VALUE ENGINEERING
MOD 1 TRAINING REPORT

SR 307/Dean Forrest Road
Widening and Reconstruction

Project No. MLP-307-(8)
Chatham County
PI No. 562165
March 11, 2009

OWNER:

Georgia Department of Transportation
600 West Peachtree Street
Atlanta, GA 30308
(404.631.1770)

VALUE ENGINEERING
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EXECUTIVE SUMMARY

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Introduction

This report summarizes the results of a value engineering (VE) study for roadway improvements to SR 307/Dean Forrest Road in Chatham County. The study was conducted as part of the Mod 1 training session held for select GDOT staff on February 23 to 27, 2009.

This project is the widening and reconstruction of SR 307/Dean Forrest Road from CR1119/Robert Miller Road to SR 21 for a total of 1.0 mile. Currently, this section of Dean Forrest Road is a four lane undivided roadway with a posted speed design of 45 mph. The proposed construction will extend the current five lane section to SR 21. SR 307 will consist of 2- 12 ft lanes and sidewalks in each direction with a 14 ft flush median and turn lanes at the intersections. New traffic signals are proposed at the intersections with Robert Miller Road and Commerce/Export Drive. The total estimated project cost is $11,169,651 including $1,415,896 for R/W. On Monday, February 23, 2009, the design team gave an overview of the project to the VE team and on Friday, February 27, 2009, the VE Team presented their recommendations.

This report presents the VE 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. The **Appendix** includes a complete record of the Team's activities and findings. The reader is encouraged to review all sections of the report in order to obtain a complete understanding of the VE process.

DEVELOPMENT PHASE - EXECUTIVE SUMMARY

Project: Dean Forest Rd/307 Widening from RB Miller Jr. Rd to SR 21/Augusta Rd **Location:** Chatham County, Georgia	**Team:** 3 **Date:** 27 Feb 2009

This project involves the reconstruction of 1.23 miles of SR 307(Dean Forest Rd) from R.B. Miller, Jr. Rd to SR 21 (Augusta Rd) in Chatham County. The corridor carries a very high truck volume due to its proximity to port facilities along the Savannah River, the Savannah International Airport and I-16. The basic function of this project is to provide capacity for this existing traffic demand and that which is forecast for the future. The project has an estimated cost of $11.7 Million dollars

The VE team identified three area of opportunity for project improvement and cost savings. The first area involves the modification of the proposed pavement design to replace the PCC section proposed near SR 21 with an equivalent flexible pavement design. The second area relates to the elimination of sidewalks from the typical section maintaining ADA requirements at the intersection. The final area consists of a typical section modification that will reduce lane widths and eliminate the proposed raised median.

The replacement of the PCC pavement with asphalt will result in a cost savings of $298,310. The elimination of sidewalks for the typical section will result in a cost savings of $458,986. The reduction in lane widths and elimination of raised medians will save $859,858.

These recommendations have a potential cost savings of $1.6 million if implemented simultaneously, which represents a 13.7% savings. There is ample time to implement these recommendations before the construction contract is let. Implementing these changes will not have any adverse impacts to the project.

DEVELOPMENT PHASE - SUMMARY OF COST SAVINGS

Project: Dean Forest Rd/307 Widening from RB Miller Jr. Rd to SR 21/Augusta Rd
Location: Chatham County, Georgia

Team No.: 3
Date: 27 Feb 2009

Idea No.	Creative Idea Description	Original Initial Cost	Proposed Initial Cost	Initial Cost Savings	Future Savings	Total Life Cycle Savings
C-3	All Asphalt Concrete Pavement	$3,429,540	$3,131,230	$298,310		
G-1	Evaluate need for ped accommodations	$525,720	$66734	$458,986		
K-1	Flush Median	$2,703,500	$1,843,602	$859,858		

STUDY IDENTIFICATION

STUDY IDENTIFICATION

Project: Dean Forrest Road Roadway Improvements	**Dates:** February 23 – 27, 2009
Location: GDOT HQ – Atlanta, 4th Floor; Conducted as part of Module 1 Training	

VE Team Members

Name:	Position:	Organization:	Telephone:
Chuck Hasty, P.E.	Asst Urban Design Eng	Urban Design	404-631-1704
Clay Bastian	Design Group Leader	Road Design	404-631-1610
Jeremy Busby, P.E.	Design Engineer	Road Design	404-631-1661
Cynthia Burney, P.E.	Traffic Design Mgr	Traffic Ops	404-635-8149
Doug Franks, P.E.	Design Engineer	Bridge Design	404-631-1917

