 9.38%      | Yes        |
|          |                           | connect     | areas                 |                 |            |            |
|          |                           | support     | utilities             |                 |            |            |
|          |                           | separate    | grade                 |                 |            |            |
|          |                           | accommodate | widening              |                 |            |            |
|          |                           | maintain    | clearance             |                 |            |            |
|          |                           | accommodate | pedestrians           |                 |            |            |
|          |                           | support     | traffic               |                 |            |            |
| <b>C</b> | <b>Clearing Earthwork</b> | clear       | worksite              | \$3,420,000     | 8.34%      | Yes        |
|          |                           | drain       | template              |                 |            |            |
|          |                           | support     | roadway               |                 |            |            |
|          |                           | establish   | grade                 |                 |            |            |
|          |                           | conveys     | run-off (ditches)     |                 |            |            |
|          |                           | removes     | material (unsuitable) |                 |            |            |
| <b>D</b> | <b>Asphalt pavement</b>   | increase    | capacity              | \$3,321,410     | 8.10%      | Yes        |
|          |                           | transfer    | load                  |                 |            |            |
|          |                           | access      | site (hospital)       |                 |            |            |
|          |                           | reduce      | congestion            |                 |            |            |
|          |                           | approach    | bridge                |                 |            |            |
|          |                           | convey      | storm-water           |                 |            |            |
| <b>E</b> | <b>Traffic control</b>    | allow       | construction          | \$2,486,875     | 6.06%      | Yes        |

## INFORMATION PHASE – FUNCTION ANALYSIS

**Project:** Poplar Road at I-85; New Interchange

**Basic Function:** Improve mobility

| ITEM No. | DESCRIPTION                      | FUNCTION       |                      | INITIAL DOLLARS |            |            |
|----------|----------------------------------|----------------|----------------------|-----------------|------------|------------|
|          |                                  | Verb           | Noun                 | Cost            | % of Total | Worth/Save |
|          |                                  | protect/inform | motorist             |                 |            |            |
|          |                                  | delineate      | work zone            |                 |            |            |
|          |                                  | stage          | construction         |                 |            |            |
|          |                                  | access         | hospital             |                 |            |            |
|          |                                  |                |                      |                 |            |            |
| <b>F</b> | <b>Concrete pavement / Ramps</b> | support        | load                 | \$2,362,500     | 5.76%      | Yes        |
|          |                                  | allow          | access (interchange) |                 |            |            |
|          |                                  | follow         | criteria             |                 |            |            |
|          |                                  | reduce         | maintenance          |                 |            |            |
|          |                                  |                |                      |                 |            |            |
| <b>G</b> | <b>Erosion Control</b>           | protect        | environment          | \$2,000,000     | 4.88%      | No         |
|          |                                  | reduce         | erosion              |                 |            |            |
|          |                                  | address        | water quality        |                 |            |            |
|          |                                  | follow         | criteria             |                 |            |            |
|          |                                  |                |                      |                 |            |            |
| <b>H</b> | <b>RR bridge</b>                 | span           | RR                   | \$1,381,900     | 3.37%      | Yes        |
|          |                                  | separate       | grade                |                 |            |            |
|          |                                  | allow          | acceleration lane    |                 |            |            |
|          |                                  | support        | traffic              |                 |            |            |
|          |                                  |                |                      |                 |            |            |
| <b>I</b> | <b>GAB</b>                       | transfer       | load                 | \$1,300,000     | 3.17%      | No         |
|          |                                  | support        | pavement             |                 |            |            |
|          |                                  | establish      | grade                |                 |            |            |
|          |                                  |                |                      |                 |            |            |
| <b>J</b> | <b>Roadway drainage</b>          | drain          | roadway              | \$755,930       | 1.84%      | No         |
|          |                                  | collect        | run-off              |                 |            |            |
|          |                                  | discharge      | run-off              |                 |            |            |
|          |                                  | conveys        | stormwater           |                 |            |            |
|          |                                  | address        | water quality        |                 |            |            |
| <b>K</b> | <b>Lighting</b>                  | illuminate     | interchange          | \$693,725       | 1.69%      | No         |

