DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE: NH-003-3(53) Clarke
P. I. No.: 122890
U.S. 78/S.R. 10 Interchange

OFFICE: Engineering Services

DATE: December 5, 2007

FROM: Brian Summers, P.E., Project Review Engineer REW

TO: Babs Abubakari, P.E. State Consultant Design Engineer

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

Recommendations for implementation of Value Engineering Study Alternatives are indicated in the table below. Incorporate alternatives recommended for implementation to the extent reasonable in the design of the project.

ALT No.	Description	Savings PW & LCC	Implement	Comments
A-2	Investigate a Developer Proposal to connect the Southbound Off Ramp to Huntington Court	$115,000	No	Would result in ramp traffic being in conflict with traffic entering and exiting the developed property which would be a safety concern.
A-7	Change the Urban Shoulder width from 16 feet to 10 feet	$204,000 (proposed) $102,000 (revised)	Yes/Partial	The shoulder width will remain 16 feet on the mainline to better accommodate Utility Relocations and will be changed to 10 feet on the side roads.
A-7A	Eliminate the 2 ½ foot grassed area between the sidewalk and Retaining Wall	$21,000	No	Since the 16 foot shoulder will be retained on the mainline this would not apply since this would cut the shoulder width to 13.5 feet on the mainline.
B-7	Shift the on-ramp location slightly to the West and use a 100 foot radius curve	$33,000 (proposed) $16,500 (revised)	Yes/Partial	The on-ramp location will stay the same but a 100 foot radius will be used.

ALT No.	Description	Savings PW & LCC	Implement	Comments
B-7A	Close existing driveway at the Logans Steakhouse and provide a wider common access at Sta. 60+00± Lt. for Logans as well as adjacent property owners.	-54,000 (Cost Increase)	Yes	This is recommended for safety reasons. Access agreements should be obtained from the property owners to allow this to occur.
B-10	Eliminate the 4 foot Bike Lanes	$473,000 (proposed) $687,100 (revised)	Yes	This should be done. The revised cost savings includes bridge savings which was not initially included.
B-11	Reduce the 12 foot travel lanes to 11 feet	$497,000 (proposed) $718,900	Yes	This should be done. The revised cost savings includes bridge savings which was not initially included.
B-12	Close the Median Opening at Sta. 68+75 and provide a Type B Median Opening at Timothy Road and Jennings Mill Road	-$186,000 (proposed) $20,000 (revised)	Yes/partial	The median opening should be closed but the Type B Median Opening at Timothy Road and Jennings Mill Road will not be done since it would involve additional Right of Way impacts.
F-1	Eliminate the Concrete Curb and Gutter from a section on Jennings Mill Road	$177,000	No	A land use permit utilizing an urban section to minimize impacts on the cemetery has already been obtained from the court system. Since a cemetery is involved any changes would require another permit delaying the project schedule.
C-2	Use MSE Walls and two - 93 foot spans and delete Bike Lanes on the bridge over S.R. 10	$1,845,000	No	A more detailed cost estimate done by the Design Consultant revealed that this VE Alternative is more expensive than what was proposed.
C-2A	Use MSE Walls and one - 165 foot span and delete Bike Lanes on the bridge over S.R. 10.	$1,376,000	No	A more detailed cost estimate done by the Design Consultant revealed that this VE Alternative is more expensive than what was proposed.
C-2B	Use two - 57 foot spans and two – 93 foot spans and delete the Bike Lanes on the	$1,231,000	No	A more detailed cost estimate done by the Design Consultant revealed that this VE Alternative is more expensive

ALT No.	Description	Savings PW & LCC	Implement	Comments
C-2C	Use two – 67.5 foot spans and one – 165 foot span and delete the Bike Lane on the bridge over S.R. 10	$675,000	No	A more detailed cost estimate done by the Design Consultant revealed that this VE Alternative is more expensive than what was proposed.
A-1	Eliminate the short in-and-out steps in the Proposed Right of Way lines	Design Suggestion	Yes	This should be done.
B-2	Verify the superelevation match at the bridge	Design Suggestion	Yes	This should be done.
D-1	Review Drainage Structure locations and ensure they are within the Proposed Right of Way	Design Suggestion	Yes	This should be done.
E-1	Modify the Concrete Barrier End Treatments on the two Loop Ramps	Design Suggestion	Yes	This should be done.
L-1/2	Eliminate the Parapet and Pipe Handrail over the Retaining Walls	Design Suggestion	No	The Parapet and Pipe Handrail are required to provide pedestrian safety.