Project Description

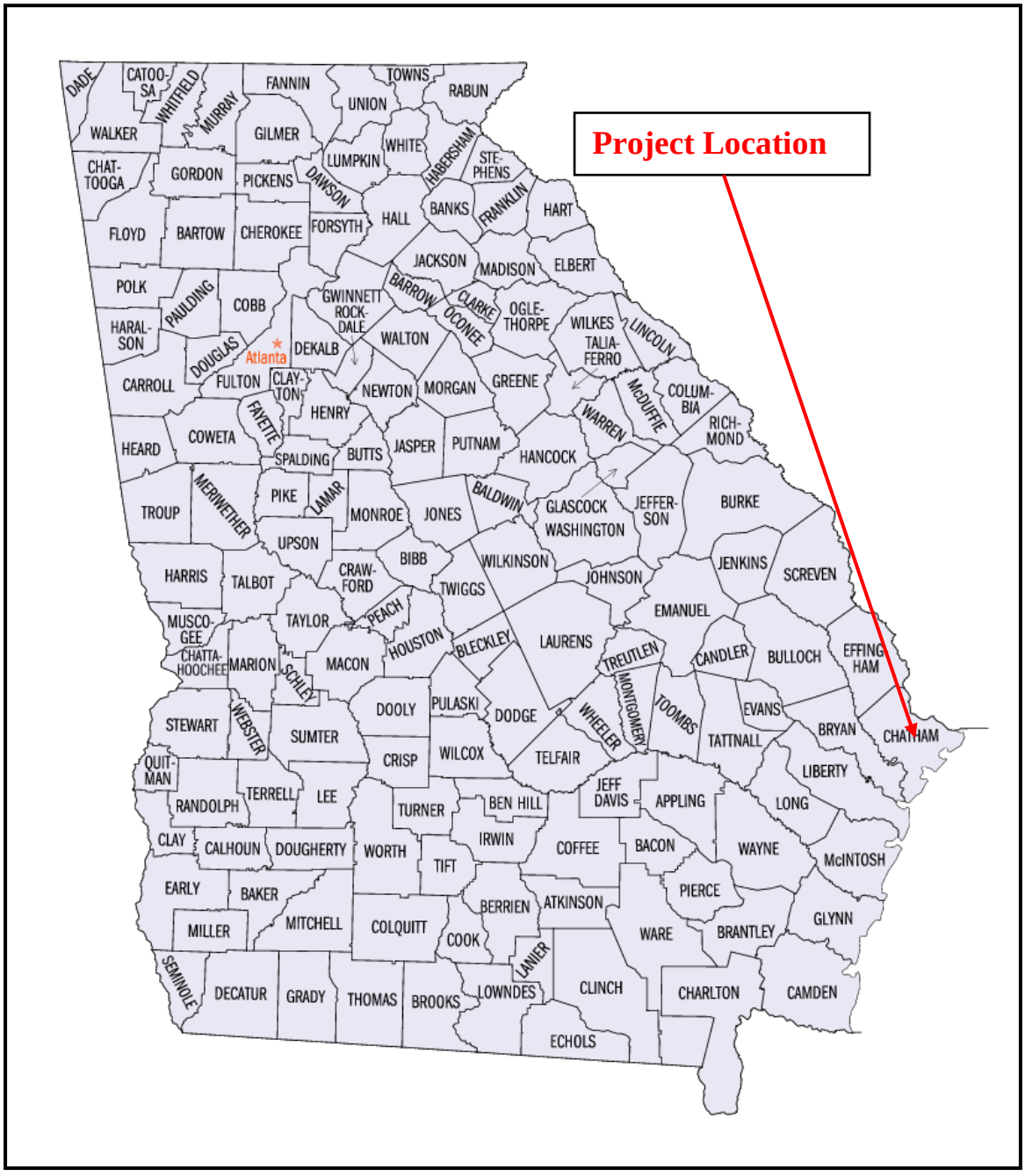
This project is the widening of Dean Forest Road/SR 307 from Robert Miller Jr. Road/CR 1119 to SR 21/August Road for a total of 1.23 miles. Currently, this section of Dean Forest Road is a four lane undivided roadway with a posted speed of 45 mph. West of Robert Miller Jr. Road (outside the project limits), Dean Forest Road/SR 307 is a five lane roadway with rural shoulders. State Route 307 is classified as an urban minor arterial providing a connection between SR 21/Augusta Road and I-16 and port facilities along the Savannah River. Design traffic indicates 18,900 VPD on this segment of SR 307 presently. This same section of SR 307 is projected to carry 27,600 VPD in the year 2029.

The proposed construction will widen the existing section to an urban section with four lanes, a raised median, and sidewalk on both sides. Two new signals are being proposed at Dean Forest Road/SR 307 and Robert Miller Jr Road and at Dean Forest Road/307 and Commerce/Export Drives. Traffic will be maintained during construction.

Project Constraints

This project has completed the GDOT's Plan Development Process; however, it does not have a funding year identified. The plans are to be put on the shelf. In addition, the right of way has been certified.

Figure 1
Project Vicinity Map



County Map of Georgia

VE RECOMMENDATIONS

DEVELOPMENT AND RECOMMENDATION PHASE

Project: MLP00-0307-00(008)

Idea No.: C-3	**Sheet No.:** 1 of 3	**CREATIVE IDEA:** Use only Asphaltic Concrete pavement instead of the combination of ACP, PPC Concrete Pavement and HES Concrete Pavement.

Comp By: CCB Date: 2-26-2009 Checked By: Date:

Original Concept: Use combination of Asphaltic Concrete Pavement, Plain Portland Cement Concrete Pavement and High early strength Concrete.

Proposed Change: Use only Asphaltic concrete Pavement

Justification: Implementation of this recommendation will realize an initial cost savings of $298,310 and a reduction of construction time.

