

VALUE ENGINEERING REPORT

SR 3 / US 19 and CR 73 Intersection Improvement
and New Bridge Over Potato Creek

Upson County

PI Nos.: 322920 / 322922

Project Nos. NH -006 4(31) / BRN-006-4-(32)

October 28, 2008

OWNER:



State of Georgia
Department of Transportation
Engineering Services
One Georgia Center
600 W. Peachtree Street NW
Atlanta, GA 30308

VALUE ENGINEERING CONSULTANT:



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EXECUTIVE SUMMARY

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VALUE ENGINEERING REPORT

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and New Bridge Over Potato Creek
Upson County
PI Nos.: 322920 / 322922

October 28, 2008

Introduction

This report summarizes the results of a value engineering (VE) study conducted on the widening and improvements to SR 3 / US 19 at the intersection of CR 73 in Thomaston, Georgia located in Upson County. Also included is the bridge replacement on SR 3 / US 19 over Potato Creek. The project is approximately 65 miles south of Atlanta.

In essence, this effort includes a four day study on the concept level design for the roadway and bridges portions of this project. The roadway portion is to improve the existing SR 3 / US 19 intersection with County Road 73. The 0.68 mile project will widen SR 3 / US 19 to replace the existing 12 foot flush median with a 20 foot raised median. The project will also provide right turn lanes on Northbound and Southbound approaches. When completed, the project will provide a 4 lane divided roadway with a 20 foot raised median and a 12 foot urban shoulder on SR 3 / US 19 from 500 feet north of Potato Creek to 700 feet north of CR 73. CR 73 will be widened to a 12 foot separate left turn lane at the intersection. A 12 foot right turn lane will be added on the eastbound approach. CR 73 will be widened from 400 feet west of Pine Street to Franklin Drive. The project will provide 5 foot wide sidewalks on both sides of the roadway within the project limits. As part of this project, a traffic signal at the intersection will be upgraded, and a new signal will be installed at the entrance to Home Depot.

The roadway is classified as an Urban Principal Arterial with a SR 3 / US 19 posted speed limit of 45 mph. The projected ADT is 36,000 in 2025 with 4% trucks. The roadway portion of the project has an estimated project cost of \$17,287,000 including \$10.2 million in right of way.

The Bridge portion of the project replaces a structurally deficient and functionally obsolete bridge on SR 3 / US 19 over Potato Creek in Thomaston. The bridge was constructed in 1938 and reconstructed in 1978 and has a current sufficiency rating of 36.5. The new bridge will have a length of approximately 350 feet and a width of 80 feet. It will consist of 4-12 foot travel lanes, a 16 foot raised median and 6 foot sidewalks on both sides. The estimated project cost for the bridge portion is \$5,438,000.

The proposed typical section includes four 12 foot lanes with a 20 foot raised median, 5 foot sidewalks and 12 foot urban shoulders for the entire length. Improvements will be made to all drainage facilities and the numerous driveway entrances along the roadway. Project BRN-006-

4(32) has been appropriated to replace the inadequate bridge that spans Potato Creek at the south end of the project.

The study was conducted October 7-10, 2008 at the DOT offices in Atlanta using a four person VE team. The design team included in-house GDOT personnel, R.K.Shah & Associates for the roadway design and PBS&J for the bridge design.

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** section contains information about the project and the team. The **Recommendations** section presents a more detailed description and support information about each recommendation. Lastly, the **Appendix** includes a complete record of the Team's activities and findings as well as the meeting attendees sign in sheet. The reader is encouraged to review all sections of the report in order to obtain a complete understanding of the VE process.

Considerations

- The VE team was informed that a Historic property is located on the West side of the bridge. This property was avoided in the design.
- Environmentally, there are several abandoned gas stations properties in the area of this project and the possibility exists for USTs being present.
- The project will be lighted as lighting exists on the existing roadway.
- Sidewalks will be provided on both sides of the project. There is evidence of substantial pedestrian traffic in the area (worn pathways in the grass).

Results Obtained

The VE Team generated 23 ideas and presented 16 recommendations for consideration by GDOT. The recommendations involve modifications to staging for the bridge project; eliminating pilot holes for bridge piling; not constructing a raised median on the bridge deck; reducing the width of the travel lanes; reducing the thickness of the AC section; revising drainage concepts; re-evaluating the need for street lighting; eliminating the sidewalks; reducing borrow at the intersection; and re-evaluating the scope of the entire project.

Neglecting the overlapping nature of the recommendations as much as possible, the total of all the recommendations have the potential to reduce project costs by as much as \$3.9 million capital cost savings while continuing to provide the required functionality. This is shown in the last column of the Summary Table that follows the summary description below.

A brief presentation of these recommendations was conducted on October 10th, with the following in attendance: Lisa Myers and Ron Wishon from GDOT Engineering Services, Bill Rountree and Adam Smith from GDOT District Three, Raju Shah and Mike Moseley representing the design engineers and the VE Team: Dave Wohlscheid, George Obaranec, Dan Cogan and Aruna Sastry.

Recommendation Highlights

B-2.0 Eliminate stage 1 of bridge staging plan

This concept proposes eliminating the Stage 1 (removal of sidewalk) which reduces construction time as well as provides pedestrian access at all times throughout construction.

Potential savings is \$116,600.

B-2.1 Use an alternative staging concept - reduce to 3 through lanes throughout construction

This concept is to use three in lieu of four through lanes during construction. This would shorten the construction period for the bridge and eliminate dangerous and costly lane shifts.

Potential savings is \$227,100

B-5 Eliminate pilot holes for piling.

The original design called for pilot holes for placing piling for intermediate bent #3 foundations. A revised bridge investigation report (BFI) from the geotechnical report stated that pilot holes would not be needed.

Potential savings for this item is \$361,000

B-6 Do not construct median concrete on the bridge deck

Eliminate the 16 foot by 6 inches high median above the bridge deck and use striping to identify the separation.

Potential savings is \$96,200

C-1 Reduce lane widths to 11 feet

For this instance 11 foot lanes are acceptable. The speed limit is 45 mph and both the outer and inner lanes have a 2 foot curb section to offset the lane width reduction.

Potential savings is \$355,000

C-2 Reduce thickness of 25 mm recycled asphalt concrete section from 7 inches to 5 inches

The specified 770 lb/sy for base material appears high. The reduction proposed should not affect performance.

Potential savings is \$158,100

E-1 Use an open ditch in lieu of the 54 inch drain pipe and inlets proposed

The open ditch system appears to be viable for the long outfall proposed off CR 73. The storage capacity will be greater and the grading and excavation will be similar for a large pipe vs grading the ditch section. Additional ROW and /or easements may be necessary.

Potential savings is \$108,000

F-1.0 Eliminate street lighting

This concept eliminates all street lighting on this project. Given the commercialized area of this project, the VE team feels the established business lighting should provide ample visibility for the traveling public. Substantial annual power savings also results.

Proposed savings is \$1,180,300

F-1.1 Eliminate Street Lighting but add back in pedestrian lighting

This option adds back in pedestrian lighting if the pedestrian quantities warrant this need.

Proposed savings is \$576,700

G-1 Reduce thickness of GAB section

Reducing the section from 12 to 10 inches should be in conformance with normal design parameters for this type of pavement.

Proposed savings is \$79,600

H-1 Eliminate 4 inch concrete sidewalk from both sides of the typical detail

This idea was to eliminate all sidewalks from the project. Because of the commercialized nature of this area the VE team does not feel the sidewalks are warranted for the anticipated little use they will receive.

Proposed savings \$290,600

H-4 Reduce the number of driveway access points along the corridor

This idea evaluates the need for the driveway points. It appeared several could be eliminated for a small cost savings.

Proposed Savings \$25,700

I-1 Reduce fill quantities for the CR 73 and SR 3 / US 19 intersection

This idea evaluates the savings by widening the roadway in this area but retaining the existing vertical elevations. This would eliminate major staged construction to haul 6 feet of borrow material to the site. Reducing the design speed would allow the vertical curve elevations to remain in place.

Potential savings \$255,600

L-2 Eliminate 5 inch white thermoplastic edge line stripe along the “white” curb and gutter sections

This savings could be achieved from numerous projects across the state. The white striping on black asphalt next to a bleached white concrete curb and gutter does not diminish directional or safety concerns.

Potential savings \$4,700

L-3 Re-evaluate the project limits and scope

This project originated as an intersection improvement project at CR 73. Due to the bridge project to the south, the gap was connected and the roadway project extended. This represents a classic case of project scope creep. The idea under this alternative is to return to the basic project and construct all the intersection improvements and replace the bridge.

Potential savings \$2,120,000

SR 3 / US19 and CR73 Intersection Improvement, New Bridge Over Potato Creek
SUMMARY OF POTENTIAL COST SAVINGS

ITEM No.	CREATIVE IDEA DESCRIPTION	ORIGINAL INITIAL COST	PROPOSED INITIAL COST	INITIAL COST SAVINGS	FUTURE SAVINGS	TOTAL PRESENT WORTH SAVINGS	Maximum Savings in Combination with other VE proposals
B	Bridge Items						
B-2.0	Eliminate Stage I of bridge staging plan	116,600	-0-	116,600	-0-	116,600	-0-
B-2.1	Use alternate staging concept, reduce to 3 through lanes at all times	277,100	-0-	277,100	-0-	277,100	277,100
B-5	Eliminate pilot holes for piling	361,000	-0-	361,000	-0-	361,000	361,000
B-6	Do not construct raised median on the bridge deck	102,200	-0-	102,200	-0-	102,200	102,200
C	Asphalt Concrete Paving						
C-1	Reduce lane widths to 11 feet	355,000	-0-	355,000	-0-	355,000	355,000
C-2	Reduce thickness of 25 MM recycled asphalt concrete section	553,000	394,900	158,100	-0-	158,100	158,100
E	Storm Drainage						
E-1	Use open ditch in lieu of 54 inch pipe and inlets	112,300	4,300	108,000	-0-	108,000	108,000

SR 3 / US19 and CR73 Intersection Improvement, New Bridge Over Potato Creek
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F	Street Lighting						
F-1.0	Eliminate all street lighting	897,900	-0-	897,900	312,400	1,180,300	1,180,300
F-1.1	Eliminate street lighting, provide pedestrian lighting	897,900	433,900	434,000	142,700	576,700	-0-
G	Graded Aggregate Base						
G-1	Reduce thickness of GAB section	477,400	397,800	79,600	-0-	79,600	63,700
H	Curb and Gutter						
H-1	Eliminate sidewalks due to the type of commercialized area of this project	290,600	-0-	290,600	-0-	290,600	290,600
H-4	Reduce the number of driveway access points along corridor	140,600	114,900	25,700	-0-	25,700	25,700
I	Grading / Earthwork						
I-1	Evaluate borrow/fill at intersection of CR 73 and SR 3 / US 19	296,200	40,600	255,600	-0-	255,600	255,600

STUDY IDENTIFICATION

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Project: SR 3 / US 19 and CR 73 Intersection Improvement and New Bridge Over Potato Creek	Dates: October 7-10, 2008
Location: GDOT HQ - Atlanta	

VE Team Members

Name:	Discipline:	Organization:	Telephone:
David Wohlscheid	VE Team Leader	MACTEC	703-471-8383
George Obaranec	Highway Design	MACTEC	770-421-3346
Dan Cogan	Highway Construction	Kennedy Engineers & Associates	678-904-8591
Aruna Sastry	Highway Bridges	Sastry and Associates	678-366-9375

Project Description

This effort includes a four day VE study on the concept level design for the roadway and bridge portions of this project. The roadway portion is to improve the existing SR 3 / US 19 intersection with County Road 73. The 0.68 mile project will widen SR 3 / US 19 to replace the existing 12 foot flush median with a 20 foot raised median. The project will also provide right turn lanes on Northbound and Southbound approaches. When completed, the project will provide a 4 lane divided roadway with a 20 foot raised median and a 12 foot urban shoulder on SR 3 / US 19 from 500 feet north of Potato Creek to 700 feet north of CR 73. CR 73 will be widened to a 12 foot separate left turn lane at the intersection. A 12 foot right turn lane will be added on the eastbound approach. CR 73 will be widened from 400 feet west of Pine Street to Franklin Drive. The project will provide 5 foot wide sidewalks on both sides of the roadway within the project limits. As part of this project, a traffic signal at the intersection will be upgraded, and a new signal will be installed at the entrance to Home Depot.

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Please refer to the Cost Distribution Model contained in the Appendix for a breakdown of the estimate for this project.

***Kick off Meeting/Design Presentation
October 7, 2008***

In addition to the VE Team, the following personnel attended this meeting which was held at the outset of the VE study:

Lisa Myers	GDOT Engineering Services
Ron Wishon	GDOT Engineering Services
Mike Moseley	PBS&J Project Manager
Raju Shah	R.K. Shah & Associates Project Principal
Kevin Van Houten	GDOT Assistant District 3 Engineer
Ken Werho	GDOT Traffic Operations
Lamar Pruitt, Jr.	GDOT Construction
David Millen	GDOT District 3 Preconstruction Engineer
Debra Pruitt	GDOT Environmental
James Magnus	GDOT Construction
Bill Rountree	GDOT Roadway Design
Lyn Clements	GDOT Bridge Design
Adam Smith	GDOT Roadway Design
Jerry Milligan	GDOT Right of Way

The VE Team appreciated the project overview given by Raju Shah and Mike Moseley. Highlights included:

- The project is about 0.7 miles in length and the main reason for the project is to improve the intersection with CR 73 and to replace the bridge over Potato Creek.
- The road will be reconstructed to 4 lanes with additional right of way being acquired.
- The existing roadway and bridge were constructed in 1938.
- Environmentally there are several previous locations of gas stations with potential for USTs.
- There is pump house that has historic significance adjacent to the east side of the bridge location.
- Driveway connections on SR 3 and CR 73 will be improved.
- Retaining walls will be used at several locations to minimize Right of Way acquisitions.
- Right of Way has been partially purchased.
- Lighting for the roadway will be included.