A meeting was held on November 29, 2007 to discuss the above recommendations. Allen Krivsky and Shawn Fleet with Heath and Lineback, Mike Haithcock with Consultant Design, and Brian Summers, Ron Wishon and Lisa Myers with Engineering Services were in attendance.

Additional information was provided on December 4, 2007.

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

Approved: Gerald M. Ross **Date:** 1/8/07
Gerald M. Ross, P. E., Chief Engineer

BKS/REW

Attachments

c: Gus Shanine
Todd Long
James Magnus
Randy Davis
Robert Simpson
Kevin DeWitt
Mike Haithcock
Doug Franks
Amber Perkins
Ken Werho
Lisa Myers

Heath & Lineback Engineers

Memorandum

To: Michael Haithcock, GDOT-OEL

From: Shawn Fleet, HLE

CC: Allen Krivsky, Lisa Myers, Brian Summers, Ron Wishon

Date: 12/3/2007

Re: NH-003-3(53) – Clarke, P.I. No. 122890
Atlanta Hwy / S.R. 10 Loop Interchange Improvement
VE Implementation Meeting on 12/1/2007

Items Discussed:

- Alt A-2, Not implementing, Comments on VE Response are adequate.
- Alt A-7, Implementing only on side streets, savings $102,000
- Alt A-7A, Not implementing, Reducing shoulder width on side streets.
- Alt B-7, Implementing reducing radius only, savings $16,500
- Alt B-7A, Recommending/Implementing, closing this driveway but will be up to the right of way office to negotiate ultimately.
- Alt B-10, Implementing, Revised savings $687,100 (Including reduced bridge width)
- Alt B-11, Implementing, A revised Traffic Study is not required for this change since the current design will function at a capacity greater than a Level of Service "E" for the design year. Revised savings $718,900 (Including reduced bridge width)
- Alt B-12, Implementing median closing only, Revised cost increase -$20,000
- Alt C-2 through C-2C, Not implementing, VE Bridge cost calculations less detailed. More detailed cost calculations provided in VE response show that each alternate is more expensive then the proposed bridge.
- Alt F-1, Not implementing, Additional comments - The typical section of Jennings Mill Road has been approved by Athens County Court system for land use permit change. Urban drainage system is better suited to convey stormwarter along the cemetery.
- A-1, Implementing design suggestion
- B-2, Implementing design suggestion
- D-1, Implementing design suggestion
- E-1, Implementing design suggestion
- L-1/2, Not Implementing design suggestion, Parapet and hand rails are required.

Action Items:

- A Project Cover Sheet needs to be provided with for the VE team's submittal. HLE will provide.
- Upon the approval of the Implementation of VE Study Alternatives document, HLE will submit a supplemental agreement to incorporate approved alternatives.

Attendees:

Shawn Fleet, HLE
Allen Krivsky, HLE
Michael Haithcock, GDOT-OCD
Lisa Myers, GDOT-ES
Brian Summers, GDOT-ES
Ron Wishon, GDOT-ES

Attachments: Reduced bridge width savings calculations

COMP. BY SF DATE 1-3-07 SHEET ____ OF ____

CHKD. BY ____ DATE ____ Heath & Lineback Engineers INCORPORATED JOB NO. ____

PROJECT ATLANTA HWY OVER SR 10 LOOP STRUCTURE ____

COST SAVINGS ELIMINATING BIKE LANES/11 FT LANES ON BRIDGE

DETAILED COST IN VE RESPONSE

PROPOSED BRIDGE W/BIKE LANES $3,460,240.00

PER SQ FT $3460,240 ÷ 46325.00 SF = $74.70/SF

PROPOSED BRIDGE W/O BIKE LANES $3,246,190 (-8FT)