LIFE CYCLE COST SUMMARY	**INITIAL Project Cost**	**FUTURE Project Cost**	**TOTAL Present Worth Cost**
INITIAL COST: **Original**	3,429, 540		
Proposed	3,131,230		
Savings	298,310		298,310
FUTURE COST: **Savings**		N/A	N/A
TOTAL PRESENT WORTH SAVINGS			**298,310**

COST WORKSHEET

Project: MLP00-0307-00(008)

Idea No.: C-3
Client:: GDOT
Sheet 2 of 3

CONSTRUCTION ELEMENT		ORIGINAL ESTIMATE			NEW ESTIMATE		
Item	**Unit**	**No. Units**	**Cost/Unit**	**Total Cost**	**No. Units**	**Cost/Unit**	**Total Cost**
310-5080 8” GAB	SY	14000	18.50	259000			
310-5120 12” GAB	SY	15000	21.00	315000	29000	21.00	609000
400-3605 19mm Superpave	TN	6000	90.00	540000	7540	90.00	678600
402-1811 Leveling	TN	1600	102.00	163200	1600	102.00	163200
402-3121 25 mm Superpave	TN	6700	73.00	489100	13630	73.00	994990
402-4510 12.5 mm Superpave	TN	6000	87.50	525000	7540	87.50	659750
407-0010 Joint & Crack Seal M	LF	1000	1.77	1770	1000	1.77	1770
407-0020 Joint & Crack Seal S	LF	1000	0.87	870	1000	0.87	870
413-1000 Tack	GAL	5400	2.00	1080	7500	2.00	15000
430-0620 HES Conc. 12”	SY	3400	80.00	272000			
432-5010 Mill Asph.	SY	1000	8.05	8050	1000	8.05	8050
439-0026 PPC Conc. 12”	SY	10900	77.50	844750			
Subtotal:				3,429,540			3,131,230
Mark-up (0 %)							
Total				3,429,540			3,131,230
Total Rounded				**3,429,540**			**3,131,230**

CALCULATIONS

Project: MLP00-0307-00(008)	Idea No. : C-3 Client:: GDOT Sheet 3 of 3

Remove concrete pay items increase 19 mm Superpave.

14000sy area of concrete pavement
220 spread rate
1/2000 conversion pounds to tons

14000 x 220 x 1/2000 = 1540 tons

DEVELOPMENT AND RECOMMENDATION PHASE

Project: SR307 from RB Miller Jr Rd to SR21

Idea No.: G-1	**Sheet No.:** 1 of 2	**CREATIVE IDEA:** Evaluate need for pedestrian accommodations

Comp By: JTB Date: 2/26/09 Checked By: Date:

Original Concept: The original design calls for the construction of sidewalk throughout the corridor. The plans designate 5' wide sidewalk, using 4" thick concrete. Where SR307 intersects both Commerce/Export Blvd and SR21, the plans call for 8" thick sidewalk concrete.

Proposed Change: It is recommended that sidewalk is not constructed along the corridor, but only at the intersections with Commerce/Export Blvd and SR21, to provide for ramps. Sidewalk at theses intersections is recommended to be 4" thick.

Justification: This is an industrial corridor with high truck volumes (70%), where pedestrian traffic is not expected to be generated with the current land uses. Therefore, any pedestrians can be accommodated with graded shoulders along the route and crosswalks and ramps at the intersections. Given the large radiuses at the intersections to accommodate trucks, 4" thick sidewalk concrete is sufficient.

LIFE CYCLE COST SUMMARY		**INITIAL Project Cost**	**FUTURE Project Cost**	**TOTAL Present Worth Cost**
INITIAL COST:	**Original**	$525,720		
	Proposed	$66,734		
	Savings	$458,986		$458,986
FUTURE COST:	**Savings**		NA	NA
TOTAL PRESENT WORTH SAVINGS				**$458,986**

COST WORKSHEET

Project: SR307 from RB Miller Jr Rd to SR21					Idea No.: G-1 Client: GDOT Sheet of 2 of 2		
CONSTRUCTION ELEMENT		**ORIGINAL ESTIMATE**			**NEW ESTIMATE**		
Item	**Unit**	**No. Units**	**Cost/Unit**	**Total Cost**	**No. Units**	**Cost/Unit**	**Total Cost**
CURRENT DESIGN:							
Concrete Sidewalk, 4 IN	SY	6600	54.70	361020.00			
Concrete Sidewalk, 8 IN	SY	1220	135	164700.00			
VE DESIGN:							
Concrete Sidewalk, 4 IN	SY				1220	54.70	66734.00
Subtotal:				525720.00			66734.00
Mark-up (%)							
Total							
Total Rounded				**$525,720.00**			**$66,734.00**

DEVELOPMENT AND RECOMMENDATION PHASE

Project: SR307 from RB Miller Jr Rd to SR21

Idea No.:	**Sheet No.:**	**CREATIVE IDEA:**
K-1	1 of 2	Flush Median

Comp By: CAH/JTB Date: 2/26/09 Checked By: Date:

Original Concept: The original design calls for the construction of a 4 12' lanes with a 14' flush median from the beginning of the project until Station 18+60. At that point the typical section changes to 4 12' lanes with a 20' raised median to Station 72+64. The typical section goes back to a 14' flush median with 4 12' lanes, at this point, and continues with this typical to the end of the project.

Proposed Change: It is recommended that the lane width be narrowed to11' for the entire project length and the raised median section is replaced with a 14' flush median.

Justification: Narrower lanes and the elimination of the raised median results in significant cost savings in asphalt paving, graded aggregate base, plain Portland cement pavement, and concrete median. Accident data suggests that most crashes are contained within the intersections, therefore a flush median does not contribute to decreased safety.