- Sidewalks will be provided on both sides of the roadways (SR 3 and CR 73) to support the heavy pedestrian usage as evidenced by the “goat trails” worn into the adjacent grassed shoulders.
- Drainage will be improved throughout the project.
- Desirably, four lanes of traffic must be maintained throughout the construction process.

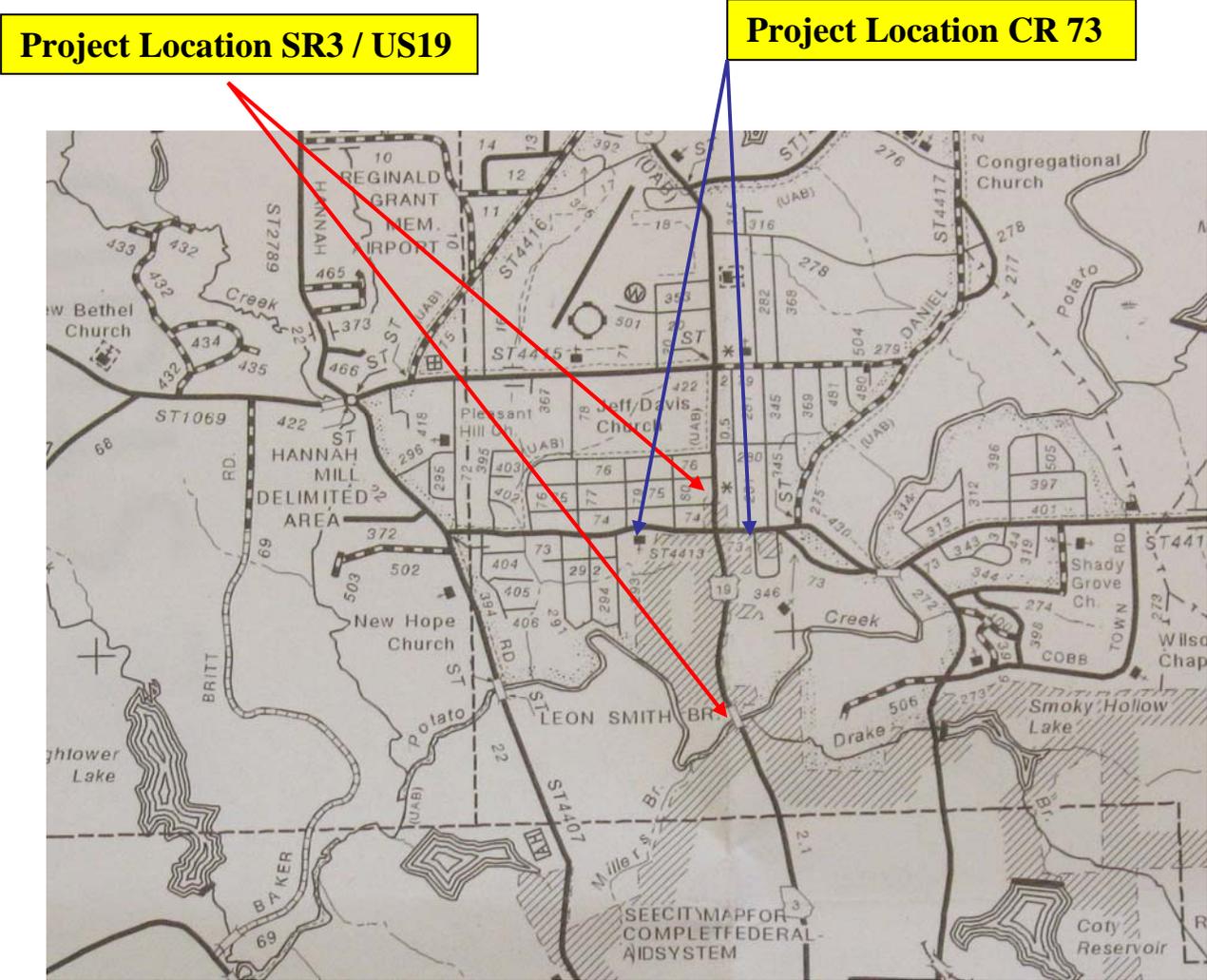
The following presents the project vicinity and location maps and project cost information used in this VE effort to present a more complete project description.

Figure 1
Project Vicinity Map



County Map of Georgia

Figure 2
Project Location Map



Estimate Report for file "322920"

Section A-ROADWAY					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
150-1000	1	LS	50000.00	TRAFFIC CONTROL - NH-006-4(31)	50000.00
207-0203	370	CY	51.31	FOUND BKFILL MATL, TP II	18984.70
210-0100	1	LS	150000.00	GRADING COMPLETE - NH-006-4(31)	150000.00
310-1101	18890	TN	18.73	GR AGGR BASE CRS, INCL MATL	353809.70
318-3000	500	TN	25.00	AGGR SURF CRS	12500.00
402-1812	9300	TN	75.00	RECYCLED ASPH CONC LEVELING, INCL BITUM MATL & H LIME	697500.00
402-3121	6640	TN	65.00	RECYCLED ASPH CONC 25 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME	431600.00
402-3130	3300	TN	68.00	RECYCLED ASPH CONC 12.5 MM SUPERPAVE, GP 2 ONLY, INCL BITUM MATL & H LIME	224400.00
402-3131	715	TN	70.00	RECYCLED ASPH CONC 9.5 MM SUPERPAVE, GP 2 ONLY, INCL BITUM MATL & H LIME	50050.00
402-3190	2970	TN	68.50	RECYCLED ASPH CONC 19 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME	203445.00
413-1000	2740	GL	2.25	BITUM TACK COAT	6165.00
436-1000	1000	LF	10.00	ASPHALTIC CONCRETE CURB -	10000.00
441-0104	5280	SY	34.18	CONC SIDEWALK, 4 IN	180470.40
441-0754	1800	SY	42.11	CONCRETE MEDIAN, 7 1/2 IN	75798.00
441-4020	240	SY	39.67	CONC VALLEY GUTTER, 6 IN	9520.80
441-4050	2370	SY	45.43	CONC VALLEY GUTTER WITH CURB, 8 IN	107669.10
441-5002	1340	LF	13.96	CONCRETE HEADER CURB, 6 IN, TP 2	18706.40
441-6222	11350	LF	15.44	CONC CURB & GUTTER, 8 IN X 30 IN, TP 2	175244.00
500-3201	270	CY	662.33	CLASS B CONCRETE, RETAINING WALL	178829.10
500-3800	5	CY	773.30	CLASS A CONCRETE, INCL REINF STEEL	3866.50
500-9999	200	CY	198.37	CLASS B CONC, BASE OR PVMT WIDENING	39674.00
550-1180	4294	LF	35.17	STORM DRAIN PIPE, 18 IN, H 1-10	151019.98
550-1240	1259	LF	43.56	STORM DRAIN PIPE, 24 IN, H 1-10	54842.04
550-1300	941	LF	64.00	STORM DRAIN PIPE, 30 IN, H 1-10	60224.00
550-1480	457	LF	110.45	STORM DRAIN PIPE, 48 IN, H 1-10	50475.65
550-1481	452	LF	102.94	STORM DRAIN PIPE, 48 IN, H 10-15	46528.88
550-1540	539	LF	149.16	STORM DRAIN PIPE, 54 IN, H 1-10	80397.24
550-4224	1	EA	783.96	FLARED END SECTION 24 IN, STORM DRAIN	783.96
573-2006	500	LF	12.50	UNDDR PIPE INCL DRAINAGE AGGR, 6 IN	6250.00
600-0001	225	CY	243.37	FLOWABLE FILL	54758.25
611-4001	11	EA	2454.53	RECONSTR MINOR DRAINAGE STR	26999.83
611-8055	2	EA	3195.00	ADJUST MINOR STRUCTURE TO GRADE	6390.00
620-0100	1000	LF	31.99	TEMPORARY BARRIER, METHOD NO. 1	31990.00
634-1200	75	EA	104.67	RIGHT OF WAY MARKERS	7850.25
668-1100	52	EA	2636.78	CATCH BASIN, GP 1	137112.56
668-1110	16	LF	290.99	CATCH BASIN, GP 1, ADDL DEPTH	4655.84
668-2100	28	EA	2410.62	DROP INLET, GP 1	67497.36
668-2110	15	LF	322.56	DROP INLET, GP 1, ADDL DEPTH	4838.40
668-4300	7	EA	2308.03	STORM SEWER MANHOLE, TP 1	16156.21
668-4311	11	LF	329.74	STORM SEWER MANHOLE, TP 1, ADDL DEPTH, CL 1	3627.14
668-4312	11	LF	356.54	STORM SEWER MANHOLE, TP 1, ADDL DEPTH, CL 2	3921.94
668-4400	8	EA	2839.85	STORM SEWER MANHOLE, TP 2	22718.80
668-4411	10	LF	295.17	STORM SEWER MANHOLE, TP 2, ADDL DEPTH, CL 1	2951.70
668-4412	54	LF	210.00	STORM SEWER MANHOLE, TP 2, ADDL DEPTH, CL 2	11340.00
Section Sub Total:					\$3,851,562.73

Section B-PERMANENT EROSION					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
603-2024	50	SY	46.72	STN DUMPED RIP RAP, TP 1, 24 IN	2336.00
603-2182	8	SY	53.60	STN DUMPED RIP RAP, TP 3, 24 IN	428.80
603-7000	58	SY	5.37	PLASTIC FILTER FABRIC	311.46
700-6910	7	AC	920.79	PERMANENT GRASSING	6445.53
700-7000	13	TN	66.75	AGRICULTURAL LIME	867.75
700-7010	18	GL	20.32	LIQUID LIME	365.76

700-8000	6	TN	379.32	FERTILIZER MIXED GRADE	2275.92
700-8100	325	LB	2.50	FERTILIZER NITROGEN CONTENT	812.50
716-2000	2150	SY	0.90	EROSION CONTROL MATS, SLOPES	1935.00
Section Sub Total:					\$15,778.72

Section C-TEMPORARY EROSION

Item Number	Quantity	Units	Unit Price	Item Description	Cost
163-0232	4	AC	491.10	TEMPORARY GRASSING	1964.40
163-0240	33	TN	186.53	MULCH	6155.49
163-0300	2	EA	1535.59	CONSTRUCTION EXIT	3071.18
163-0550	70	EA	223.96	CONSTRUCT AND REMOVE INLET SEDIMENT TRAP	15677.20
165-0010	5600	LF	0.89	MAINTENANCE OF TEMPORARY SILT FENCE, TP A	4984.00
165-0030	1350	LF	1.04	MAINTENANCE OF TEMPORARY SILT FENCE, TP C	1404.00
165-0101	2	EA	512.38	MAINTENANCE OF CONSTRUCTION EXIT	1024.76
165-0105	70	EA	101.76	MAINTENANCE OF INLET SEDIMENT TRAP	7123.20
167-1000	2	EA	818.42	WATER QUALITY MONITORING AND SAMPLING	1636.84
167-1500	24	MO	926.60	WATER QUALITY INSPECTIONS	22238.40
171-0010	5600	LF	2.72	TEMPORARY SILT FENCE, TYPE A	15232.00
171-0030	1350	LF	3.94	TEMPORARY SILT FENCE, TYPE C	5319.00
Section Sub Total:					\$85,830.47

Section D-SIGNING AND MARKING

Item Number	Quantity	Units	Unit Price	Item Description	Cost
636-1020	149	SF	15.54	HIGHWAY SIGNS, TP 1 MATL, REFL SHEETING, TP 3	2315.46
636-1033	407	SF	19.62	HIGHWAY SIGNS, TP 1 MATL, REFL SHEETING, TP 9	7985.34
636-2070	1050	LF	8.74	GALV STEEL POSTS, TP 7	9177.00
636-2080	64	LF	8.95	GALV STEEL POSTS, TP 8	572.80
653-0120	63	EA	74.10	THERMOPLASTIC PVMT MARKING, ARROW, TP 2	4668.30
653-1501	14845	LF	0.46	THERMOPLASTIC SOLID TRAF STRIPE, 5 IN, WHITE	6828.70
653-1502	11780	LF	0.46	THERMOPLASTIC SOLID TRAF STRIPE, 5 IN, YELLOW	5418.80
653-1704	220	LF	3.55	THERMOPLASTIC SOLID TRAF STRIPE, 24 IN, WHITE	781.00
653-1804	10412	LF	1.76	THERMOPLASTIC SOLID TRAF STRIPE, 8 IN, WHITE	18325.12
653-3501	10078	GLF	0.38	THERMOPLASTIC SKIP TRAF STRIPE, 5 IN, WHITE	3829.64
653-3502	1740	GLF	0.20	THERMOPLASTIC SKIP TRAF STRIPE, 5 IN, YELLOW	348.00
653-6004	1170	SY	2.81	THERMOPLASTIC TRAF STRIPING, WHITE	3287.70
653-6006	475	SY	2.71	THERMOPLASTIC TRAF STRIPING, YELLOW	1287.25
654-1001	78	EA	3.34	RAISED PVMT MARKERS TP 1	260.52
654-1003	268	EA	3.70	RAISED PVMT MARKERS TP 3	991.60
654-1010	16	EA	36.71	RAISED PVMT MARKERS TP 10	587.36
Section Sub Total:					\$66,664.59

Section E-SIGNAL INSTALLATION

Item Number	Quantity	Units	Unit Price	Item Description	Cost
615-1200	600	LF	13.08	DIRECTIONAL BORE - 3 IN DIA	7848.00
636-1041	148	SF	43.56	HIGHWAY SIGNS, TP 2 MATL, REFL SHEETING, TP 9	6446.88
639-4004	8	EA	6116.34	STRAIN POLE, TP IV	48930.72
647-1000	1	LS	100000.00	TRAFFIC SIGNAL INSTALLATION NO - 1	100000.00
647-1000	1	LS	100000.00	TRAFFIC SIGNAL INSTALLATION NO - 2	100000.00
Section Sub Total:					\$263,225.60