PER SQ FT = $3246,190 ÷ 43925 SF = $73.90

SAVINGS = $214,050

PROPOSE BRIDGE W 11' LANES (-10FT) 73.90/SF

$73.90/SF × 40925 SF = $3,024,357

SAVINGS = $221,833

SAVINGS

B-10 $473,000 + $214,050 = $687,050

B-11 $497,000 + $221,833 = $718,833

DEPARTMENT OF TRANSPORTATION

STATE OF GEORGIA

OCT 2007

INTERDEPARTMENT CORRESPONDENCE

FILE NH-003-3(53)
Clarke County
PI No. 122890
US 78/SR10 (Atlanta Hwy over SR 10 Loop)

OFFICE Atlanta

DATE October 25, 2007

FROM Mohammed (Babs) Abubakari, P.E.,
State Consultant Design & Program Delivery Engineer

TO Brian Summers, P.E., Project Review Engineer
Attention: Lisa Myers

SUBJECT VALUE ENGINEERING STUDY – FINAL REPORT RESPONSE

Below are the responses to the Value Engineering Study report dated August 10, 2007 for the above referenced project. Each comment was studied and addressed by both the Department's Project Manager and the Consultant's Project Manager:

Value Engineering Alternative A-2 *– To investigate a Developer proposal to connect the southbound SR 10 loop off ramp to Huntington Court in lieu-of the current Huntington Road slip ramp connector.*

- **Ingress/egress access points on the SR 10 Loop exit ramp are unsafe and are not recommended.** Egress access points on an exit ramp are susceptible to wrong way drivers on the exit ramp and SR 10 Loop.
- The expectation of driverrs exiting the SR 10 Loop southbound exit ramp is to emerge at the intersection of Atlanta Highway. This proposed configuration by the Diversified Development plans will not meet the driver expectation.
- The Diversified Development Property currently has an existing access point along Huntington Court. The interchange improvement project will not impact this access point.
- The current interchange design requires approximately 110 ft of right of way along the east side of the property to construct the realigned SR 10 Loop southbound exit ramp. These impacts conflict with the proposed development plans as submitted.
- The Diversified Development plans propose extending a portion of the southbound exit ramp to Huntington Court. This would require extensive design and construction on Huntington Court and Biscayne Court to carry the increased traffic. Traffic volumes on the slip ramp are projected at 2750 vehicles per day for year 2031.
- Right of Way along SR 10 loop and the interchange ramp is limited access and is full access control.
- Topps 4A-3 directive requires access control be acquired on major arterials that are being reconstructed so that driveway connections are not permitted in the functional area of an intersection. Access connections too close to intersections can cause serious traffic conflicts that impair the function of the affected facility.
- Topps 4A-4 directive recommends only breaking access control for supporting street systems. It does not recommend breaking access control for individual driveway access points.

- An early land acquisition process is recommended to prevent this development that could ultimately jeopardize the design and construction of this interchange improvement project.

(We do not recommend the approval or the implementation of the Diversified Development plans).

Value Engineering Alternative No. A-7 *- To change the project's 16-foot urban shoulder to a 10-foot urban shoulder.*

- The 16 ft shoulders are the GDOT desirable width for urban shoulders. This additional shoulder width is necessary for relocating impacted existing utilities and for the installation of future utilities.
- There are many existing utilities throughout the project. These include an aerial electric transmission line, multiple aerial electric lines, multiple underground electric lines, multiple underground telephone lines, multiple gas lines, multiple waterlines and a sanitary sewer.
- A clear zone width of 20 ft is warranted along Atlanta Hwy. A right of way line set beyond the 16 ft shoulder will ensure that most of this area will be clear of obstructions.
- A clear zone width of 16 ft is warranted along Huntington Road. A right of way line set beyond the 16 ft shoulders will ensure that all of this area will be clear of obstructions.
- Right of way has been set just beyond the shoulder along Atlanta Highway and Huntington Road, easements have been used to construct slopes and minimize right of way in these areas.
- The clear zone along Jennings Mill Road is 13 ft. for slopes 6:1 or flatter. A right of way line set beyond the shoulders will ensure that all of this area will be clear of obstructions.
- Reducing the shoulder width to 10 ft in areas along Jennings Mill Road would require guardrail at 2:1 slopes. Adding guardrail requires an additional 5.5 ft of shoulder width.