LIFE CYCLE COST SUMMARY		**INITIAL Project Cost**	**FUTURE Project Cost**	**TOTAL Present Worth Cost**
INITIAL COST:	**Original**	$2,703,500		
	Proposed	$1,843,602		
	Savings	$859,898		$859,898
FUTURE COST:	**Savings**		NA	NA
TOTAL PRESENT WORTH SAVINGS				**$859,858**

COST WORKSHEET

Project: SR307 from RB Miller Jr Rd to SR21					Idea No.: K-1 Client: GDOT Sheet 2 of 2		
CONSTRUCTION ELEMENT		**ORIGINAL ESTIMATE**			**NEW ESTIMATE**		
Item	**Unit**	**No. Units**	**Cost/Unit**	**Total Cost**	**No. Units**	**Cost/Unit**	**Total Cost**
CURRENT DESIGN:							
12.5mm Superpave	TN	6000	87.5	525000.00			
19mm Superpave	TN	6000	90	540000.00			
25mm Superpave	TN	6700	73	489100.00			
12” GAB	SY	15000	21	315000.00			
8” GAB	SY	14000	18.5	259000.00			
Concrete Median, 8”	SY	2650	82	217300.00			
Concrete Median, 6”	SY	1400	61.5	86100.00			
12” PCC Pavement	SY	3400	80	272000.00			
VE DESIGN:							
12.5mm Superpave	TN				4486	87.5	392525.00
19mm Superpave	TN				4486	90	403740.00
25mm Superpave	TN				4941	73	360693.00
12” GAB	SY				10527	21	221067.00
8” GAB					12996	18.5	240430.00
Concrete Median, 8”	SY				1427	82	117014.00
Concrete Median, 6”	SY				222	61.5	13653.00
12” PCC Pavement	SY				1181	80	94480.00
Subtotal:				2703500.00			1843602
Mark-up (%)							
Total							
Total Rounded				**$2,703,500**			**$1,843,602**

MLP00-0307-00(008), Chatham County | **GROUP No. 3** | Sheet 1

P.I. No. 562165-

SR 307/Dean Forest Road/Bourne Avenue from RB Miller, Jr. Road to SR 21/Augusta Road

VE Recommendation - Eliminate raised concrete median and construct a 14-foot TWLTL; construct 11-foot travel lanes*

* - Left-turn lane width is 12 feet; Right-turn lane width is 11 feet

Pavement quantity calculations from Station 42+94 to Station 75+00

		Proposed Typical Section					VE Recommended Typical Section				
Station	Existing Pavement Width (ft)	Full-depth width (ft)	Overlay width (ft)	Raised Median width (ft)	Overlay width (ft)	Full-depth width (ft)	Full-depth width (ft)	Overlay width (ft)	Overlay width (ft)	Full-depth width (ft)	Comments
4294	48	8	18	16	14	12	3	26	22	7	
4378	48	8	18	16	14	12	3	26	22	7	
4478	48	8	18	4	27	23	3	26	23	16	
4578	67	0	26	4	37	13	0	28	32	6	
4678	72	8	30	4	38	12	1	38	32	5	
4743	93	7	31	4	50	0	0	39	35	4	
4744	93	7	33	0	52	0	0	39	35	4	begin median break
4867	69	7	45	0	23	15	0	39	31	8	end median break
4868	69	7	43	4	23	15	0	39	31	8	
4904	62	8	43	4	15	22	0	39	24	15	
5004	60	7	43	4	14	12	0	39	21	7	
5325	73	7	31	4	38	0	0	39	28	0	
5336	73	5	31	4	38	0	0	39	28	0	
5337	73	5	33	0	40	0	0	39	28	0	begin median break
5435	73	0	42	0	30	8	0	28	35	4	end median break
5436	73	0	40	6	26	8	0	28	35	4	
5533	73	0	39	9	26	0	0	28	28	0	
5650	65	0	37	8.5	20	12	0	28	25	3	
5800	75	0	26	6	43	7	0	34	32	2	
6009	72	5	21	11	41	8	0	34	30	4	
6010	72	0	0	11	0	0	0	0	0	0	begin full-depth PCC
6110	59	0	0	11	0	0	0	0	0	0	
6162	60	0	0	11	0	0	0	0	0	0	
6163	60	0	0	0	0	0	0	0	0	0	begin median break
6172	60	0	0	0	0	0	0	0	0	0	end full-depth PCC
6200	65	0	0	0	0	0	0	0	0	0	begin full-depth PCC/end median break
6201	65	0	0	11	0	0	0	0	0	0	
6330	75	0	0	11	0	0	0	0	0	0	
6331	75	0	0	0	0	0	0	0	0	0	begin median break
6389	92	0	0	0	0	0	0	0	0	0	end full-depth PCC
6498	92	0	0	0	0	0	0	0	0	0	begin full-depth PCC
6547	90	0	0	0	0	0	0	0	0	0	end median break
6548	90	0	0	11	0	0	0	0	0	0	
6650	76	0	0	11	0	0	0	0	0	0	
6750	80	0	0	8	0	0	0	0	0	0	
6800	78	0	0	11	0	0	0	0	0	0	
6843	76	0	0	13	0	0	0	0	0	0	
6900	78	0	0	18	0	0	0	0	0	0	
6952	70	0	0	24	0	0	0	0	0	0	
7000	62	0	0	22	0	0	0	0	0	0	
7095	62	0	0	8	0	0	0	0	0	0	
7195	73	0	0	6	0	0	0	0	0	0	
7260	78	0	0	4	0	0	0	0	0	0	
7261	78	0	0	0	0	0	0	0	0	0	end raised median
7264	77	0	0	4	0	0	0	0	0	0	end full-depth PCC
7265	77	1	49	0	30	4	0	39	28	0	
7331	72	0	43	0	30	4	0	28	28	0	
7500	72	0	37	0	35	0	0	35	35	0	