## INFORMATION PHASE – FUNCTION ANALYSIS

**Project:** Poplar Road at I-85; New Interchange

**Basic Function:** Improve mobility

| ITEM No. | DESCRIPTION                      | FUNCTION    |             | INITIAL DOLLARS |            |            |
|----------|----------------------------------|-------------|-------------|-----------------|------------|------------|
|          |                                  | Verb        | Noun        | Cost            | % of Total | Worth/Save |
|          |                                  | illuminate  | sidewalk    |                 |            |            |
| <b>L</b> | <b>Signals/marketing/signage</b> | inform      | motorist    | \$494,550       | 1.21%      | No         |
|          |                                  | control     | traffic     |                 |            |            |
| <b>M</b> | <b>Concrete curb</b>             | collect     | run-off     | \$460,500       | 1.12%      | Yes        |
|          |                                  | delineate   | edge        |                 |            |            |
|          |                                  | reduce      | impacts     |                 |            |            |
| <b>N</b> | <b>Concrete median</b>           | separate    | traffic     | \$355,000       | 0.87%      | Yes        |
|          |                                  | control     | access      |                 |            |            |
|          |                                  | reduce      | maintenance |                 |            |            |
| <b>O</b> | <b>Concrete sidewalk</b>         | accommodate | pedestrians | \$245,000       | 0.60%      | No         |
|          |                                  | follow      | guidelines  |                 |            |            |
|          |                                  | connect     | nodes       |                 |            |            |
| <b>P</b> | <b>Landscaping Irrigation</b>    | beautify    | corridor    | \$200,000       | 0.49%      | No         |
|          |                                  | support     | landscaping |                 |            |            |
| <b>Q</b> | <b>Miscellaneous</b>             | —           | —           | \$157,500       | 0.38%      | No         |
| <b>R</b> | <b>Misc concrete</b>             | —           | —           | \$90,200        | 0.22%      | No         |

| <b>CREATIVE PHASE<br/>Creative Idea Listing</b> |  | <b>JUDGMENT PHASE<br/>Idea Evaluation</b>              |                    |
|---|--|--|--------------------|
| <b>No.</b>                                      | <b>CREATIVE IDEA</b>                                       | <b>COMMENTS</b>  | <b>IDEA RATING</b> |
| <b>A</b>  | <b>Right-of-way</b>  |  |                    |
| A-1   | Construct loop in SE quad                                  |  | ✓                  |
| A-2   | Construct loop in SW quad                                  |  | ✓                  |
| A-3   | Construct loop in NE quad                                  |  | ✓                  |
| A-4   | Construct loop in NW quad                                  |  | ✓                  |
| A-5   | Review acceleration lane criteria/shorten ramp D           | cannot totally eliminate RR bridge work                | X                  |
| A-6   | Shift diamond east   | cannot totally eliminate RR bridge work                | X                  |
| A-7   | Skew/realign Ramp D to shorten length                      | cannot totally eliminate RR bridge work                | X                  |
| A-8   | Review/redesign local road access driveway                 |  | ✓                  |
| A-9   | Reduce shoulder width                                      | currently at minimum acceptable width                  | X                  |
| A-10  | Use sidewalk on only one side of Poplar                    | does not provide full connectivity                     | X                  |
| A-11  | Review/lower profile                                       | Poplar Road profile at max. efficiency; see C-3        | ✓                  |
| A-12  | Eliminate ditch section between Poplar and access driveway |  | ✓                  |
| A-13  | Eliminate SW ramp  | See A-4  | ✓                  |
| A-14  | Narrow full width r/w                                      | required for grading 2:1 sideslopes                    | X                  |
|   |  |  |                    |
| <b>B</b>  | <b>Interstate bridge</b>                                   |  |                    |
| B-1   | Widen existing bridge to one side only                     | See B-5  | ✓                  |
| B-2   | Widen existing bridge                                      |  | ✓                  |
| B-3   | Construct 2-span bridge with spill-through abutments       |  | ✓                  |
| B-4   | Construct 2-span bridge with MSE walls                     | Current preferred alternate; as shown on concept plans | ✓                  |
| B-5   | Shift Poplar Road alignment; widen bridge to one side only |  | ✓                  |