Section F-STREET LIGHTING

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Item Number	Quantity	Units	Unit Price	Item Description	Cost
615-1100	1000	LF	102.38	DIRECTIONAL BORE PIPE - 1.5 IN	102380.00
681-4160	47	EA	3640.00	LIGHTING STD, 16 FT MH, POST TOP	171080.00
681-4210	47	EA	2640.96	LIGHTING STD, 30 FT MH, POST TOP	124125.12
681-6320	89	EA	765.69	LUMINAIRE, TP 3, 150 W, HP SODIUM	68146.41
681-6346	5	EA	761.62	LUMINAIRE, TP 3, 250 W, HP SODIUM	3808.10
682-1405	32000	LF	2.01	CABLE, TP XHHW, AWG NO 8	64320.00
682-1407	32000	LF	2.61	CABLE, TP XHHW, AWG NO 4	83520.00
682-6115	800	LF	14.75	CONDUIT, RIGID, 1 1/2 IN	11800.00
682-6221	9900	LF	5.85	CONDUIT, NONMETL, TP 2, 1 1/2 IN	57915.00
682-9000	1	LS	13076.13	MAIN SERVICE PICK UP POINT - NO 1	13076.13
682-9000	1	LS	13076.13	MAIN SERVICE PICK UP POINT - NO 2	13076.13
682-9022	8	EA	1245.83	ELECTRICAL JUNCTION BOX, REINFORCED PLASTIC MORTAR	9966.64
Section Sub Total:					\$723,213.53

Total Estimated Cost: \$5,006,275.64

FILE

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

INTERDEPARTMENTAL CORRESPONDENCE

FILE: R/W Cost Estimate

OFFICE: Thomaston

DATE: June 22, 2006

FROM: Robert E. O'Rourke, District Right of Way Team Manager

TO: Wilhelmina A. Mueller, Chief of Appraisals and Review

SUBJECT: RIGHT OF WAY COST ESTIMATE

PROJECT: NH-006-4(31), Upson County

P.I. NUMBER: 322920

Attached is the project Right of Way Cost Estimate on the above referenced project. It is estimated that the cost of right of way plus all related expenses will be \$ 10,200,000.00.

If we can offer further assistance, please contact **J.D. Stallings** of this office at (706) 646-6526.

cc: Alisha Dennery, RW G.O.

DETAIL COST ESTIMATE SUMMARY SHEET

DATE: 6/23/06 P.I.#: 322920
 PROJECT: NH-006-4(31) PARCELS: 50
 PROJECT DESCRIPTION: Intersection Improvements S.R. 3 / U.S. 19 at County Road

1. LAND: (Total area and cost by category)

Right of Way:	\$ 1,019,700.00	
Permanent and Temporary Easement:	\$ 609,255.00	
Total		\$ 1,628,955.00

2. IMPROVEMENTS:

Main Structures	\$ 2,352,492.00	
Site Improvements		
Total		\$ 2,352,492.00

3. Damages:

Damages to Land and Structures	\$ 300,000.00	
Specialty Costs (Cost to Cures, Trade Fixtures, etc.)	\$ 1,250,000.00	
Total		\$ 1,550,000.00

4. RELOCATION: (Including Consequential Displacements)

Businesses	16	Displaced x \$ 15,000.00	\$ 240,000.00	
Residential Tenant:	0	Displaced x \$ 20,000.00	\$ -	
Residential Owner	0	Displaced x \$ 34,000.00	\$ -	
Total				\$ 240,000.00

5. Property Management (Asbestos Removal and Demolition)

Number of Structures	16	Displaced x \$ 12,000.00	\$ 192,000.00	
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Estimated Cost of Right of Way	\$ 5,963,447.00
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C/O, Condemnation Increase & Legal Cost		50% of R/W	\$ 2,981,723.50
Service Fees and Appraisal Cost	50	Par x \$4,000	\$ 200,000.00
Condemnation Cost	50	Par x 10% x \$5,500	\$ 27,500.00
Incidentals	50	Par x \$2,000	\$ 100,000.00

Net Cost	\$ 9,272,670.50
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Inflation (5% rural, 10% urban)	\$ 927,267.05
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TOTAL COST	\$ 10,199,937.55
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TOTAL COST (ROUNDED)	\$ 10,200,000.00
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Credits: # Hours
 John David (J.D.) Stallings 40
 Todd Mathison 40
 Cc:

Estimate Report for file "BRN-006-4(32)"

Section ROADWAY ITEMS					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
150-1000	1	LS	200000.00	TRAFFIC CONTROL -	200000.00
150-5010	23	EA	10113.70	TRAFFIC CONTROL, PORTABLE IMPACT ATTENUATOR	232615.10
153-1300	1	EA	67522.56	FIELD ENGINEERS OFFICE TP 3	67522.56
210-0100	1	LS	100000.00	GRADING COMPLETE -	100000.00
310-1101	2350	TN	18.73	GR AGGR BASE CRS, INCL MATL	44015.50
318-3000	250	TN	22.85	AGGR SURF CRS	5712.50
402-1812	950	TN	69.18	RECYCLED ASPH CONC LEVELING, INCL BITUM MATL & H LIME	65721.00
402-3113	700	TN	72.16	RECYCLED ASPH CONC 12.5 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME	50512.00
402-3121	450	TN	62.07	RECYCLED ASPH CONC 25 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME	27931.50
402-3192	400	TN	76.00	RECYCLED ASPH CONC 19 MM SUPERPAVE, GP 1 OR 2, INCL BITUM MATL	30400.00
413-1000	700	GL	2.07	BITUM TACK COAT	1449.00
433-1000	490	SY	157.44	REINF CONC APPROACH SLAB	77145.60
441-0104	1805	SY	34.18	CONC SIDEWALK, 4 IN	61694.90
441-0302	2	EA	1768.52	CONC SPILLWAY, TP 2	3537.04
441-4020	94	SY	39.67	CONC VALLEY GUTTER, 6 IN	3728.98
441-6012	3125	LF	15.71	CONC CURB & GUTTER, 6 IN X 24 IN, TP 2	49093.75
500-9999	15	CY	198.37	CLASS B CONC, BASE OR PVMT WIDENING	2975.55
550-1180	54	LF	35.17	STORM DRAIN PIPE, 18 IN, H 1-10	1899.18
550-1181	132	LF	41.93	STORM DRAIN PIPE, 18 IN, H 10-15	5534.76
550-1240	366	LF	43.56	STORM DRAIN PIPE, 24 IN, H 1-10	15942.96
550-1241	32	LF	51.72	STORM DRAIN PIPE, 24 IN, H 10-15	1655.04
550-4118	2	EA	594.44	FLARED END SECTION 18 IN, SIDE DRAIN	1188.88
620-0100	1800	LF	31.99	TEMPORARY BARRIER, METHOD NO. 1	57582.00
620-0200	700	LF	57.66	TEMPORARY BARRIER, METHOD NO. 2	40362.00
634-1200	14	EA	104.67	RIGHT OF WAY MARKERS	1465.38
641-1100	233	LF	48.92	GUARDRAIL, TP T	11398.36
641-1200	913	LF	16.34	GUARDRAIL, TP W	14918.42
641-5001	3	EA	643.31	GUARDRAIL ANCHORAGE, TP 1	1929.93
641-5012	1	EA	1815.74	GUARDRAIL ANCHORAGE, TP 12	1815.74
650-1100	8	EA	19395.00	IMPACT ATTENUATOR UNIT (CRASH COMPRESSION CUSHION) TYPE P-	155160.00
668-1100	6	EA	2636.78	CATCH BASIN, GP 1	15820.68
668-1110	33	LF	290.99	CATCH BASIN, GP 1, ADDL DEPTH	9602.67
668-5000	1	EA	2235.97	JUNCTION BOX	2235.97
Section Sub Total:					\$1,362,566.95

Section PERMANENT EROSION CONTROL					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
603-2018	50	SY	45.16	STN DUMPED RIP RAP, TP 1, 18 IN	2258.00
603-7000	50	SY	5.37	PLASTIC FILTER FABRIC	268.50
700-6910	3	AC	920.79	PERMANENT GRASSING	2762.37
700-7000	9	TN	66.75	AGRICULTURAL LIME	600.75
700-7010	8	GL	20.32	LIQUID LIME	162.56
700-8000	3	TN	379.32	FERTILIZER MIXED GRADE	1137.96
700-8100	300	LB	2.50	FERTILIZER NITROGEN CONTENT	750.00
710-9000	6000	SY	4.77	PERMANENT SOIL REINFORCING MAT	28620.00
Section Sub Total:					\$36,560.14

Section TEMPORARY EROSION CONTROL					
Item Number	Quantity	Units	Unit Price	Item Description	Cost
163-0232	2	AC	491.10	TEMPORARY GRASSING	982.20
163-0240	70	TN	186.53	MULCH	13057.10
163-0300	2	EA	1535.59	CONSTRUCTION EXIT	3071.18
163-0501	6	EA	850.09	CONSTRUCT AND REMOVE SILT CONTROL GATE, TP 1	5100.54
163-0550	1	EA	223.96	CONSTRUCT AND REMOVE INLET SEDIMENT TRAP	223.96

165-0010	450	LF	0.89	MAINTENANCE OF TEMPORARY SILT FENCE, TP A	400.50
165-0030	1500	LF	1.04	MAINTENANCE OF TEMPORARY SILT FENCE, TP C	1560.00
165-0085	6	EA	214.82	MAINTENANCE OF SILT CONTROL GATE, TP 1	1288.92
165-0101	2	EA	512.38	MAINTENANCE OF CONSTRUCTION EXIT	1024.76
165-0105	1	EA	101.76	MAINTENANCE OF INLET SEDIMENT TRAP	101.76
167-1000	2	EA	818.42	WATER QUALITY MONITORING AND SAMPLING	1636.84
167-1500	18	MO	926.60	WATER QUALITY INSPECTIONS	16678.80
171-0010	900	LF	2.72	TEMPORARY SILT FENCE, TYPE A	2448.00
171-0030	3000	LF	3.94	TEMPORARY SILT FENCE, TYPE C	11820.00
Section Sub Total:					\$59,394.56

Section SIGNING & MARKING

Item Number	Quantity	Units	Unit Price	Item Description	Cost
636-1020	56	SF	15.54	HIGHWAY SIGNS, TP 1 MATL, REFL SHEETING, TP 3	870.24
636-2070	104	LF	8.74	GALV STEEL POSTS, TP 7	908.96
652-5451	2820	LF	0.18	SOLID TRAFFIC STRIPE, 5 IN, WHITE	507.60
652-5452	2630	LF	0.18	SOLID TRAFFIC STRIPE, 5 IN, YELLOW	473.40
652-6501	2630	GLF	0.11	SKIP TRAFFIC STRIPE, 5 IN, WHITE	289.30
652-6502	1240	GLF	0.10	SKIP TRAFFIC STRIPE, 5 IN, YELLOW	124.00
652-9002	305	SY	1.51	TRAFFIC STRIPE, YELLOW	460.55
653-0120	4	EA	74.10	THERMOPLASTIC PVMT MARKING, ARROW, TP 2	296.40
654-1001	42	EA	3.34	RAISED PVMT MARKERS TP 1	140.28
654-1003	42	EA	3.70	RAISED PVMT MARKERS TP 3	155.40
657-1054	690	LF	4.11	PREFORMED PLASTIC SOLID PVMT MKG, 5 IN, WHITE, TP PB	2835.90
657-3054	690	GLF	2.53	PREFORMED PLASTIC SKIP PVMT MKG, 5 IN, WHITE, TP PB	1745.70
657-6054	690	LF	4.26	PREFORMED PLASTIC SOLID PVMT MKG, 5 IN, YELLOW, TP PB	2939.40
Section Sub Total:					\$11,747.13

Section BRIDGE ITEMS

Item Number	Quantity	Units	Unit Price	Item Description	Cost
211-0300	397	CY	33.05	BRIDGE EXCAVATION, STREAM CROSSING	13120.85
500-0100	2607	SY	4.57	GROOVED CONCRETE	11913.99
500-1006	1232	LS	764.88	SUPERSTR CONCRETE, CL AA, BR NO -	942332.16
500-3002	357	CY	493.62	CLASS AA CONCRETE	176222.34
507-9030	906	LF	165.37	PSC BEAMS, AASHTO, BULB TEE, 54 IN, BR NO -	149825.22
507-9032	2478	LF	195.00	PSC BEAMS, AASHTO, BULB TEE, 72 IN, BR NO -	483210.00
511-1000	65799	LB	0.87	BAR REINF STEEL	57245.13
511-3000	225353	LS	0.90	SUPERSTR REINF STEEL, BR NO -	202817.70
516-1100	681	LF	57.01	ALUM HANDRAIL, STD 3626	38823.81
520-1173	2185	LF	92.79	PILING IN PLACE, STEEL H, HP 14 X 102	202746.15
520-4173	1	EA	0.51	LOAD TEST, STEEL H, HP 14 X 102	0.51
520-5000	506	LF	594.22	PILOT HOLES	300675.32
540-1101	1	LS	107377.93	REMOVAL OF EXISTING BR, STA NO -	107377.93
603-2024	2216	SY	46.72	STN DUMPED RIP RAP, TP 1, 24 IN	103531.52
603-7000	2216	SY	5.37	PLASTIC FILTER FABRIC	11899.92
Section Sub Total:					\$2,801,742.55

Total Estimated Cost: \$4,272,011.33

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

INTERDEPARTMENTAL CORRESPONDENCE

FILE: R/W Cost Estimate

OFFICE: Thomaston

DATE: June 22, 2006

FROM: Robert E. O'Rourke, District Right of Way Team Manager

TO: Wilhelmina A. Mueller, Chief of Appraisals and Review

SUBJECT: RIGHT OF WAY COST ESTIMATE
PROJECT: BRN-006-4(32), Upson County
P.I. NUMBER: 322922

Attached is the project Right of Way Cost Estimate on the above referenced project. It is estimated that the cost of right of way plus all related expenses will be \$ 269,000.00.