	Proposed Typical Section					VE Recommended Typical Section				
Station	Full-depth area to next Station (SY)	Overlay area to next Station (SY)	Raised Median area to next Station (SY)	Overlay area to next Station (SY)	Full-depth area to next Station (SY)	Full-depth area to next Station (SY)	Overlay area to next Station (SY)	Overlay area to next Station (SY)	Full-depth area to next Station (SY)	Comments
4294	74.67	168.00	149.33	130.67	112.00	28.00	242.67	205.33	65.33	
4378	88.89	200.00	111.11	227.78	194.44	33.33	288.89	250.00	127.78	
4478	44.44	244.44	44.44	355.56	200.00	16.67	300.00	305.56	122.22	
4578	44.44	311.11	44.44	416.67	138.89	5.56	366.67	355.56	61.11	
4678	54.17	220.28	28.89	317.78	43.33	3.61	278.06	241.94	32.50	
4743	0.78	3.56	0.22	5.67	0.00	0.00	4.33	3.89	0.44	
4744	95.67	533.00	0.00	512.50	102.50	0.00	533.00	451.00	82.00	begin median break
4867	0.78	4.89	0.22	2.56	1.67	0.00	4.33	3.44	0.89	end median break
4868	30.00	172.00	16.00	76.00	74.00	0.00	156.00	110.00	46.00	
4904	83.33	477.78	44.44	161.11	188.89	0.00	433.33	250.00	122.22	
5004	249.67	1319.67	142.67	927.33	214.00	0.00	1391.00	873.83	124.83	
5325	7.33	37.89	4.89	46.44	0.00	0.00	47.67	34.22	0.00	
5336	0.56	3.56	0.22	4.33	0.00	0.00	4.33	3.11	0.00	
5337	27.22	408.33	0.00	381.11	43.56	0.00	364.78	343.00	21.78	begin median break
5435	0.00	2.33	0.00	1.67	0.44	0.00	1.56	1.94	0.22	end median break
5436	0.00	425.72	80.83	280.22	43.11	0.00	301.78	339.50	21.56	
5533	0.00	494.00	113.75	299.00	78.00	0.00	364.00	344.50	19.50	
5650	0.00	525.00	120.83	525.00	158.33	0.00	516.67	475.00	41.67	
5800	58.06	545.72	197.39	975.33	174.17	0.00	789.56	719.89	69.67	
6009	0.28	1.17	1.22	2.28	0.44	0.00	1.89	1.67	0.22	
6010	0.00	0.00	122.22	0.00	0.00	0.00	0.00	0.00	0.00	begin full-depth PCC
6110	0.00	0.00	63.56	0.00	0.00	0.00	0.00	0.00	0.00	
6162	0.00	0.00	0.61	0.00	0.00	0.00	0.00	0.00	0.00	
6163	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	begin median break
6172	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	end full-depth PCC
6200	0.00	0.00	0.61	0.00	0.00	0.00	0.00	0.00	0.00	begin full-depth PCC/end
6201	0.00	0.00	157.67	0.00	0.00	0.00	0.00	0.00	0.00	
6330	0.00	0.00	0.61	0.00	0.00	0.00	0.00	0.00	0.00	begin median break
6331	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
6389	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	end full-depth PCC
6498	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	begin full-depth PCC
6547	0.00	0.00	0.61	0.00	0.00	0.00	0.00	0.00	0.00	end median break
6548	0.00	0.00	124.67	0.00	0.00	0.00	0.00	0.00	0.00	
6650	0.00	0.00	105.56	0.00	0.00	0.00	0.00	0.00	0.00	
6750	0.00	0.00	52.78	0.00	0.00	0.00	0.00	0.00	0.00	
6800	0.00	0.00	57.33	0.00	0.00	0.00	0.00	0.00	0.00	
6843	0.00	0.00	98.17	0.00	0.00	0.00	0.00	0.00	0.00	
6900	0.00	0.00	121.33	0.00	0.00	0.00	0.00	0.00	0.00	
6952	0.00	0.00	122.67	0.00	0.00	0.00	0.00	0.00	0.00	
7000	0.00	0.00	158.33	0.00	0.00	0.00	0.00	0.00	0.00	
7095	0.00	0.00	77.78	0.00	0.00	0.00	0.00	0.00	0.00	
7195	0.00	0.00	36.11	0.00	0.00	0.00	0.00	0.00	0.00	
7260	0.00	0.00	0.22	0.00	0.00	0.00	0.00	0.00	0.00	
7261	0.00	0.00	0.67	0.00	0.00	0.00	0.00	0.00	0.00	end raised median
7264	0.06	2.72	0.22	1.67	0.22	0.00	2.17	1.56	0.00	end full-depth PCC
7265	3.67	337.33	0.00	220.00	29.33	0.00	245.67	205.33	0.00	
7331	0.00	751.11	0.00	610.28	37.56	0.00	591.50	591.50	0.00	
7500	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Totals	864.00	7189.61	1223.14	6480.94	1834.89	87.17	7229.83	6111.78	959.94	
			1179.50							