| <b>CREATIVE PHASE<br/>Creative Idea Listing</b> |   | <b>JUDGMENT PHASE<br/>Idea Evaluation</b> |                    |
|---|---|---|--------------------|
| <b>No.</b>                                      | <b>CREATIVE IDEA</b>  | <b>COMMENTS</b>                           | <b>IDEA RATING</b> |
| B-6   | Do not span for future widening                                 | No programmed I-85 widening project       |                    |
| B-7   | Eliminate double left turn lanes                                |   | ✓                  |
| B-8   | Shift ramps further apart to incorporate single left turn lanes | See B-7                                   | ✓                  |
| B-9   | Reduce median by 4 feet   |   | ✓                  |
| B-10  | Incorporate 5-lane section                                      |   | ✓                  |
| B-11  | Review I-85 median width/typical section                        | See B-6                                   | ✓                  |
| B-12  | Eliminate drilled shafts in Stage 1                             |   | ✓                  |
|   |   |   |                    |
| <b>C</b>  | <b>Clearing / Earthwork</b>                                     |   |                    |
| C-1   | Review profiles   | See A-11 and C-3                          | ✓                  |
| C-2   | Eliminate SW ramp   | See A-4                                   | ✓                  |
| C-3   | Review ramp profiles  | Ramp D                                    | ✓                  |
| C-4   | Consider r/w requirements for future water quality guidelines   | Design consideration                      | ✓                  |
|   |   |   | ✓                  |
| <b>D</b>  | <b>Asphalt pavement</b>   |   |                    |
| D-1   | Use thinner pavement section                                    | Preliminary section slightly under-design | X                  |
| D-2   | Review local road access driveway                               | See A-8                                   | ✓                  |
| D-3   | Use curb and gutter between local access and Poplar Road        | See A-12                                  | ✓                  |
| D-4   | Review use of double left turn lanes                            | See B-7                                   | ✓                  |
| D-5   | Shorten access driveway; RIRO                                   | See A-8                                   | ✓                  |
| D-6   | Shift Poplar Road to salvage pavement                           | See B-5                                   | ✓                  |
|   |   |   |                    |
|   |   |   |                    |
| <b>E</b>  | <b>Traffic control</b>  |   |                    |

| <b>CREATIVE PHASE<br/>Creative Idea Listing</b> |  | <b>JUDGMENT PHASE<br/>Idea Evaluation</b>            |                    |
|---|--|--|--------------------|
| <b>No.</b>                                      | <b>CREATIVE IDEA</b>   | <b>COMMENTS</b>                                      | <b>IDEA RATING</b> |
| E-1   | Review temporary pavement needs  | Plans not yet fully developed for realistic analysis | X                  |
| E-2   | Salvage existing pavement  | See B-5  | ✓                  |
| E-3   | Shift Poplar Road to eliminate a construction stage                                      | See B-5  | ✓                  |
|   |  |  |                    |
| <b>F</b>  | <b>Concrete pavement / Ramps</b>   |  |                    |
| F-1   | Review ramp profiles   | See C-3  | ✓                  |
|   |  |  |                    |
| <b>G</b>  | <b>Erosion control</b>   |  |                    |
| G-1   | Efficiently develop sediment ponds addressing upcoming water quality guidelines          | Design consideration                                 | ✓                  |
| G-2   | Review/develop erosion control measures in conjunction with construction staging methods | Design consideration                                 | ✓                  |
|   |  |  |                    |
| <b>H</b>  | <b>RR bridge</b>   |  |                    |
| H-1   | Review SW ramp alignment; shorten  | See A-4  | ✓                  |
| H-2   | Review acceleration lane criteria/layout   | See A-4  | ✓                  |
|   |  |  |                    |
| <b>I</b>  | <b>GAB</b>   |  |                    |
| I-1   | Use existing pavement as feasible  | See B-5  | ✓                  |
|   |  |  |                    |
| <b>J</b>  | <b>Roadway drainage</b>  |  |                    |
| <b>K</b>  | <b>Lighting</b>  |  |                    |
| K-1   | Review need for interchange lighting   | Local commitment                                     | ✓                  |
| K-2   | Review need for pedestrian lighting  | Local commitment                                     | ✓                  |
|   |  |  |                    |
| <b>L</b>  | <b>Signals/Pavement markings/Signage</b>   |  |                    |