If we can offer further assistance, please contact **J.D. Stallings** of this office at (706) 646-6526.

cc: Alisha Dennery, RW G.O.

DETAIL COST ESTIMATE SUMMARY SHEET

DATE: 6/22/06 P.I.#: 322922
 PROJECT: BRN-006-4(32) PARCELS: 6
 PROJECT DESCRIPTION: S.R. 3 / U.S. 19 Bridge Replacement over Potato Creek

1. LAND: (Total area and cost by category)

Right of Way:		\$ 136,070.00	
Permanent and Temporary Easement:		\$ 266.50	
Total			\$ 136,336.50

2. IMPROVEMENTS:

Main Structures		\$ -	
Site Improvements		\$ -	
Total			\$ -

3. Damages:

Damages to Land and Structures		\$ -	
Specialty Costs (Cost to Cures, Trade Fixtures, etc.)		\$ -	
Total			\$ -

4. RELOCATION: (Including Consequential Displacements)

Businesses	0	Displaced x \$ 15,000.00	\$ -
Residential Tenant:	0	Displaced x \$ 20,000.00	\$ -
Residential Owner	0	Displaced x \$ 34,000.00	\$ -
Total			\$ -

5. Property Management (Asbestos Removal and Demolition)

Number of Structures	0	Displaced x \$ 12,000.00	\$ -
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Estimated Cost of Right of Way \$ 136,336.50

C/O, Condemnation Increase & Legal Cost		50% of R/W	\$ 68,168.25
Service Fees and Appraisal Cost	6	Par x \$4000	\$ 24,000.00
Condemnation Cost	6	Par x 10% x \$5,500	\$ 3,300.00
Incidentals	6	Par x \$2,000	\$ 12,000.00

Net Cost \$ 243,804.75

Inflation (5% rural, 10% urban) \$ 24,380.48

TOTAL COST \$ 268,185.23

TOTAL COST (ROUNDED) \$ 269,000.00

Credits: # Hours
 John David (J.D.) Stallings 40
 Todd Mathison 40
 Cc:

VE RECOMMENDATIONS

DEVELOPMENT AND RECOMMENDATION PHASE

SR 3 / US19 and CR73 Intersection Improvement, New Bridge Over Potato Creek

IDEA No.:

B-2.0

PAGE No.:

1 of 4

CREATIVE IDEA:

Evaluate bridge staging plan – eliminate Stage I

Comp By: Aruna Sastry Date: 10/8/08 Checked By: DCW Date: 10/09/08

Original Concept:

Bridge to be constructed in four stages

Proposed Change:

Construct the Bridge in three stages by eliminating Stage I (removal of Sidewalk).

Justification:

Use of 10'-0" lanes during construction and reducing the gap between existing deck (cut line) and New deck portion, provides enough width of existing deck including sidewalk to keep four travel lanes (two each way). Also, there are several intangibles like time, safety, traffic control, etc which will result in substantial savings.

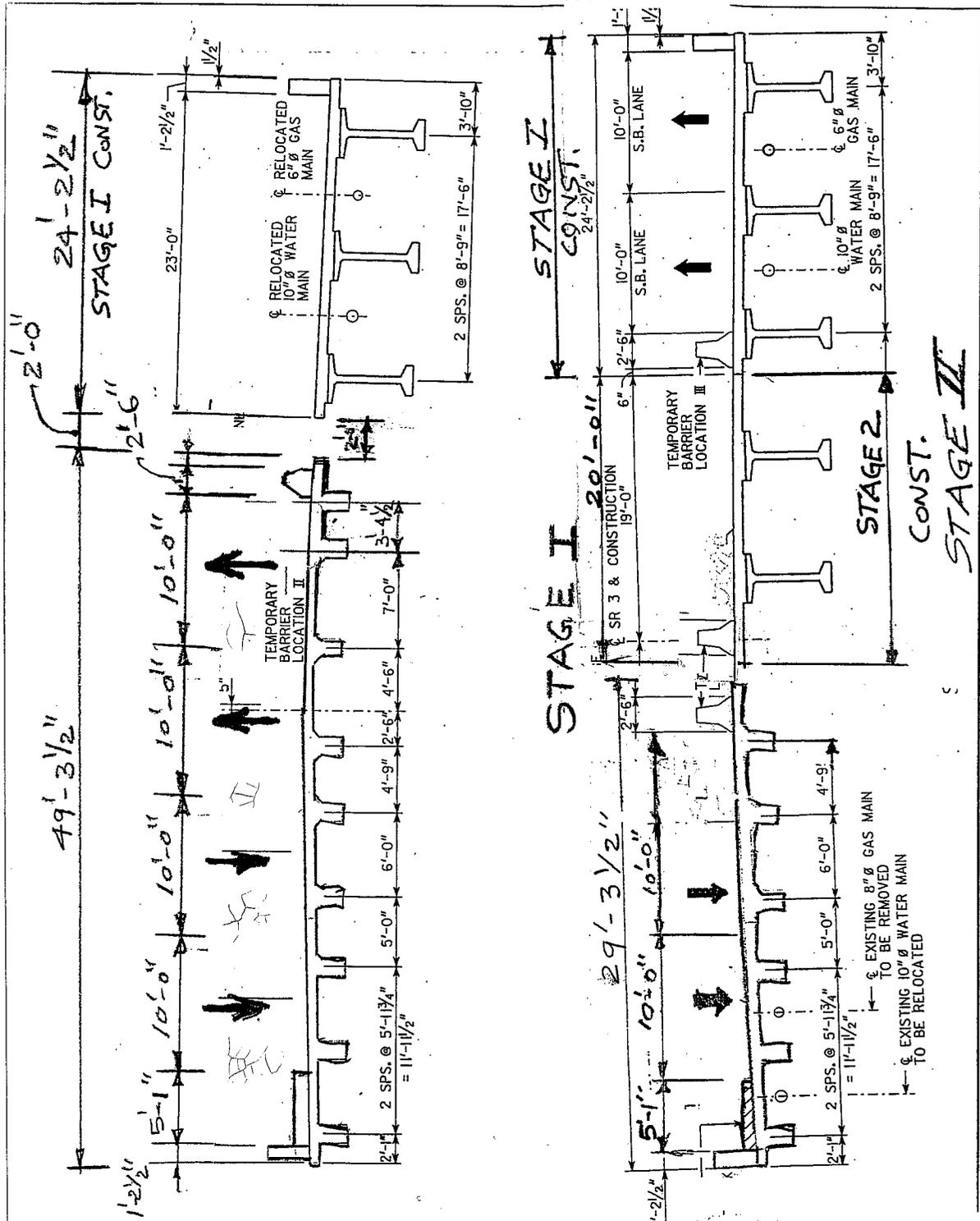
A primary benefit of this recommendation is that the west side sidewalk will be salvaged during construction, thereby allowing for pedestrian access throughout construction. This is not included in the current project scope but will be a cost that will have to be expended during construction. A temporary bridge during construction for pedestrian access could be a significant, problematic and costly item.

Additionally, while the actual itemized cost savings for eliminating a phase are rather minor, the overall project benefits include a shorter construction duration resulting in reduced contractor expenses, staffing and overhead. This will result in an overall lower project cost for GDOT. For this project, we estimate the construction duration can be reduced by about 1 month, which we feel is a conservative estimate. Reducing the construction duration is also a benefit to the local community and businesses.

LIFE CYCLE COST SUMMARY	CAPITAL COST	FUTURE COST	PRESENT WORTH
INITIAL COST - Original	116,600		
- Proposed	0		
- Savings	116,600		116,600
FUTURE COST - Savings		-0-	-0-
TOTAL PRESENT WORTH SAVINGS			116,600

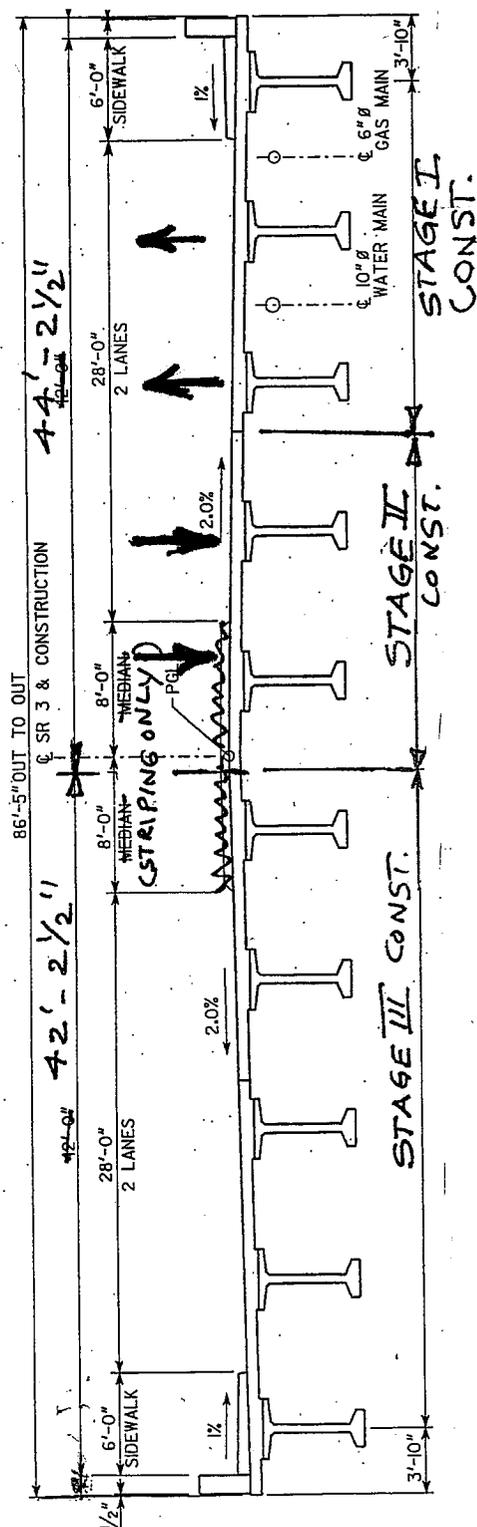
SR 3 / US19 and CR73 Intersection Improvement, New Bridge
Over Potato Creek

ITEM N^o: B-2
CLIENT: GDOT
Sheet 2 of 4



SR 3 / US19 and CR73 Intersection Improvement, New Bridge
Over Potato Creek

ITEM N^o: B-2
CLIENT: GDOT
Sheet 3 of 4



RECOMMENDED TYPICAL SECTION

CALCULATIONS

**SR 3 / US19 and CR73 Intersection Improvement, New Bridge
Over Potato Creek**

ITEM N^o: B-2.0
CLIENT: GDOT
Sheet 3a of 4

Shorter Construction Duration

Contractor overhead - office, utilities, staffing \$60,000 per month
Bridge crews / mobilization /crane rental, set-up and tear down
Use \$40,000 per month

Total Savings = \$100,000 / month

DEVELOPMENT AND RECOMMENDATION PHASE

SR 3 / US19 and CR73 Intersection Improvement, New Bridge Over Potato Creek

IDEA No.:	PAGE No.:	CREATIVE IDEA:
B 2.1	1 of 6	Use alternative staging concept, reduce to 3 through lanes.

Comp By: GAO Date: 10-08-08 Checked By: DCW Date: 10-08-08

Original Concept:

Use current staging plan, 4 lanes, 2 lanes each direction

Proposed Change:

Revise the construction staging phases to use only 3 lanes total. For this analysis, we assumed 2 lanes southbound and 1 lane northbound but this can be switched if local patterns dictate otherwise. The current staging plans show 10 foot lanes to be used for construction. This recommendation provides for a total width of 31 feet, 2 – 10.5 and 1 – 10 foot lane.

Justification:

Reducing the required lanes from 4 to 3 during construction will have significant benefits to the project. Even though this is the primary access to Thomaston, at least one direction of traffic can be reduced to one lane, especially for a relatively short duration, say 6 – 8 months to construct a portion of the bridge. By allowing this reduced capacity, several phases of construction including dangerous and costly lane shifts will be eliminated. Not only will the overall construction duration be shorter and safer, there will also be a cost savings. The cost savings realized are modest, however the primary benefits of this recommendation are the reduction of construction phases, traffic transitions and tapers resulting in a shorter and safer construction duration.

Additionally, while the actual itemized cost savings for eliminating a phase are modest, the overall project benefits include a shorter construction duration resulting in reduced contractor expenses, staffing and overhead. This will result in an overall lower project cost for GDOT. For this project, we estimate the construction duration can be reduced by about 1 month, which we feel is a conservative estimate. Reducing the construction duration is also a benefit to the local community and businesses.