8-inch Integral Median
6-inch Integral Median

Station	Reduction in pavement area to next Station (SY)	Comments
4294		
4378		
4478		
4578		
4678		
4743		
4744		
4867		
4868		
4904		
5004		
5325		
5336		
5337		
5435		
5436		
5533		
5650		
5800		
6009		
6010	200.00	begin full-depth PCC
6110	109.78	
6162	1.79	
6163	16.14	begin median break
6172	50.28	end full-depth PCC
6200	1.80	begin full-depth PCC/end median break
6201	232.49	
6330	1.81	
6331	104.98	begin median break
6389		end full-depth PCC
6498	89.51	begin full-depth PCC
6547	1.89	end median break
6548	192.67	
6650	227.78	
6750	100.00	
6800	71.67	
6843	82.33	
6900	144.44	
6952	106.67	
7000	190.00	
7095	177.78	
7195	108.33	
7260	1.67	
7261	4.30	end raised median
7264	1.41	end full-depth PCC
7265		
7331		
7500		
Total	2219.51	

Full-depth Asphaltic Concrete Pavement Section		
220 #/SY Asphaltic Concrete, 12.5 mm Superpave, GP 2 Only, Polymer-Modified		
220#/SY Asphaltic Concrete, 19 mm Superpave, GP 2 Only, Polymer-Modified		
990#/SY Asphaltic Concrete, 25 mm Superpave, GP 1 of 2, Incl Bitum and H-Lime		
12-inches Graded Aggregate Base		
Overlay Asphaltic Concrete Pavement Section		
220 #/SY Asphaltic Concrete, 12.5 mm Superpave, GP 2 Only, Polymer-Modified		
220#/SY Asphaltic Concrete, 19 mm Superpave, GP 2 Only, Polymer-Modified		
Asphaltic Concrete Leveling, As Required		
Full-depth Portland Cement Concrete Section		
12-inches Plain Portland Cement with 1.5-inch dowel bars		
330#/SY Asphaltic Concrete, 19 mm Superpave, GP 2 Only, Polymer-Modified		
8-inches Graded Aggregate Base		
Proposed Typical Section Pavement Quantities - Full-depth Asphaltic Concrete Section	TN	
Asphaltic Concrete, 12.5 mm Superpave, GP 2 Only, Polymer-Modified	296.88	
Asphaltic Concrete, 19 mm Superpave, GP 2 Only, Polymer-Modified	296.88	
Asphaltic Concrete, 25 mm Superpave, GP 1 of 2, Incl Bitum and H-Lime	1335.95	
Graded Aggregate Base	1821.75	
Proposed Typical Section Pavement Quantities - Overlay Asphaltic Concrete Section	TN	
Asphaltic Concrete, 12.5 mm Superpave, GP 2 Only, Polymer-Modified	1503.76	
Asphaltic Concrete, 19 mm Superpave, GP 2 Only, Polymer-Modified	1503.76	
Total Proposed Typical Section Pavement Quantities	TN	
Asphaltic Concrete, 12.5 mm Superpave, GP 2 Only, Polymer-Modified	1800.64	
Asphaltic Concrete, 19 mm Superpave, GP 2 Only, Polymer-Modified	1800.64	
Asphaltic Concrete, 25 mm Superpave, GP 1 of 2, Incl Bitum and H-Lime	1335.95	
Graded Aggregate Base	1821.75	
VE Recommended Typical Section Pavement Quantities - Full-depth AC Section	TN	
Asphaltic Concrete, 12.5 mm Superpave, GP 2 Only, Polymer-Modified	115.18	
Asphaltic Concrete, 19 mm Superpave, GP 2 Only, Polymer-Modified	115.18	
Asphaltic Concrete, 25 mm Superpave, GP 1 of 2, Incl Bitum and H-Lime	518.32	
Graded Aggregate Base	706.8	
VE Recommended Typical Section Pavement Quantities - Overlay AC Section	TN	
Asphaltic Concrete, 12.5 mm Superpave, GP 2 Only, Polymer-Modified	115.18	
Asphaltic Concrete, 19 mm Superpave, GP 2 Only, Polymer-Modified	115.18	
Total VE Recommended Typical Section Pavement Quantities	TN	
Asphaltic Concrete, 12.5 mm Superpave, GP 2 Only, Polymer-Modified	230.36	
Asphaltic Concrete, 19 mm Superpave, GP 2 Only, Polymer-Modified	230.36	
Asphaltic Concrete, 25 mm Superpave, GP 1 of 2, Incl Bitum and H-Lime	518.32	
Graded Aggregate Base	706.8	
Reduction in Pavement Quantities	TN	Associated Costs
Asphaltic Concrete, 12.5 mm Superpave, GP 2 Only, Polymer-Modified	1570.27	$137,399.01
Asphaltic Concrete, 19 mm Superpave, GP 2 Only, Polymer-Modified	1570.27	$141,324.70
Asphaltic Concrete, 25 mm Superpave, GP 1 of 2, Incl Bitum and H-Lime	817.63	$59,686.99
Graded Aggregate Base	1114.95	$23,413.95
	SY	
8-inch Integral Median	1223.14	$100,297.39
6-inch Integral Median	1179.50	$72,539.25
Total Cost Savings (PW)		$534,661.29