(We do not recommend reducing the shoulder width to 10 ft).

Value Engineering Alternative No. A-7A *– To eliminate the 2.5-foot grass area between the outside edge of the sidewalk and the inside edge of the retaining walls for a total shoulder width of 13.5 feet.*

- The 16 ft shoulders are the GDOT desirable width for urban shoulders. This additional shoulder width will provide space to relocate impacted existing utilities and for the installation of future utilities.
- There are many existing utilities throughout the project. These include an aerial electric transmission line, multiple aerial electric lines, multiple underground electric lines, multiple underground telephone lines, multiple gas lines, multiple waterlines and a sanitary sewer.
- At the Burger King restaurant property near the beginning of the project, the 2.5 ft grass area was removed at the wall location to reduce right of way impacts to the property by preserving the business's drive through lane.

(We do not recommend reducing the shoulder width at all wall locations as a typical detail).

Value Engineering Alternative No. B-7 *– To reduce the radius of the curve for the westbound right-turn movement from Atlanta Highway to the SR 10 northbound on ramp and shifting the ramp to the west.*

- The radius of the curve for the westbound right-turn movement from Atlanta Highway to the SR 10 northbound entrance ramp can be reduced to 100 ft.

(We recommend reducing the radius for the curve on the northbound entrance ramp).

- Shifting the alignment to the west will cause 250 ft of additional ramp reconstruction. This cost is $43,400. This cost exceeds the cost of right of way of $33,000. (Detail cost calculations are included with this response).

(We do not recommend shifting the alignment of the northbound entrance ramp).

Value Engineering Alternative No. B-7A *– To close the existing access driveway at the Logans Roadhouse parcel.*

- The driveway at the Logans Roadhouse Parcel should be closed. Access changes for the Logans Roadhouse will likely need to be provided through the Athens Bypass LLC parcel for direct access to the proposed Jennings Mill Road signalized intersection.
- Access agreements between property owners may be difficult to obtain.

(We recommend closing the existing access driveway at the Logan's Roadhouse parcel).

Value Engineering Alternative No. B-10 *– To eliminate the proposed 4-foot bike lane on both sides of Atlanta Highway.*

- Adding 4 ft bike lanes to Atlanta Highway was a GDOT recommendation at the project concept kick off meeting. Bike lanes were added to the project concept at this time. Further research has proven that the Statewide Bicycle Route Network and the Athens-Clarke County Bicycle Master Plan do not identify this route for proposed bike lanes. (Clarke County Master Plan has been attached)

(We recommend removing the 4 foot bike lanes from the Atlanta Highway typical section).

Value Engineering Alternative No. B-11 *– To reduce the width of the 12-foot travel lanes on Atlanta Highway.*

- The design speed and posted speed of Atlanta Hwy is 45 MPH. Future traffic on Atlanta Hwy is 78,300 vehicles per day. Reducing the lane width of Atlanta Hwy to 11 ft would reduce the functionality and the capacity of the interchange. A revised traffic study would be required to determine the possible reduction in level of service. Since this project is based on increasing capacity and mobility through the interchange area, this design suggestion is not recommended.
- The reduced lane width reduces driver comfort, reduces safety, and increases traffic accidents.

(We do not recommend reducing the lane widths to 11 ft).

Value Engineering Alternative No. B-12 *– To close the Atlanta Highway median opening at Station 68+75 and provide Type B median crossovers at Timothy Road and Jennings Mill Road.*

- Access to the shopping center can be provided at the proposed Jennings Mill Road signalized intersection and on Mitchell Bridge Road. Access improvements will likely be required through the shopping center to provide better access to the proposed Jennings Mill Road signalized intersection.

(We recommend closing the median opening on Atlanta Highway station 68+75 at the Publix Shopping Center/Academic Sporting Goods Shopping Center).

- Adding a type "B" median crossover intersection on Atlanta Hwy at the Mitchell Bridge Road/Timothy Road intersection will extend the project through this intersection. Adding this improvement would require the realignment of Mitchell Bridge Road/Timothy Road to improve the substandard skew of these roads at the intersection.
- Adding a type "B" median crossover intersection on Atlanta Hwy at the Mitchell Bridge Road/Timothy Road intersection will extend the project and does not conform to the logical termini points for this project.