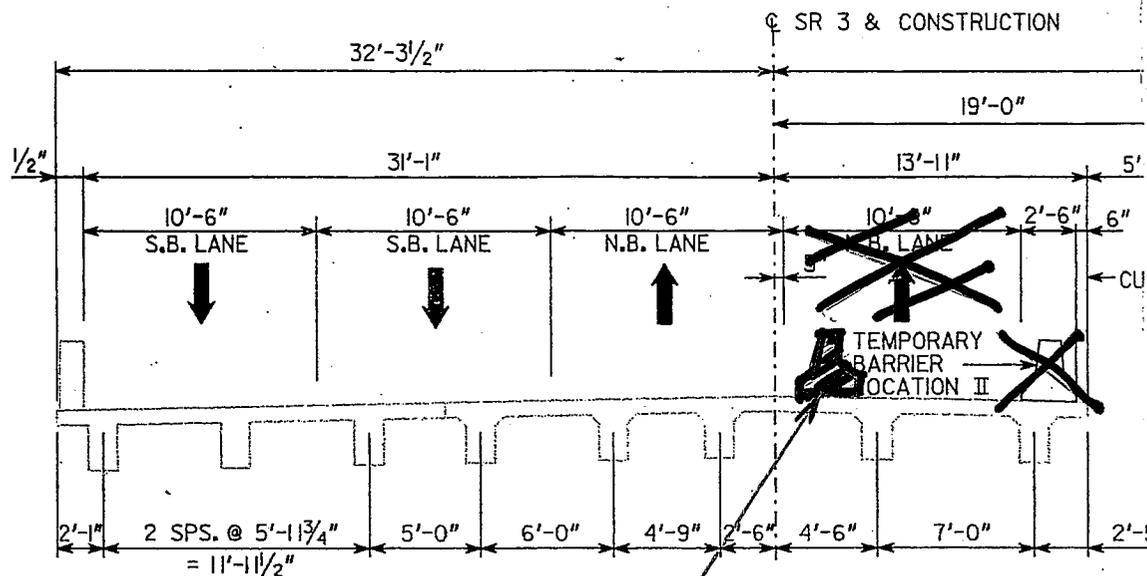
LIFE CYCLE COST SUMMARY	CAPITAL COST	FUTURE COST	PRESENT WORTH
INITIAL COST - Original	277,100		
- Proposed	0		
- Savings	277,100		277,100
FUTURE COST - Savings		-0-	-0-
TOTAL PRESENT WORTH SAVINGS			277,100

SR 3 / US19 and CR73 Intersection Improvement, New Bridge
Over Potato Creek

ITEM N^o: B2.1
CLIENT: GDOT
Sheet 2 of 6

STAGE ONE CONSTRUCTION

AS PER ORIGINAL PLAN



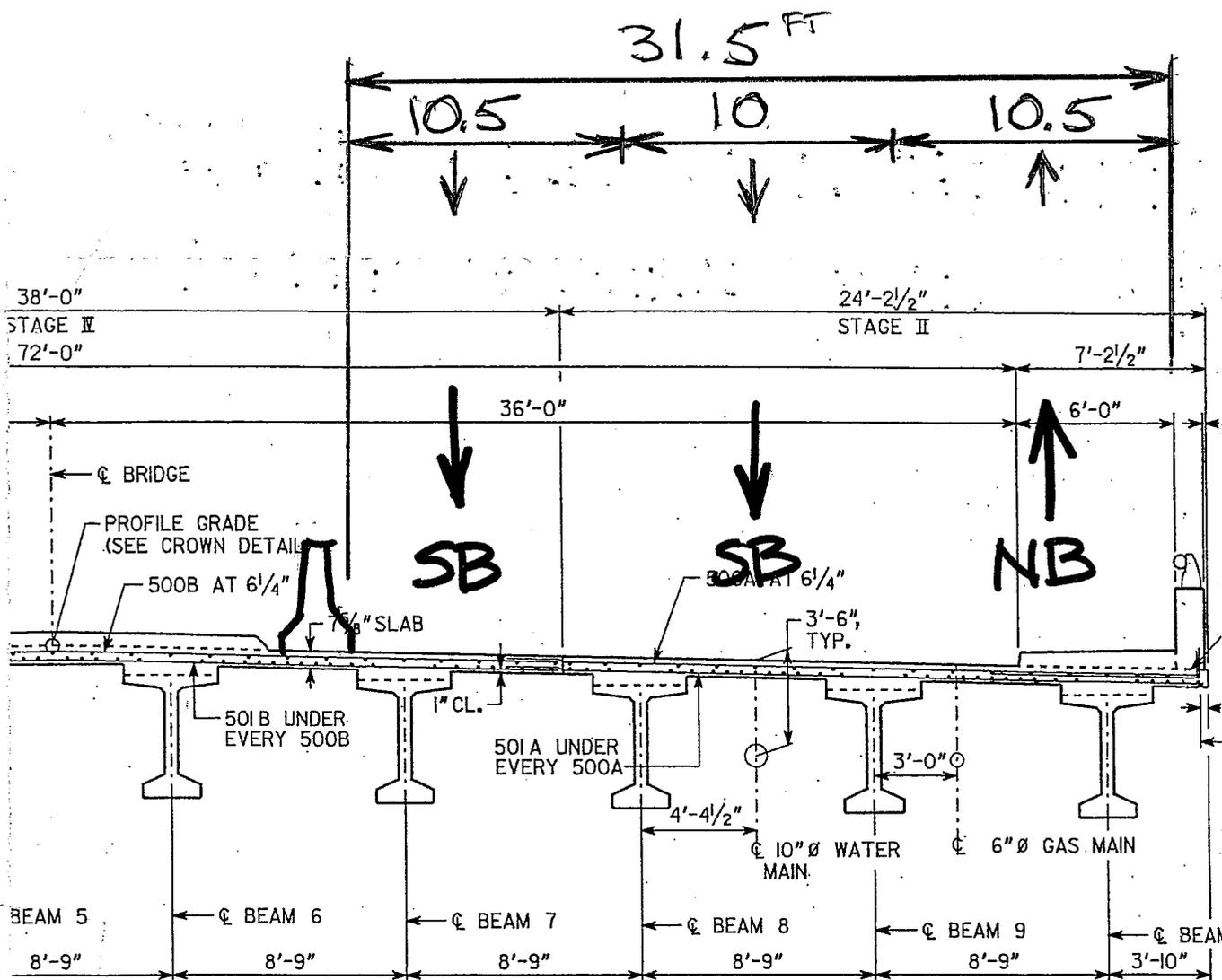
BARRIER

STAGE II - CONSTRUCTION

SKETCH

SR 3 / US19 and CR73 Intersection Improvement, New Bridge
Over Potato Creek

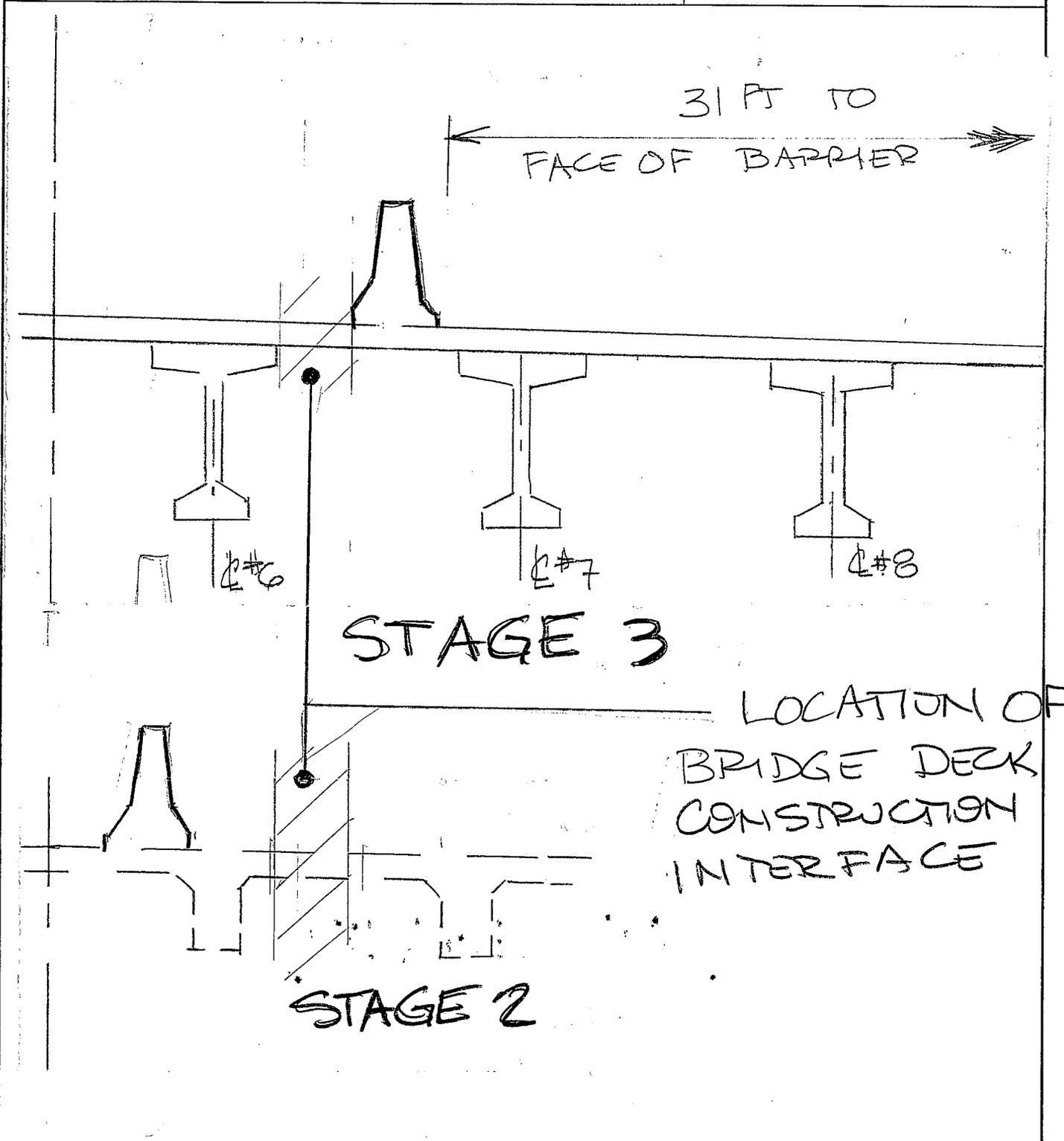
ITEM N^o: BZ.1
CLIENT: GDOT
Sheet 3 of 6



STAGE 3

SR 3 / US19 and CR73 Intersection Improvement, New Bridge
Over Potato Creek

ITEM N^o: B2.1
CLIENT: GDOT
Sheet 4 of 6



CALCULATIONS

SR 3 / US19 and CR73 Intersection Improvement, New Bridge Over Potato Creek

ITEM N^o: B-2.1
CLIENT: GDOT
Sheet 6 of 6

Stage 1 – no change.

Stage 2 - rather than placing the barrier for 4 through lanes, place only for 3 as shown on the sketch. This will allow an additional beam, no. 7 to be constructed during this phase along with the bridge deck width of about 34 feet, 31 for travelled way and 2.5 barrier for stage 3.

Stage 3 – switch traffic to the newly constructed portion of the bridge and construct the remainder of the bridge, beams 1 through 6 and bridge deck.

As a final construction activity, the sidewalk on the west side will have to be constructed. This should be facilitated without barrier.

This recommendation will eliminate some of the construction barrier from the current stage 3 and all of stage 4.

Stage 3 reduction

Method 1 (1000 +700) - 345 = 1355 ft
Method 2 - 345 lf
1 impact attenuator

Stage 4 reduction

Method 1 (750 +700) – 690 = 760 ft
Method 2 – 2 x 345 = 690 ft
2 impact attenuators

Shorter Construction Duration

Contractor overhead - office, utilities, staffing \$60,000 per month
Bridge crews / mobilization /crane rental, set-up and tear down
Use \$40,000 per month

Total - \$100,000 per month

DEVELOPMENT AND RECOMMENDATION PHASE

SR 3 / US19 and CR73 Intersection Improvement, New Bridge Over Potato Creek

IDEA No.:	PAGE No.:	CREATIVE IDEA:
B-5	1 of 3	Eliminating pilot holes for piling
Comp By: AS	Date: 10/09/08	Checked By: DCW
		Date: 10/09/08

Original Concept:

Pilot Holes were provided for placing piling for Intermediate Bent #3 foundations.

Proposed Change:

Pilot holes will be eliminated.

Justification:

Per revised Bridge foundation Investigation (BFI) from geotechnical report, pilot holes will not be needed.

LIFE CYCLE COST SUMMARY	CAPITAL COST	FUTURE COST	PRESENT WORTH
INITIAL COST - Original	361,000		
- Proposed	0		
- Savings	361,000		361,000
FUTURE COST - Savings		-0-	-0-
TOTAL PRESENT WORTH SAVINGS			361,000

B-5
Pg 3 of 3
up 8/14/08
AS 8/25/08

DEPARTMENT OF TRANSPORTATION

STATE OF GEORGIA

INTERDEPARTMENTAL CORRESPONDENCE

FILE BRN-006-4(32), Upson County
SR 3 / US 19 Bridge over Potato
Creek, North of Thomaston
PI No. 322922
OFFICE Materials and Research
DATE August 15, 2008
FROM *U.S. for*
Georgene M. Geary, P. E., State Materials and Research Engineer
TO Thomas B. Howell, Jr., District Engineer, Thomaston
Attn. Bill Rountree

→ **SUBJECT** **SECOND REVISED** Bridge Foundation Investigation
BRN-006-4(32), Upson County
SR 3 / US 19 Bridge over Potato Creek, North of Thomaston

→ As requested by the Office of Bridge design, a Second Revised Bridge Foundation Investigation has been performed for the project mentioned above. The alternate recommendation for Bent 3 has been deleted, along with the need for Pilot Holes. Additional pile sizes have been added to the report. Centerline tip elevations have also been added for Bents 1 & 2.

If additional information is needed, please contact Catherine Armstrong of the Geotechnical Engineering Bureau at 404-363-4756

GMG:CAA

Attachments

Copy: Tim Reeves, Area Engineer, Thomaston
Paul Liles, P.E., State Bridge and Structural Design Engineer
Mike Clements, State Bridge Maintenance Engineer

DEVELOPMENT AND RECOMMENDATION PHASE

SR 3 / US19 and CR73 Intersection Improvement, New Bridge Over Potato Creek

IDEA No.:	PAGE No.:	CREATIVE IDEA:
B-6	1 of 2	Do not construct Median Concrete on the bridge deck

Comp By: Aruna Sastry Date: 10/08/08 Checked By: DCW Date: 10/09/08

Original Concept:

Construct a 16'-0" Median 6" thick above bridge deck.

Proposed Change:

Eliminate the 16'-0" Median 6" thick above bridge deck. Stripe the separation

Justification:

Along the proposed roadway there are very few places a 16'-0" median is planned to be constructed.

The bridge deck can be striped for traffic separation.