Full-depth Portland Cement Concrete Section			
12-inches Plain Portland Cement with 1.5-inch diameter dowel bars			
330#/SY Asphaltic Concrete, 19 mm Superpave, GP 2 Only, Polymer-Modified			
8-inches Graded Aggregate Base			
Reduction in Full-depth Portland Cement Concrete Section Pavement Quantit	SY	TN	Associated Costs
12-inches Plain Portland Cement with 1.5-inch diameter dowel bars	2219.51		$172,011.68
330#/SY Asphaltic Concrete, 19 mm Superpave, GP 2 Only, Polymer-Modified		366.22	$32,959.66
8-inches Graded Aggregate Base		1003.8	$18,569.77
Total Cost Savings (PW)			$223,541.11
Total VE Recommended Alternative Typical Section Cost Savings (Station 42+94 to Station 75+00)			$758,202.40

APPENDIX

INFORMATION PHASE - SOURCES

Approving/Authorizing Persons

Name:	Position:	Telephone:
Gerald Ross	Chief Engineer	404-635-1004

Personal Contacts

Name:	Telephone:	Notes:
Donna Brantley	404-635-8119	Updated Accident Data
Brad Ehrman	404-631-1558	ADA Requirements
Andrew Hoenig	404-631-1691	Culvert Hydraulic Study
Jason McCook	404-631-1606	White topping/Concrete Alternates
AJ Jubran	404-363-7582	White topping/Concrete Alternates
Kyle Mote	404-631-1811	Accident Rates
Ian Rish	404-363-7579	Culvert Foundation Information

Documents/Abstracts

Reference:	Notes:

INFORMATION PHASE - COST MODEL

Project Name: Dean Forest Rd/307 Widening from RB Miller Jr. Rd to SR 21/Augusta Rd

Item	Description	$ Amount	% of Total Project
A	Asphalt Pavement	$2,053,790	18.4%
B	Reimbursable Utilities	$1,621,410	14.5%
C	Concrete Pavement	$1,605,750	14.4%
D	Right of Way	$1,415,896	12.7%
E	Grading	$1,272,225	11.4%
F	Drainage	$661,615	5.9%
G	Sidewalk	$525,720	4.7%
80% Cost Line			
H	Box Culvert	$471,561	4.2%
I	Signals	$339,233	3.0%
J	Curb and Gutter	$319,500	2.9%
K	Median	$303,400	2.7%
L	Temporary Erosion Control	$221,870	2.0%
M	Miscellaneous	$179,243	1.6%
N	Signing and Marking	$133,724	1.2%
O	Permanent Erosion Control	$36,226	0.3%
P	Guardrail	$8,510	0.1%
	TOTAL	$11,169,651	100%

INFORMATION PHASE - COST MODEL

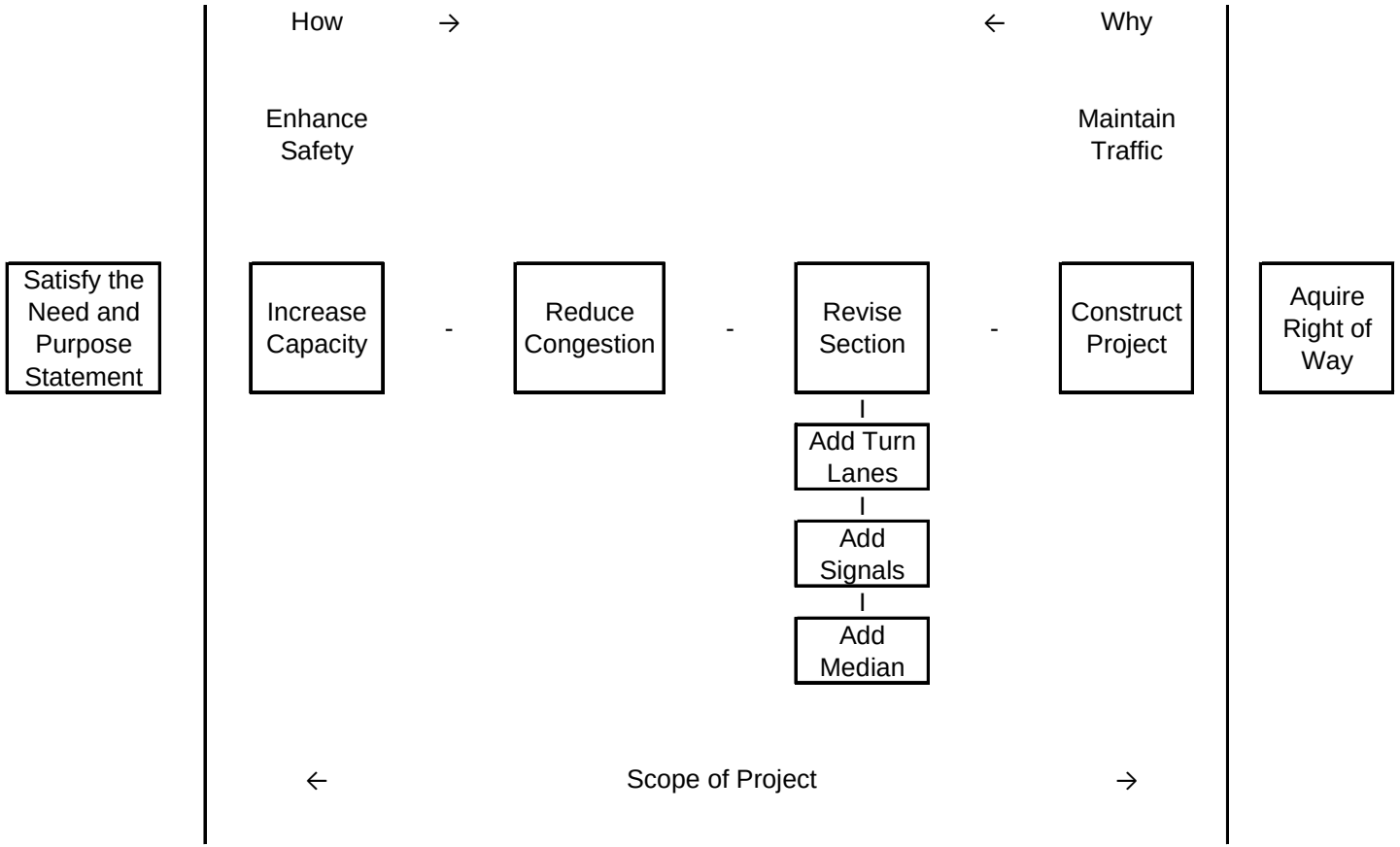
Project Name: Dean Forest Rd/307 Widening from RB Miller Jr. Rd to SR 21/Augusta Rd