(We do not recommend adding a type "B" median crossover intersection on Atlanta Hwy at the Mitchell Bridge Road/Timothy Road intersection).

***Value Engineering Alternative No. C-2**- To construct a 186'x146'-5" two span bridge with 2-93' spans and "U" shaped MSE walls at the abutment ends.*

- A more detailed cost calculation reveals that alternative C-2 is approximately $134,000 more expensive than the proposed 300'x146'-5" bridge (2 spans at 150'). (Detailed cost calculations are attached).
- Alternative C-2 will restrict the cross section of the SR 10 loop for future widening to the outside.
- MSE walls complicate and lengthen staged construction time with the addition of waiting periods inherently required with MSE wall construction.
- Alternative C-2 layout does not allow for longitudinal drainage ditch along SR 10. There will be additional cost and maintenance associated with this alternate to be considered.

(We do not recommend *a 186'x146'-5" two span bridge with 2-93' spans and "U" shaped MSE walls at the abutment ends for this project*).

***Value Engineering Alternative No. C-2A**- To construct a 165'x146'-5"single span bridge with "U" shaped MSE walls at the abutment ends.*

- A more detailed cost calculation reveals that Alternative C-2A is approximately $88,500 more expensive than the proposed 300'x146'-5" bridge (2 spans at 150'). (Detailed cost calculations are attached).
- Alternative C-2A will reduce the shoulder width to 2 feet less than the desirable shoulder width.
- Alternative C-2A will restrict the cross section of the SR 10 loop for future widening to the outside.
- MSE walls complicate and lengthen staged construction time with the addition of waiting periods inherently required with MSE wall construction.
- Alternative C-2A layout does not allow for longitudinal drainage ditch along SR 10. There will be additional cost and maintenance associated with this alternate to be considered.

(We do not recommend a 165'x146'-5"single span bridge with "U" shaped MSE walls at the abutment ends for this project).

***Value Engineering Alternative No. C-2B**- To construct a four span 300'x146'-5"bridge with 2-57'spans and 2-93' spans across SR 10.*

- A more detailed cost calculation reveals that Alternative C-2B is $456,000 more expensive than the proposed 300'x146'-5" bridge (2 spans at 150'). (Detailed cost calculations are attached).
- Alternative C-2B will restrict the cross section of the SR 10 loop for future widening to the outside.
- Alternative C-2B will lengthen construction time to build 2 additional intermediate bents.

(We do not recommend a four span 300'x146'-5"bridge with 2-57'spans and 2-93' spans for this project).

Value Engineering Alternative No. C-2C- *To construct a three span 279'x146'-5"bridge with 2-57'spans and 1-165' span across SR 10.*

- A more detailed cost calculation reveals that Alternative C-2C is approximately $500,000 more expensive than the proposed 300'x146'-5" bridge (2 spans at 150'). (Detailed cost calculations are attached).
- Alternative C-2C will restrict the cross section of the SR 10 loop for future widening to the outside.
- Alternative C-2C will lengthen construction time to build 2 additional intermediate bents.

(We do not recommend a three span 279'x146'-5"bridge with 2-57'spans and 1-165' span for this project).

Value Engineering Alternative No. F-1 – *To minimize the amount of urban curb and gutter shoulder on Jennings Mill Road.*

- Neighborhoods, apartments, businesses and a church are located along Jennings Mill Road. Eliminating the sidewalks along a portion of Jennings Mill Road would not provide connectivity from these areas to the many shopping, eating and retail businesses located along Atlanta Hwy. Retaining the sidewalk potentially reduces traffic and improves the community.
- Eliminating the sidewalks along a portion of Jennings Mill Road would reduce safety for pedestrian traffic along this portion of Jennings Mill Road.

(We do not recommend eliminating sidewalk along a portion of Jennings Mill Road).