| <b>CREATIVE PHASE<br/>Creative Idea Listing</b>  |                                   | <b>JUDGMENT PHASE<br/>Idea Evaluation</b> |                    |
|--|-----------------------------------|---|--------------------|
| <b>No.</b>   | <b>CREATIVE IDEA</b>              | <b>COMMENTS</b>                           | <b>IDEA RATING</b> |
| L-1  | Use roundabouts/eliminate signals | Reviewed under continued plan development | ✓                  |
|  |                                   |   |                    |
| <b>M</b>   | <b>Concrete curb</b>              |   |                    |
| M-1  | Use 24 inch gutter                |   | ✓                  |
| M-2  | Use header curb in median         | See M-1                                   | ✓                  |
|  |                                   |   |                    |
| <b>N</b>   | <b>Concrete median</b>            |   |                    |
| N-1  | Narrow median by 4 feet           | See B-9                                   | ✓                  |
| <b>O</b>   | <b>Concrete sidewalk</b>          |   |                    |
| <b>P</b>   | <b>Landscaping/Irrigation</b>     |   |                    |
|  |                                   |   |                    |
|  |                                   |   |                    |
| ✓ = Will be considered further; X = will be dropped; DC = Design Consideration; written for consideration by design team |                                   |   |                    |

## VE STUDY SIGN-IN SHEET

Project No.: CSNHS-0009-00(323)

County: Coweta

PI No.: 0009323

Date: March 26-29, 2012

Days

| FIRST | LAST | NAME                | GDOT OFFICE /<br>COMPANY NAME      | PHONE<br>NUMBER | EMAIL ADDRESS               |
|-------|------|---------------------|------------------------------------|-----------------|-----------------------------|
| ✓     | ✓    | Lisa L. Myers       | Engineering Services               | 404-631-1770    | lmyers@dot.ga.gov           |
| ✓     | ✓    | Matt Sanders        | Engineering Services               | 404-631-1752    | msanders@dot.ga.gov         |
| ✓     | O    | Melissa Harper      | Construction                       | 404-631-1971    | mharper@dot.ga.gov          |
| ✓     | O    | Ken Werho           | Traffic Operations                 | 404-635-8144    | kwerho@dot.ga.gov           |
| ✓     | O    | Bill DuVall         | Bridge Design                      | 404-631-1883    | bduvall@dot.ga.gov          |
| ✓     | O    | Larry Bowman        | Environmental Services             | 404-631-1362    | lbowman@dot.ga.gov          |
| ✓     | ✓    | George Obaranec     | AMEC                               | 770-421-3346    | george.obaranec@amec.com    |
| ✓     | ✓    | Greg Grant          | RS&H                               | 678-429-7501    | greg.grant@rsandh.com       |
| ✓     | ✓    | Steve Bitney        | Stantec                            | 770-813-0882    | steve.bitney@stantec.com    |
| ✓     | ✓    | Jim Navis           | Hatch Mott MacDonald (HMM)         | 404-217-8661    | james.navis@hatchmott.com   |
| ✓     | ✓    | Chris Edmondson     | Clough, Harbour & Associates (CHA) | 678-954-5000    | cedmondson@chacompanies.com |
| ✓     | ✓    | Tom Karis           | CHA                                | 678-954-5000    | tkaris@chacompanies.com     |
| ✓     | ✓    | Kevin Khale         | CHA                                | 678-954-5000    | kkhale@chacompanies.com     |
| ✓     | ✓    | Kevin Korth         | FHWA                               | 770-635-2104    | kevin.d.korth@dot.gov       |
| ✓     | O    | Leon Kim            | FHWA                               | 404-562-3636    | leon.kim@dot.gov            |
| ✓     | ✓    | Cody Wilbers        | FHWA                               | 404-562-3444    | cody.wilbers@dot.gov        |
| ✓     | ✓    | Tod Handley         | Coweta County                      | 770-254-3775    | thandley@coweta.ga.us       |
| ✓     | O    | Wayne Kennedy       | Coweta County                      | 770-254-3775    | wkennedy@coweta.ga.us       |
| O     | ✓    | Christy Poon-Atkins | FHWA                               | 404-562-3638    | christy.poon-atkins@dot.gov |
| ✓     | ✓    | Adam Smith          | GDOT, Program Delivery             | 706-621-9704    | adsmith@dot.ga.gov          |

✓ Check all that attend

O Did Not Attend

25 Attended Project Overview (Day 1)

13 Attended Project Presentation (Day 4)