INFORMATION PHASE – FUNCTION ANALYSIS

Project: Dean Forest Rd/307 Widening from RB Miller Jr. Rd to SR 21/Augusta Rd
Project Function: Provide a facility that will serve current and future travel demand

ITEM	DESCRIPTION	FUNCTION		INITIAL DOLLARS		
No.		Verb	Noun	Cost	Worth	Comments
A	Asphalt Pavement	Support	Traffic	$2,053,790	$2,000,000	Reduce
B	Reimbursable Utilities	Provide	Service	$1,621,410	$1,621,410	None
C	Concrete Pavement	Support	Traffic	$1,605,750	$1,500,000	Reduce
D	Right of Way	Store	Project	$1,415,896	$1,415,896	None
E	Grading	Establish	Profile	$1,272,225	$1,000,000	Reduce
F	Drainage	Remove	Water	$661,615	$200,000	Ditches
G	Sidewalk	Convey	Pedestrians	$525,720	$250,000	Peds on one side
H	Box Culvert	Provide	Crossing	$471,561	$250,000	Use Pipes
I	Signals	Control	Traffic	$339,233	$100,000	Stop Signs
J	Curb and Gutter	Reduce	Impacts	$319,500	$150,000	Ditches
K	Median	Control	Traffic	$303,400	$100,000	Striping
L	Temporary Erosion Control	Control	Erosion	$221,870	$221,870	None
M	Miscellaneous	Complete	Project	$179,243	$179,243	None
N	Signing and Marking	Control	Traffic	$133,702	$133,702	None
O	Permanent Erosion Control	Control	Erosion	$36,226	$36,226	None
P	Guardrail	Redirect	Traffic	$8,510	$8,510	None

INVESTIGATION PHASE - FAST DIAGRAM



CREATIVE PHASE Creative Idea Listing		JUDGMENT PHASE Idea Evaluation	
No.	**CREATIVE IDEA**	**COMMENTS**	**IDEA RATING**
A-1	Concrete	More durable, but more expensive	7
B-1	Non-reimbursable	Reduce our costs, but not sure locals could fund	2
C-1	Asphalt/Roller Compacted Concrete	Possibly less expensive, but construction concerns	7
C-2	White topping	Lasts longer, but not enough exist asphalt	0
C-3	All Asphalt Concrete Pavement	Less expensive, more maintenance	7
E-1	Match existing profile	Project already doing	0
E-2	Reduce footprint	Save materials, but w/ 70% truck may be too narrow	8
E-3	Shoring	Reduce culvert length during construction	6
F-1	Ditches	Less expensive, but might impact R/W	7
F-2	V-gutter	Traversable, but reduce drainage capacity	3
F-3	Surface course	More expensive	0
G-1	Evaluate need for pedestrian accommodations	May go against ADA	8
G-2	Sidewalk on one side	Reduce costs	8
G-3	Narrower sidewalk	May go against ADA	8
G-4	Asphalt	Cost Less, but possible more maintenance issues	8
H-1	Diversion	Not environmentally sensitive	0
H-2	Pipes	Less expensive, maintenance issues	8

CREATIVE PHASE Creative Idea Listing		JUDGMENT PHASE Idea Evaluation	
No.	**CREATIVE IDEA**	**COMMENTS**	**IDEA RATING**
H-3	Precast	Faster to construct	8
I-1	Signage	Less expensive, but capacity issues	3
K-1	Flush Median	Less expensive, but less safe	8
K-2	Grassed Median	Less expensive, but more maintenance	5
K-3	Tubular Markers	Less expensive, but more maintenance	2
K-4	Reduce median width	Less expensive, but 70% trucks	8