Additional Design Suggestions:

- Right of Way Steps – Right of way is typically stepped to remain parallel with roadway centerlines. In some areas, the right of way lines will be tapered to reduce steps and reduce the total right of way area required.
- Superelevation on the bridge - The superelevation transition will be corrected to remove transition from the bridge.
- Concrete Barrier Modification – The design of the concrete barrier will be revised so the end treatments will end outside of the clear zone for on coming traffic. The end treatments will begin parallel to the exit ramps and end parallel to the loop entrance ramps.
- Eliminate Parapet and Pipe Hand Rail - The parapets must be retained on walls within the clearzone. The pipe hand rails will be utilized where they are required to protect pedestrians from falls. GA STD 3626 aluminum hand railing will be utilized on top of parapets for aesthetics and to reduce future maintenance cost.

COMP. BY GTP DATE 9-17-07

CHKD. BY _____ DATE _____

Heath & Lineback Engineers INCORPORATED

SHEET _____ OF _____

JOB NO. 4009

PROJECT US 78 OVER SR 10 STRUCTURE _____

NOTE: STRUCTURE ELEMENTS COMMON BETWEEN THE PROPOSED STRUCTURE AND ALTERNATIVES ARE NOT LISTED.

PROPOSED BRIDGE WITH BIKE LANES BRIDGE WIDTH = 154'-5"

2-SPANS @ 150'

DECK = 154'-5" x 7½" x 300' = 1072 CY x $1200 = $1,286,400

BEAMS = 300' x 22 BEAMS = 6,600 LF x $200 = $ 1,320,000

BENTS = 5' x 5' x 75' + 3 x 5' x 5' x 20' + 3 x 12' x 12' x 3' = 173 CY x 2 BENTS = 346 CY x $600 = $207,600

SUPER REINF. = 230 #/CY x 1072 CY = 246,560 lbs x $1.00 = $ 246,560

SUB REINF. = 180 #/CY x 346 CY = 62,280 lbs x $1.00 = $ 62,280

PILES = END BENTS = 22 PILES x 55 LF = 1,210 LF x 2 BENTS = 2,420 LF

INTERMEDIATE BENT = 10 PILES x 6 FOOTINGS = 60 PILES x 40 LF = 2,400 LF

2420 LF + 2,400 LF = 4,820 LF x $70 $337,400

TOTAL = $3,460,240

PROPOSED BRIDGE WITHOUT BIKE LANES BRIDGE WIDTH = 146'-5"

2-SPANS @ 150'