LIFE CYCLE COST SUMMARY	CAPITAL COST	FUTURE COST	PRESENT WORTH
INITIAL COST - Original	102,200		
- Proposed	6,000		
- Savings	96,200		96,200
FUTURE COST - Savings		-0-	-0-
TOTAL PRESENT WORTH SAVINGS			96,200

COST WORKSHEET

PROJECT: SR 3 / US19 and CR73 Intersection Improvement and New Bridge Over Potato Creek	ITEM No: B-6
	CLIENT: GDOT
	Sheet 2 of 2

CONSTRUCTION ELEMENT		ORIGINAL ESTIMATE			NEW ESTIMATE		
ITEM	UNITS	No. UNITS	COST/ UNIT	TOTAL COST	No. UNITS	COST/ UNIT	TOTAL COST
MEDIAN CONCRETE	CY	102.22	834	85,200	0	0	0
REMOVAL							
(16'x6"/12*345*1/27)							
Striping	Ea				1	5,000	5,000
SUBTOTAL				85,200			5,000
Markup @	20.00%			17,040			1,000
TOTAL				102,240			6,000
TOTAL ROUNDED				102,200			6,000



DEVELOPMENT AND RECOMMENDATION PHASE

SR 3 / US19 and CR73 Intersection Improvement, New Bridge Over Potato Creek

IDEA No.:	PAGE No.:	CREATIVE IDEA:
C-1	1 of 4	Reduce lane widths to 11 feet

Comp By: GAO Date: 10-8-08 Checked By: DCW Date: 10/09/08

Original Concept:

12 foot lanes are proposed for the design.

Proposed Change:

Narrow the lanes to 11 feet for all 4 through lanes and side road

Justification:

11 foot lanes are an acceptable width. They provide the same functionality as the 12 foot wide lanes with a narrower template. This will save in construction costs. Even though there is truck traffic and right turning into all the driveways, the outer lane will have a 2 foot gutter to the curb face that alleviates some of the concerns of the lane reduction.

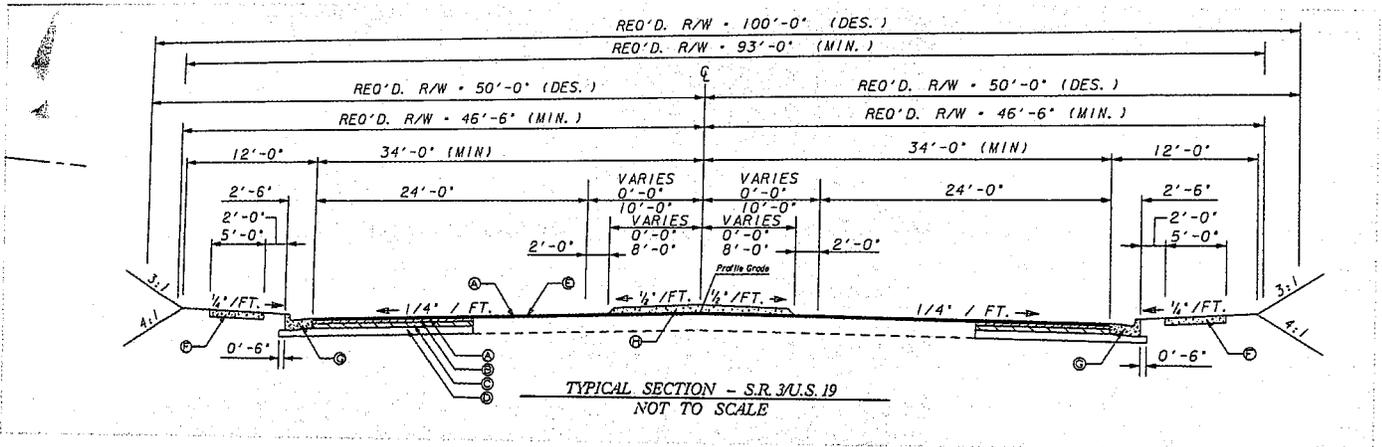
There could be additional right of way savings however, on this project, the right of way acquisition has been initiated and therefore, those savings are not included.

LIFE CYCLE COST SUMMARY	CAPITAL COST	FUTURE COST	PRESENT WORTH
INITIAL COST - Original	355,000		
- Proposed	0		
- Savings	355,000		355,000
FUTURE COST - Savings		-0-	-0-
TOTAL PRESENT WORTH SAVINGS			355,000

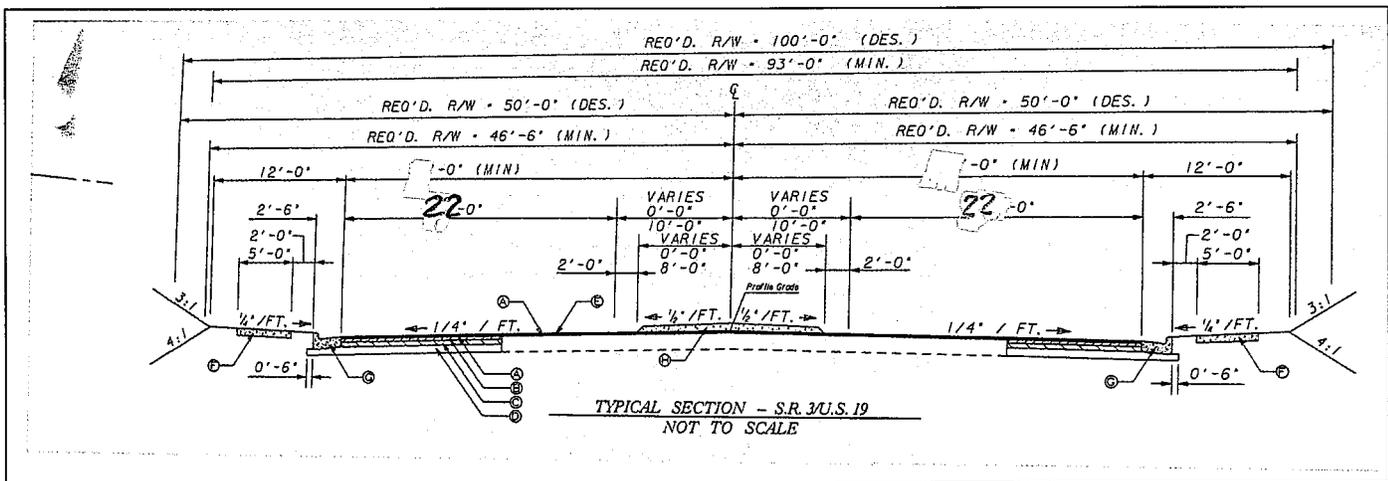
SR 3 / US19 and CR73 Intersection Improvement, New Bridge
Over Potato Creek

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CLIENT: GDOT
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O



Original Design



Proposed Design

CALCULATIONS

**SR 3 / US19 and CR73 Intersection Improvement, New
Bridge Over Potato Creek**

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Total project length

Bridge project - road 1255ft
Road 3615 ft
Side road east 650 ft
Side road west 1116 ft

Total length 6636 ft

$(4870 \text{ ft} \times 4 \text{ ft}) + (1766 \times 2) = 23012 \text{ sq ft} = 2557 \text{ sq yd}$

Assume full depth pavement

$(23,012 \text{ sq ft} \times 10.5/12 \text{ ft}) (150\# / \text{cu ft}) (1 \text{ Ton} / 2000\#) = 1,510 \text{ Tons}$

GAB, 12 in thick – 2,557 sq yd

Bridge deck 345 ft x 4 ft = 1380 sq ft

DEVELOPMENT AND RECOMMENDATION PHASE

SR 3 / US19 and CR73 Intersection Improvement, New Bridge Over Potato Creek

IDEA No.:	PAGE No.:	CREATIVE IDEA:
C-2	1 of 2	Reduce thickness of 25 MM Recycled Asphalt Concrete section

Comp By: dpc Date: 10.9.08 Checked By: dcw Date: 10.9.08

Original Concept:

Current typical section calls for 770 lb/sy 25 MM recycled asphaltic conc. mix for both SR 3 / US 19 and County Road 73 roadway sections.

Proposed Change:

Reduce 25 MM recycled asphaltic concrete mix to 550 lb/sy mix for both SR 3 / US 19 and County Route 73 roadway sections. Ensure pavement design meets allowable loading requirements.

Justification:

GDOT typical base material for traffic ADT of 28,644 and only 4% truck use is near 550 lb/sy versus the specified 770 lb/sy plan requirement. Upon review of pavement design calculations, we believe the asphalt base can be reduced by 2" without effecting performance. Reducing 25MM section from 770 lb/sy to 550 lb/sy results in a 28.57% cost savings without diminishing project value.

LIFE CYCLE COST SUMMARY	CAPITAL COST	FUTURE COST	PRESENT WORTH
INITIAL COST - Original	553,000		
- Proposed	394,900		
- Savings	158,100		158,100
FUTURE COST - Savings		-0-	-0-
TOTAL PRESENT WORTH SAVINGS			158,100

DEVELOPMENT AND RECOMMENDATION PHASE

SR 3 / US19 and CR73 Intersection Improvement, New Bridge Over Potato Creek

IDEA No.:	PAGE No.:	CREATIVE IDEA:
E - 1	1 of 5	Use open ditch in lieu of 54 inch pipe and inlets
Comp By: GAO		Date: 10-08-08
		Checked By: DCW
		Date: 10-09-08

Original Concept:

Use 54 inch pipe and inlets; closed drainage system for long outfall.

Proposed Change:

Construct open ditch in lieu of 54 inch pipe and inlets for the long outfall system off County Road 73, Sta 14 + 70, right.

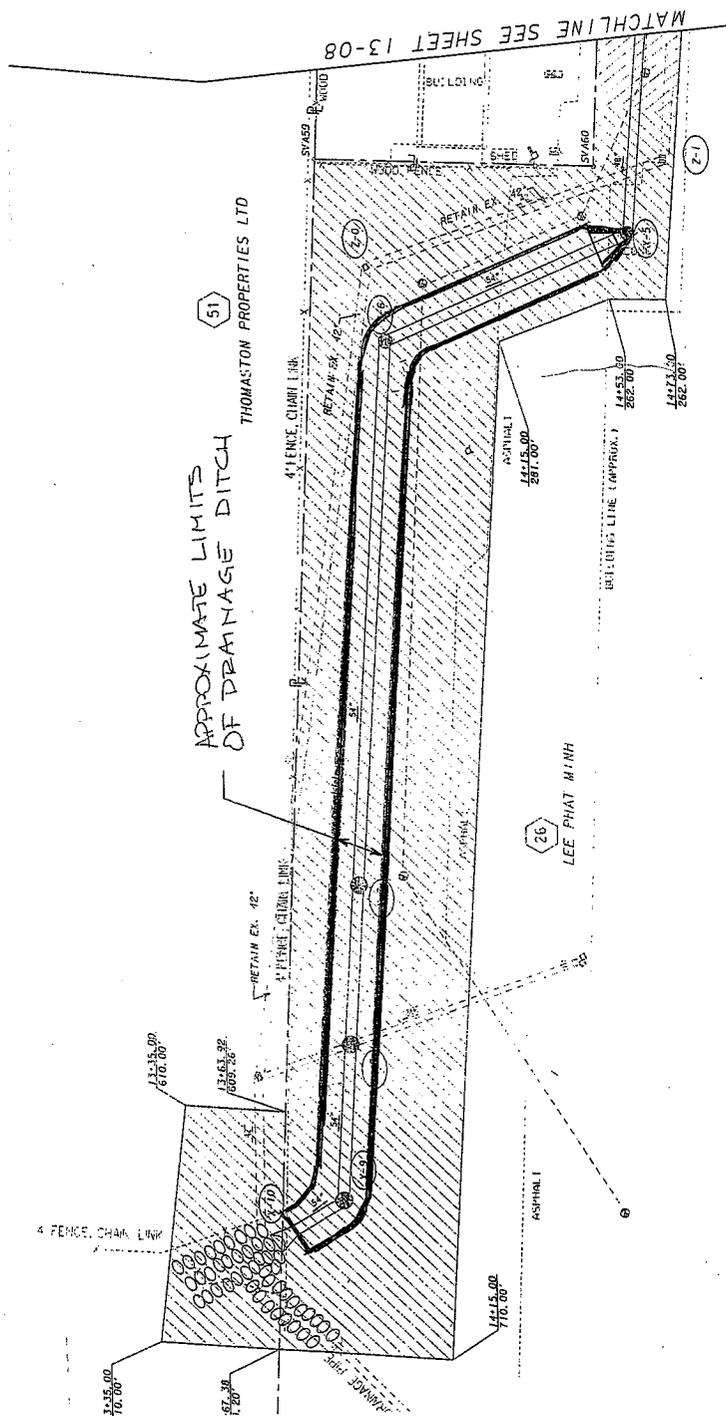
Justification:

The current plan to use a closed drainage system in this area can be re-evaluated to incorporate an open ditch system. This will be less costly while providing significantly greater storage capacity, added storm water quality benefits and overall lower maintenance costs. The grading and excavation to construct the large pipe will be similar to grading the ditch section. Preparing the bedding, backfilling and compacting the excavation and restoring the area will be eliminated. There will be some additional refining and fine grading of the excavation to incorporate the ditch section and matting to prevent erosion will be required but overall, this will provide a more beneficial option for the outfall. This recommendation would also eliminate up to 5 large drainage structures. A permanent easement will be acquired for the pipes therefore additional right of way or easements will not be required. Also, if the ditch section is selected, the profile could potentially be raised higher than the pipe invert to further minimize disturbances and additionally lower the overall costs. From aerial photography, the area appears to be mostly wooded and undeveloped from drainage structure X-5 to the outfall which would allow for this recommendation to be reasonably implemented.