DECK = 146'-5" x 7½" x 300' = 1,017 CY x $1200 = $1,220,400

BEAMS = 300' x 20 BEAMS = 6,000 LF x $200 = $1,200,000

BENTS = $207,600

SUPER REINF. = 230 #/CY x 1017 CY = 233,910 lbs x $1.00 $233,910

SUB REINF. = 180 #/CY x 346 CY = 62,280 lbs x $1.00 = $ 62,280

PILES = END BENTS = 20 PILES x 55 LF = 1,100 LF x 2 BENTS = 2,200 LF

INTERMEDIATE BENT = 10 PILES x 6 FOOTINGS = 60 PILES x 40 LF

2,200 LF + 2,400 LF = 4600 LF x $70 = $322,000

TOTAL = $3,246,190

COMP. BY GTP DATE 8-3-07 SHEET ____ OF ____

CHKD. BY ____ DATE ____ Heath & Lineback Engineers INCORPORATED JOB NO. 4009

PROJECT ____ STRUCTURE ____

WITHOUT BIKE LANES

ALT C-2 - 2 SPAN (2 @ 93 FT) WITH "U" MSE WALL BRIDGE WIDTH = 146.417

DECK = (2x93)(146.417) x 7½" = 630 CY x $1200 = $756,000

BEAMS = 186' x 26 BEAMS = 4,836 LF x $137 = $662,532

MSE WALL = H UNDER BRIDGE = 21.42 FT, L UNDER BRIDGE 171 FT

AREA UNDER BRIDGE = 2 (21.42 x 171 FT) = 7,326 FT²

7,326 FT² x $55.55 = $406,959

COPING A = 2 x 171 FT = 342 LF x $70 = $23,940

H FOR MSE SIDES = 28 FT, L = 60 FT

AREA OF MSE SIDES = 1680 FT² x 4 SIDES = 6720 FT² x $59 = $396,480

COPING V = 4 x 60 FT = 240 LF x $250 = $60,000

ADDITIONAL BACKFILL MATERIAL = 1465 FT² x 5.75 FT - 8424 FT² = 312 CY

= 312 CY x 2 ENDS = 624 CY x $200 = $124,800

BENTS = $207,600

ADDITIONAL ROADWAY = 300 FT - (2 x 93) = 114 FT x $1530 = $174,420

SUPER REINF = 230 #/CY x 630 CY = 144,900 lbs x $1.00 = $144,900

SUB REINF = 180 #/CY x 346 CY = 62,280 lbs x $1.0 = $62,280

PILES: END BENTS = 26 PILES x 55 LF = 1,430 LF x 2 BENTS = 2,860 L.F.

INTERMEDIATE BENTS = 10 PILES x 6 FOOTINGS = 60 PILES x 40 LF = 2,400 LF

2,860 LF + 2,400 LF = 5,260 LF x $70 = $368,200

TOTAL = $3,380,111

COMP. BY GTP DATE 9-5-07 SHEET ____ OF ____

CHKD. BY ____ DATE ____ Heath & Lineback Engineers INCORPORATED JOB NO. 4009

PROJECT ____ STRUCTURE ____

WITHOUT BIKE LANES

ALT C-2A - 1 SPAN (165 FT) WITH "U" MSE WALL BRIDGE WIDTH = 146.47

DECK = 165' x 146.47' x 7½" = 559 CY x $1200 = $670,800

BEAMS = 165' x 30 BEAMS = 4950 LF x $200 EA = $990,000

MSE WALL: H UNDER BRIDGE = 19 FT, L UNDER BRIDGE = 171

AREA UNDER BRIDGE = 2(19 x 171 FT) = 6498 FT²

6498 FT² x $55.55 = $360,964

COPING A = 2 x 171 FT = 342 LF x $70 = $23,940

H FOR MSE SIDES = 28 FT, L = 60 FT

AREA OF MSE SIDES = 1,680 FT² x 4 SIDES = 6,720 FT² x $59 = $396,480

COPING V = 4 x 83.5 FT = 334 LF x $250 = $60,000

ADDITIONAL BACKFILL MATERIAL = 1465 FT² x 8.167 FT = 11,965 FT³ = 443 CY

443 CY x 2 = 886 CY x $200 = $177,200

ADDITIONAL ROADWAY = 300 FT - 165 FT = 135 FT x $1530 = $206,550

SUPER REINF. 230 #/CY x 559 CY = 128,570 lbs x $1.00 = $128,570

PILES = 30 PILES x 55 LF = 1,650 LF x 2 BENTS = 3,200 LF x $97 = $320,100

TOTAL = $3,334,604

COMP. BY GTA DATE 9-5-07

CHKD. BY _____ DATE _____

Heath & Lineback Engineers
INCORPORATED

SHEET _____ OF _____

JOB NO. 4009

PROJECT _____ STRUCTURE _____

WITHOUT BIKE LANES

ALT L-2B - 4 SPAN 2@57' & 2@93' BRIDGE WIDTH: 146.417

DECK: 300 FT x 146.417 FT x 7½" = 1017 ^{CY} x $1,200 = $1,220,400

BEAMS: TYPE II: 2 x 57 FT = 114 FT x 26 BEAMS = ~~2,280~~ 2,964 L.F x $135 = $~~307,800~~ 400,140

TYPE III: 2 x 93 FT = 186 FT x 26 BEAMS = ~~3,720~~ 4836 L.F. x $137 = $ ~~504,640~~ 662,532

BENTS: $ 207,600 x 3 BENT = $622,800

SUPER REINF. 230 #/CY x 1017 ^{CY} = 233,910 lb x $1.0 = $233,910

SUB REINF = 180 #/CY x 1038 ^{CY} = $186,840

PILES: END BENTS = 26 PILES x 55 LF = 1,430 LF x 2 BENTS = 2,860 L.F.

INTERMEDIATE = 10 PILES x 6 FOOTINGS x 3 BENTS = 180 PILES x 40 LF = 7,200 L.F

2,860 LF + 7,200 LF = 10,060 LF x $70 = $704,200

TOTAL = 3,702,412

ADJUSTMENT FOR INTERMEDIATE BENTS

-253 ($622,800 + $186,840 + 7200 x $70) = $328,410

COMP. BY GTP DATE 8-3-07

CHKD. BY _____ DATE _____

Heath & Lineback Engineers
INCORPORATED

SHEET _____ OF _____

JOB NO. 4009

PROJECT _____ STRUCTURE _____

WITHOUT BIKE LANES
ALT G-2C 3 SPAN 2 @ 67'-6" & 1 @ 165'

DECK: 300 ft x 146.417 ft x 7½" = 1017 CY x $1200 = $1,220,400

BEAMS = 165' x 30 BEAMS = 4950 LF x $200 = $990,000
135' x 18 BEAMS = 3,240 LF x $137 = $~~443,880~~ 333,000
FASCIA = 135' x 4 BEAMS = 540 LF x $200 = $108,000

BENTS = $207,600 x 2 = $415,200

SUPER REINF = 230 #/CY x 1017 CY = 233,910 lbs x $1.00 = $233,910

SUB REINF = 180 #/CY x 692 CY = 124,560 lb x $1.0 = $124,560

PILES = ENDBENTS = 26 PILES x 55 LF = 1,430 LF x 2 BENTS = 2,860 LF

INTERMEDIATE 10 PILES x 6 FOOTINGS x 2 BENTS = 120 LF x 40 LF = 4800 LF

2,860 LF + 4,800 LF = 7,660 LF x $70 = $536,200

TOTAL = $3,742,330

Adjust for int. Bents

− 25% (415,200 + 124,560 + 4800 x 70) = 218940

Σ = $3,742,330

Pavement Calculations for VE Alt B-7
Atl Hwy over SR 10 Loop

25-Sep-07
Page 1

RAMP 6

A RECYCLED ASPH. CONC. 12.5mm SUPERPAVE, GP. 2 ONLY, INCL. BITUM MATL & H LIME

A	Location	Area	unit	unit weight	unit	total	unit	Unit Price	Price per LF
	Mainline		2.9 SY	0.0825	Tons/SY	0.2	Tons		
					Total	0.2	Tons	70	14

B RECYCLED ASPH CONC 19 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME

B	Location	Area	unit	unit weight	unit	total	unit	Unit Price	Price per LF
	Mainline		2.9 SY	0.2200	Tons/SY	0.6	Tons		
					Total	1	Tons	90	54

C RECYCLED ASPH CONC 25 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME

C	Location	Area	unit	unit weight	unit	total	unit	Unit Price	Price per LF
	Mainline		2.9 SY	0.3300	Tons/SY	1	Tons		
					Total	1	Tons	80	80

D GR AGGR BASE CRS, INCL MATL

D	Location	Area	unit	unit	total	unit	Total	Unit	Unit price	Price per LF
	Mainline(10 in)		1.8 SY	Tons/SY	2	SY	1	Tons		
				Total	2	SY	1	Tons	25	25

BITUM TACK COAT

Location	Area	unit	unit weight	unit	layers	total	unit	Unit Price	Price per LF
Mainline		2.9 SY	0.035	GL/SY	3	0.3	GL		
					Total	0.3	GL	2	0.6

Total Price per LF
$174

Ramp 6 = 250 ft

Total Cost
$43,400

Athens-Clarke County
Bicycle Master Plan
Existing Bicycle Facility
Planned Bicycle Facility
GDOT Statewide Bicycle Route Network
Major Construction (Proposed)
Minor Construction (Proposed)
Signing and Striping (Proposed)
1 0.5 0 1 2 Miles
N
HR/WLJorden
Tallassee Rd
Cleveland Rd
Jennings Mill Pkwy
Oglethorpe Ave
Boulevard
Prince Ave
Lexington Rd
Barnett Shoals Rd
Gaines School Rd
Riverbend Rd
Whitehall Rd
Macon Hwy
Southview Dr
Ruth St
Old Hull Rd
Tyler St
Baxter St
Ayre Rd
Yesterday Rd
Fairs Bridge Rd
Athens Parkway