LIFE CYCLE COST SUMMARY	CAPITAL COST	FUTURE COST	PRESENT WORTH
INITIAL COST - Original	112,300		
- Proposed	4,300		
- Savings	108,000		108,000
FUTURE COST - Savings		-0-	-0-
TOTAL PRESENT WORTH SAVINGS			108,000

SR 3 / US19 and CR73 Intersection Improvement, New Bridge
Over Potato Creek

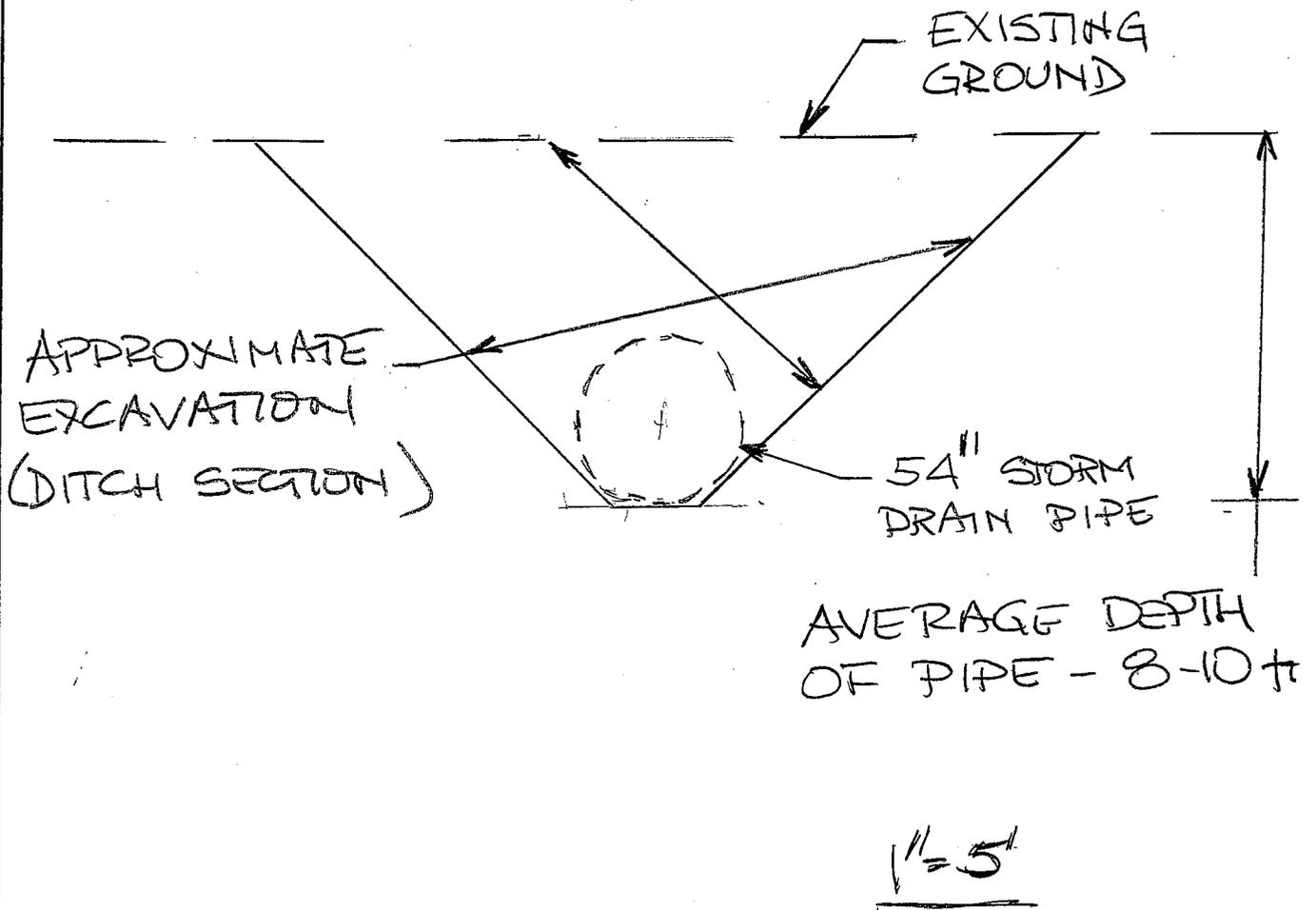
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SKETCH

SR 3 / US19 and CR73 Intersection Improvement, New Bridge
Over Potato Creek

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CALCULATIONS

**SR 3 / US19 and CR73 Intersection Improvement, New
Bridge Over Potato Creek**

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Assume that any additional grading for the ditch section would be offset by eliminating the pipe bedding, backfilling, compaction and restoration.

Matting

$$(540 \text{ lf} \times 20 \text{ ft} - \text{avg width}) / 9 = 1200 \text{ sq yd}$$

DEVELOPMENT AND RECOMMENDATION PHASE

SR 3 / US19 and CR73 Intersection Improvement, New Bridge Over Potato Creek

IDEA No.:	PAGE No.:	CREATIVE IDEA:
F-1.0	1 of 3	Eliminate Street Lighting
Comp By: dpc	Date: 10.8.08	Checked By: dcw Date: 10.9.08

Original Concept:

Current plan calls for the placement of a 94 pole, 14,600 Watt street lighting system.

Proposed Change:

Eliminate the entire street lighting system from the project.

Justification:

This project is located in a commercialized area 2 miles north of Thomaston. Established business lighting should provide ample visibility for the local traveling public. Eliminating the lighting system produces cost savings without diminishing project value.

O&M Savings (power) = $14,600W \times 10 \text{ hr./dy} \times 365 \text{ dy/yr} / 1000 \text{ W/KWH} \times \$.10/\text{KWH} = \$5329$
 Re-lamp = $94 \text{ lamps} \times 1/3 / \text{yr} \times \$500/\text{lamp labor and equip} = \underline{\$15,667}$
Total annual Savings = \$20,996

LIFE CYCLE COST SUMMARY	CAPITAL COST	FUTURE COST	PRESENT WORTH
INITIAL COST - Original	867,900	312,400	
- Proposed	0	-0-	
- Savings	867,900		867,900
FUTURE COST - Savings		312,400	312,400
TOTAL PRESENT WORTH SAVINGS			1,180,300

Life Cycle Cost Analysis – Present Worth Method Future Cost Calculation

SR 3 / US19 and CR73 Intersection Improvement, New Bridge Over Potato Creek

Creative Idea No. F-1

Sheet 3 of 3

Discount Rate: 3.0%

Economic Life: 20 Years

	A	B	C	D
	Original Design		Alternate Design	
	Cost	PW	Cost	PW
1. Single Expenditures: (i.e., stage Construction, Major Maintenance)				
a. Year ____ PWF _____				
b. Year ____ PWF _____				
c. Year ____ PWF _____				
d. Salvage / Unused Service Life Year ____ PWF _____				
1. Total Future Single Costs:				
2. Annual Costs:				
a. General Maintenance PWF' 14.877				
b. Other Annual Costs PWF' 14.877	20,996	312,357	-0-	-0-
2. Total Future Annual Costs		312,400		-0-
3. Total Future Costs: (1 + 2)		312,400		-0-
4. Total Future Cost Savings on a Present Worth Basis (3B-3D)		312,400		
5. Total Future Cost Savings on an Annual Basis (4B X crf_ 0.0672)		20,996		

DEVELOPMENT AND RECOMMENDATION PHASE

SR 3 / US19 and CR73 Intersection Improvement, New Bridge Over Potato Creek

IDEA No.:	PAGE No.:	CREATIVE IDEA:
F-1.1	1 of 3	Eliminate street lighting, provide pedestrian lighting
Comp By: dpc	Date: 10.8.08	Checked By: dcw Date: 10.9.08

Original Concept:

Current plan calls for the placement of a 94 pole, HPS system with a total of 14,600 Watts for the street lighting system.

Proposed Change:

Eliminate the entire street lighting system and install a reduced scope pedestrian focused lighting system.

Justification:

This project is located in a commercialized area 2 miles north of the City of Thomaston. Established business lighting should provide ample visibility for the local commuting public, however the installation of a reduced scope pedestrian lighting system will provide the safety comfort of the walking citizen. Readjusting the lighting system produces cost savings without diminishing project value. Costs estimated at 1/2 original costs with 1/2 the fixtures. Power consumption assumed reduced by 1/3.

O&M savings (power) = $1/3 \times 14,600W \times 10 \text{ hrs/dy} \times 365 \text{ dy/yr.} \times \$0.10/\text{kwh} = \$1,759/\text{yr}$
 Re-lamp savings = $47 \text{ lamps} \times 1/3 \text{ /yr} \times \$500 / \text{lamp labor and equip.} = \underline{\$7,833/\text{yr}}$
 Total saved = $\$9,592 / \text{yr.}$

LIFE CYCLE COST SUMMARY	CAPITAL COST	FUTURE COST	PRESENT WORTH
INITIAL COST - Original	867,900	142,700	
- Proposed	433,900	-0-	
- Savings	434,000		434,000
FUTURE COST - Savings		142,700	142,700
TOTAL PRESENT WORTH SAVINGS			576,700

Life Cycle Cost Analysis – Present Worth Method Future Cost Calculation

SR 3 / US19 and CR73 Intersection Improvement, New Bridge Over Potato Creek

Creative Idea No. F-1.1

Sheet 3 of 3

Discount Rate: 3.0%

Economic Life: 20 Years

	A	B	C	D
	Original Design		Alternate Design	
	Cost	PW	Cost	PW
1. Single Expenditures: (i.e., stage Construction, Major Maintenance)				
a. Year ____ PWF _____				
b. Year ____ PWF _____				
c. Year ____ PWF _____				
d. Salvage / Unused Service Life Year ____ PWF _____				
1. Total Future Single Costs:				
2. Annual Costs:				
a. General Maintenance PWF' 14.877				
b. Other Annual Costs PWF' 14.877	9,592	142,700	-0-	-0-
2. Total Future Annual Costs		142,700		-0-
3. Total Future Costs: (1 + 2)		142,700		-0-
4. Total Future Cost Savings on a Present Worth Basis (3B-3D)		142,700		
5. Total Future Cost Savings on an Annual Basis (4B X crf_ 0.0672)		9,592		

DEVELOPMENT AND RECOMMENDATION PHASE

SR 3 / US19 and CR73 Intersection Improvement, New Bridge Over Potato Creek

IDEA No.:	PAGE No.:	CREATIVE IDEA:	
G-1	1 of 3	Reduce thickness of graded aggregate base section	
Comp By: dpc	Date: 10.8.08	Checked By: dcw	Date: 10.9.08

Original Concept:

Current typical section calls for 12” of Graded Aggregate Base Course for both SR 3 / US 19 and County Road 73 inclusive of a recommended 770 LB/SY 25 MM asphaltic concrete base.

Proposed Change:

Reduce 12” thick Graded Aggregate Base section to 10” for both SR 3 / US 19 and County Route 73.

Justification:

Review of pavement design calculations to support 2” reduction in stone base material in conjunction with the use of 770 LB/SY asphaltic concrete. 25 MM mix should be verified upon concept acceptance. Reducing GAB section by 2” results in a 16.67% cost savings without diminishing project value.

LIFE CYCLE COST SUMMARY	CAPITAL COST	FUTURE COST	PRESENT WORTH
INITIAL COST - Original	477,400		
- Proposed	397,800		
- Savings	79,600		79,600
FUTURE COST - Savings		-0-	-0-
TOTAL PRESENT WORTH SAVINGS			79,600

CALCULATIONS

**SR 3 / US19 and CR73 Intersection Improvement, New
Bridge Over Potato Creek**

ITEM N^o: G-1
CLIENT: GDOT
Sheet 3 of 3

Existing GAB estimated quantity and pricing at 12 inches thick:

18,890 tons at \$18.73 per ton costs \$353,809.70 x 20% = \$424,600

Reducing the amount of GAB section by 2" equates approximately into a 16.67 % reduction in material and labor costs ((2" / 12")*100) = 16.67%).

Therefore, we reduce current plan cost by 16.67% to show an approximate cost savings:
(\$424,600)(16.67%) = \$70,800.

DEVELOPMENT AND RECOMMENDATION PHASE

SR 3 / US19 and CR73 Intersection Improvement, New Bridge Over Potato Creek

IDEA No.:	PAGE No.:	CREATIVE IDEA:
H-1	1 of 2	Eliminate 4 inch Concrete Sidewalk

Comp By: dpc Date: 10.8.08 Checked By: dcw Date: 10.9.08

Original Concept:

Current plan calls for the placement of 5-foot wide concrete sidewalks along both sides of SR 3 / US 19 and both sides of CR 73 for the entire length of the project limits.

Proposed Change:

Eliminate all sidewalks from the project. Do not reduce Right-of-Way limits in corridor due to ROW acquisition in progress and minimum clear zones requirements.

Justification:

Project is located in a commercialized area 2 miles north of Thomaston. Currently established businesses do not reflect typical walking movements from mode to mode. Home Depot, K-Mart, outparcel facilities such as McDonald's and Waffle House, along with commercial service providers do not typically generate pedestrian movement such as from retail to retail movement. No physical evidence of walking paths found along corridor. Eliminating the proposed sidewalk system produces cost savings without diminishing project value.

LIFE CYCLE COST SUMMARY	CAPITAL COST	FUTURE COST	PRESENT WORTH
INITIAL COST - Original	290,600		
- Proposed	-0-		
- Savings	290,600		290,600
FUTURE COST - Savings		-0-	-0-
TOTAL PRESENT WORTH SAVINGS			290,600

DEVELOPMENT AND RECOMMENDATION PHASE

SR 3 / US19 and CR73 Intersection Improvement, New Bridge Over Potato Creek

IDEA No.:	PAGE No.:	CREATIVE IDEA:
H-4	1 of 2	Reduce the number of driveway access points along corridor.
Comp By: dpc	Date: 10.8.08	Checked By: dcw Date: 10.9.08

Original Concept:

Current plan calls for the replacement of all existing driveway access points based on standard policy that replaces all existing egress points without consideration of reduction.

Currently there are 40 driveway access points along both sides of the SR 3 / US 19 corridor.

Currently there are 20 driveway access points along both sides of the CR 73 corridor.

Proposed Change:

Reduce the total number of driveway access points along both corridors. Parcel # 22 has (3) commercial driveways that can possibly be eliminated. (140SY)(3)

Parcel # 35 has (1) commercial driveway that can possibly be eliminated. (1)(140SY)

Parcel # 55 has (1) residential driveway that can possibly be eliminated. (1)(60SY)

Justification:

Vehicle access points per average width residential parcel typically allow one standard width driveway. Vehicle access points per average width commercial parcel typically allow up to two oversized wide driveways. There are approximately (3) parcels along this corridor that have excessive driveway access points, including one parcel with (5) driveways. Per GDOT accident data, several typical crash types are rear-end types most likely caused by frequent turning movement along corridor.

LIFE CYCLE COST SUMMARY	CAPITAL COST	FUTURE COST	PRESENT WORTH
INITIAL COST - Original	140,600		
- Proposed	114,900		
- Savings	25,700		25,700
FUTURE COST - Savings		-0-	-0-
TOTAL PRESENT WORTH SAVINGS			25,700

DEVELOPMENT AND RECOMMENDATION PHASE

SR 3 / US19 and CR73 Intersection Improvement, New Bridge Over Potato Creek

IDEA No.:	PAGE No.:	CREATIVE IDEA:
I-1	1 of 2	Evaluate borrow/fill material at intersection of CR 73 and SR 3/US 19 and between sta. 15+00 to 21+16.

Comp By: dpc Date: 10.9.08 Checked By: dcw Date: 10.9.08

Original Concept:

Current design policy requires reduction of sag vertical curve based on required design speeds. Current design adds 6-foot of fill material from center of intersection (21+16) west to station 15+00. Fill material creates additional ROW widths to construct fill slopes on north and south sides of CR 73.

Proposed Change:

Widen roadway to plan dimension leaving existing vertical elevations in place. This could require a reduction in the design speed.

Justification:

Reducing design speed to allow vertical curve elevations to remain in place eliminates major staged construction to haul 6.0' of borrow material to site, compact, construct a retaining wall, extend driveways, grass 4:1 slopes, and then construct all new roadway section levels from GAB to surface course. Utilizing existing at grade elevations reduces scope to widening existing pavement section.

LIFE CYCLE COST SUMMARY	CAPITAL COST	FUTURE COST	PRESENT WORTH
INITIAL COST - Original	296,200		
- Proposed	40,600		
- Savings	255,600		255,600
FUTURE COST - Savings		-0-	-0-
TOTAL PRESENT WORTH SAVINGS			255,600

COST WORKSHEET

PROJECT: SR 3 / US19 and CR73 Intersection Improvement and New Bridge Over Potato Creek	ITEM No: I-1 CLIENT: GDOT Sheet 2 of 2
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CONSTRUCTION ELEMENT		ORIGINAL ESTIMATE			NEW ESTIMATE		
ITEM	UNITS	No. UNITS	COST/ UNIT	TOTAL COST	No. UNITS	COST/ UNIT	TOTAL COST
Borrow Excavation, incl. matl.	CY	6,900	\$10.00	69,000	0	\$10.00	0
Class B conc. retaining wall	CY	4	662.33	2,649	0	662.33	0
GAB, incl. material	TN	560	18.73	10,489	210	18.73	3,933
Recycl. Asph. Conc. 25MM	TN	1,200	65.00	78,000	160	65.00	10,400
Recycl. Asph. Conc. 19MM	TN	350	68.50	23,975	100	68.50	6,850
Conc. Valley Gutter w/curb, 8"	SY	830	45.43	37,707	278	45.43	12,630
Traffic Control Shift	LS	1	25,000	25,000			0
SUBTOTAL				246,820			33,813
Markup @ 20.00%				49,364			6,763
TOTAL				296,184			40,575
TOTAL ROUNDED				296,200			40,600

DEVELOPMENT AND RECOMMENDATION PHASE

SR 3 / US19 and CR73 Intersection Improvement, New Bridge Over Potato Creek

IDEA No.: L-2	PAGE No.: 1 of 3	CREATIVE IDEA: Eliminate 5" white thermoplastic edge line stripe along curb and gutter sections.
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Comp By: dpc Date: 10.8.08 Checked By: dcw Date: 10.9.08

Original Concept:

Current typical sign and marking plan calls for the placement of 5" wide, white thermoplastic edge line striping to be placed on roadway where curb and gutter section is designated.

Proposed Change:

Eliminate all 5" wide white edge line thermoplastic striping next to curb and gutter sections for both SR 3 / US 19 and County Route 73 roadways.

Justification:

The elimination of white striping on black asphalt next to bleached white concrete curb and gutter does not diminish directional or safety concerns. This recommendation reverts back to a past GDOT policy where edge line striping was not specified in typical curb and gutter roadway sections.

LIFE CYCLE COST SUMMARY	CAPITAL COST	FUTURE COST	PRESENT WORTH
INITIAL COST - Original	9,500		
- Proposed	4,800		
- Savings	4,700		4,700
FUTURE COST - Savings		-0-	-0-
TOTAL PRESENT WORTH SAVINGS			4,700

CALCULATIONS

**SR 3 / US19 and CR73 Intersection Improvement, New
Bridge Over Potato Creek**

ITEM N^o: L-2
CLIENT: GDOT
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Existing 5" wide solid white striping costs $14,845 \text{ LF} \times \$0.46 \times 20\% \text{ MU} = \$8,194$

Reducing the amount of 5" solid white edge line striping for the entire length, both sides, of the project equates approximately to:

SR 3 /US 19 Mainline:

STA 23+00 to 59+14 SR 3 / US 19 both sides minus driveway openings equates too approximately: $(3,614')(2)$ minus $(48)(30') = 5,788 \text{ LF}$.

CR 73 Mainline:

STA 10+00 to 106+50 CR 73 (1,750') both sides minus driveway openings equates to approximately: $(1,750')(2)$ minus $(20)(30') = 2,900 \text{ LF}$

Total length of elimination = $8,688 \text{ LF} \times \$0.46 = \$3,996.48 \times 20\% \text{ MU} = \$4,796$

DEVELOPMENT AND RECOMMENDATION PHASE

SR 3 / US19 and CR73 Intersection Improvement, New Bridge Over Potato Creek

IDEA No.:	PAGE No.:	CREATIVE IDEA:
L-3	1 of 4	Re-evaluate the project limits and scope

Comp By: GAO Date: 10-09-08 Checked By: DCW Date: 10-09-08

Original Concept: Maintain the original project scope.

Proposed Change: Review the project limits and scope to match the original intent of the project and also to more adequately match the project need and purpose.

Justification: This project originated as an intersection improvement project at County Road 73. Due to the bridge project to the south, the gap was connected and the roadway project extended. This represents a classic case of project scope creep. Based on information in the concept report, the accident rate is less than the statewide average. The operations at the intersection are at acceptable LOS B, C and even D for the side road in year 2025. Operational improvements such as turn lanes, proper storage and ADA compatible sidewalks and ramps can be constructed at the intersection without other significant roadway improvements proposed for the remainder of the project.

This project proposes to incorporate a raised median due to the traffic demands, numerous driveways and subsequent access issues. However, this is the only section of SR 3 that would have a raised median. South of the bridge and the adjoining area north of this project are both flush medians with center turn lanes. If safety and operations are a significant concern based on current traffic and accident data, a consideration could be to lower the design / posted speed limit. If this area is experiencing faster growth and therefore higher accident rates, a lower posted speed limit would help. A 45 mph posted speed limit is dangerous for a thoroughly developed area.

If proposed development is occurring in the area, this would be an opportune time to work with the local jurisdiction and the developers to improve access and safety by consolidating driveways, investigating inter-parcel access and limiting the future access points within this relatively short length of roadway.

Due to the bridge deficiency, we cannot eliminate the bridge portion of the project. It needs to be reconstructed. Splitting the projects would allow the intersection improvements to continue to move forward without the unfunded bridge project

LIFE CYCLE COST SUMMARY	CAPITAL COST	FUTURE COST	PRESENT WORTH
INITIAL COST - Original	2,120,000		
- Proposed	0		
- Savings	2,120,000		2,120,000
FUTURE COST - Savings			-0-
TOTAL PRESENT WORTH SAVINGS			2,120,000

CALCULATIONS

**SR 3 / US19 and CR73 Intersection Improvement, New
Bridge Over Potato Creek**

ITEM N^o: L-3
CLIENT: GDOT
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Total project length, including County Road 73 is 5,381 feet

Total project cost is \$5,006,275

Cost per linear foot is \$ 930

Revise begin project from Station 23+00 to Station 42 + 00; 1,900 feet

Cost savings = \$ 930 per lf x 1,900 lf = \$1,767,000

There will also be significant Right of Way savings however these were not calculated due to the status of the acquisitions. This process has already been initiated and therefore should continue through acquisition to facilitate construction at a later date if necessary however additional savings can be realized if the right of way for the eliminated portion of the project is also eliminated.

SR 3 / US19 and CR73 Intersection Improvement, New Bridge
Over Potato Creek

ITEM N^o: L-3
CLIENT: GDOT
Sheet 4 of 4

Project Concept Report page 5
Project Number: NH-006-4(31)
P. I. Number: 322920
County: Upson

Safety:

The available accident data within the proposed project area showed that the accident, injury and fatality rates on SR3 / US19 and CR73 did not exceed the statewide averages for similar facilities. However, the proposed improvements are needed to relieve intersection congestion on SR3 / US19. The majority of the accidents that occurred along SR3 / US19 were either angle-intersect or rear-end accidents. These accidents can occur as the result of turning vehicles blocking through lanes or encroaching into opposing lanes. Below are accident data for SR3 / US19 and CR73 for the years 1995, 1996 and 1997 (the most recent year for which accident data is available). This data is compared to the statewide average for a similar facility.

Accident Data for SR3 / US19 (Urban Principal Arterial)

Year	1995		1996		1997	
	SR3	Statewide	SR3	Statewide	SR3	Statewide
Accidents	72		89		50	
Accident Rate	538	661	601	706	311	719
Injuries	21		24		12	
Injury Rate	157	194	202	202	78	202
Fatalities	0		0		0	
Fatality Rate	0	1.44	0	1.30	0	1.43

Accident Data for CR73 (Urban Minor Arterial)

Year	1995		1996		1997	
	CR73	Statewide	CR73	Statewide	CR73	Statewide
Accidents	8		5		4	
Accident Rate	222	549	138	528	111	552
Injuries	3		2		2	
Injury Rate	83	162	56	153	56	157
Fatalities	0		0		0	
Fatality Rate	0	1.30	0	1.42	0	1.43

APPENDIX

INFORMATION PHASE

FUNCTION ANALYSIS

SR 3 / US19 and CR73 Intersection Improvement, New Bridge Over Potato Creek

System: Upgrade Intersection / Replace Bridge

Function: Reduce Accidents / Improve Safety

ITEM No.	DESCRIPTION	FUNCTION			INITIAL DOLLARS (x 1,000)		
		Verb	Noun	Kind*	Cost	% of Total	Worth
A	Right of Way	Store	Project	S	10,469	46	9,000
B	Bridge Items	Reconstruct	Span	B	3,390	15	3,000
C	AC Pavement	Support	Traffic	B	2,150	9	1,900
D	Reimbursable Utilities	Continue	Service	S	1,079	5	1,079
E	Storm Drainage	Transfer	Fluids	S	975	4	900
F	Street Lighting	Illuminate	Area	S	868	4	868
G	Graded Aggregate Base and Surface	Support	Pavement	B	500	2	450
H	Curb and Gutter	Control	Runoff	S	453	2	453
		Delineate	Roadway				
I	Grading / Earthwork	Achieve	Grade	S	389	2	370
J	Signalization	Control	Movements	S	316	1	316
K	Retaining Walls	Retain	Earth	S	215	1	200
		Reduce	ROW				
TOTALS					20,804	91	18,536

CREATIVE PHASE Creative Idea Listing		JUDGMENT PHASE Idea Evaluation	
SR 3 / US19 and CR73 Intersection Improvement, New Bridge Over Potato Creek			
NO.	CREATIVE IDEA	COMMENTS	IDEA RATING **
A	Right of Way		
A-1	Reduce any excessive takes	None are apparent	X
B	Bridge Items		
B-1	Reduce sidewalk width		X
B-2	Evaluate staging		√
B-3	Use detour		X
B-4	Use culverts in lieu of bridge		X
B-5	Delete pilot holes for piling		√
B-6	Remove median concrete from bridge		√
C	AC Paving		
C-1	Reduce lane width		√
C-2	Reduce section depth on the CR 73 section		√
C-3	Reduce median width	With turns, not possible	X

** √ = Idea will be evaluated; X= idea will be dropped; DC = Design Consideration – presented for consideration by the design team

NO.	CREATIVE IDEA	COMMENTS	IDEA RATING **
D	Reimbursable Utilities		
D-1	Analyze location of meter pit	Appears to be OK	X
E	Storm Drainage		
E-1	Investigate outfall on south side of CR 73		√
F	Street Lighting		
F-1.0	Delete Lighting		√
F-1.1	Use pedestrian lighting only		√
G	Graded Aggregate Base		
G-1	Reduce thickness of base		√
H	Curb and Gutter		
H-1	Eliminate sidewalk on road sections		√
H-2	Use asphalt curb	Not as durable	X
H-3	Reduce width of shoulder – delete curb	Not cost effective when gutter replaced with roadway	X
H-4	Reduce driveway access points		√

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NO.	CREATIVE IDEA	COMMENTS	IDEA RATING **
I	Grading and Earthwork		
I-1	Evaluate intersection fill		√
J	Signalization		
J-1	Build #2 signal (Home Depot) at a later date		√
K	Retaining Walls		
K-1	Change material of construction		√
L	Other		
L-1	Align Avera Drive (Sta. 27+30) and opposite driveway	Minimal cost savings	X
L-2	Delete white line paint with white curb and gutter		√
L-3	Re-evaluate the project limit and scope.		√

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VE STUDY SIGN-IN SHEET

Project No.: NH000-0006-04(031) BRN00-0006-04(032)

County: Upson

PI No.: 322920 322922

Date: 10/7-10/08

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