

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

INTERDEPARTMENT CORRESPONDENCE

FILE: STP00-F128-01(013) Houston
P.I. No.: 342340
SR 247 Connector

OFFICE: Engineering Services

DATE: July 7, 2010

FROM: Ronald E. Wishon, State Project Review Engineer *REW*

TO: Bobby K. Hilliard, PE, State Program Delivery Engineer
Attn.: Kimberly Nesbitt

SUBJECT: IMPLEMENTATION OF VALUE ENGINEERING STUDY ALTERNATIVES

The VE Study for the above project was held March 22-25, 2010. Responses were received on July 5, 2010. Recommendations for implementation of Value Engineering Study Alternatives are indicated in the table below. The Project Manager shall incorporate the VE alternatives recommended for implementation to the extent reasonable in the design of the project.

ALT #	Description	Potential Savings/LCC	Implement	Comments
1	Reduce the width of the through lanes from 12 ft wide to 11 ft wide	Proposed = \$3,269,000 Actual = \$2,275,900	Yes	This will be done. Savings have been adjusted to reflect more accurate ROW quantities.
2	Construct a 24 inch wide curb and gutter section in lieu of a 30 inch wide curb and gutter section	Proposed = \$1,358,000 Actual = \$861,100	Yes	This will be done. Savings have been adjusted to reflect more accurate ROW quantities.
4	Retain the existing depressed median from SR 11/US 41 to Margie Road. Retain the existing curb and gutter along the outside lanes, as well as the existing sidewalk.	\$1,509,000	Yes	This will be done.
5	Delete the sidewalk on the north side of SR 247 Conn from SR 11/US 41 to Williamson Road	\$126,000	No	This project is classified as an Urban Principal Arterial. According to AASHTO, "...As a general practice, sidewalks should be constructed along any street or highway not provided with shoulders, even though pedestrian traffic may be light."

**STP00-F128-01(013) Houston
Implementation of Value Engineering Study Alternatives**

6	Selectively use a 2 ft wide grass strip adjacent to the sidewalk in lieu of a 6 ft strip (reduce shoulder width from 16 ft to 12 ft)	Proposed = \$3,559,000 Actual = \$2,505,000	Yes	This will be done.
7	Selectively use a 4 ft wide grass strip adjacent to the sidewalk (reduce shoulder width from 16 ft to 14 ft)	\$1,719,000	No	No. 6 will be implemented; therefore, No. 7 cannot be done.
10	Delete sidewalk on the south side of SR 247 Conn from SR 11/US 41 to the Comfort Suites Hotel	\$91,000	No	This project is classified as an Urban Principal Arterial. According to AASHTO, "...As a general practice, sidewalks should be constructed along any street or highway not provided with shoulders, even though pedestrian traffic may be light."
11	Use grass in lieu of concrete in the median where the width is 20 ft	\$549,000	Yes	This will be done.
13	Use a 14 ft wide shoulder with a 6 ft wide grass strip in lieu of a 16 ft wide shoulder for the entire length of the project	\$3,010,000	No	No. 6 will be implemented; therefore, No. 13 cannot be done.
15	Construct an 18 ft wide median in lieu of a 20 ft wide median	\$1,291,000	Yes	This will be done.
16	Eliminate the U-turn and close the median opening at Sta. 202+00	\$88,000	Yes	This will be done.
18	Raise the profile grade to avoid undercutting existing pavement	\$3,236,000	Yes	This will be done.
20	Eliminate the U-turn and remove the "eye-brow" extra pavement at Napier Ave (Sta. 147+50)	\$366,000	Yes	This will be done.
22	Eliminate the eastbound U-turn at 6 th Street to save property at the northwest corner of the intersection	\$618,000	Yes	This will be done.
23	At the Tower, Inc. property, reduce the width of the pavement area and grass strip to	\$353,000	Yes	This will be done.

**STP00-F128-01(013) Houston
Implementation of Value Engineering Study Alternatives**

	save parking and the potential acquisition of the property.			
26	Do not use sidewalks on side streets where no sidewalks currently exist	\$3,387,000	Yes	This will be done.
28	Use fill retaining walls to save ROW at Wall 1 Sta. 103+45 to Sta. 105+20 Rt., Wall 2 Sta. 105+75 to Sta. 110+30 Rt., and Wall 3 Sta. 110+85 to Sta. 113+40 Rt.	\$932,000	Yes	This will be done.
29	Use fill retaining walls to save ROW at Wall 1 Sta. 117+40 to Sta. 118+10 Rt. and Wall 2 Sta. 119+10 to Sta. 122+80 Rt.	\$420,000	Yes	This will be done.
30	At areas where the roadway is widened to allow for U-turns, place the sidewalk 2 ft behind the curb in lieu of 6 ft behind the curb.	\$2,042,000	Yes	This will be done.
31	Use a fill retaining wall to save ROW at Wall 1 Sta. 132+20 to Sta. 134+75 Lt. and Wall 2 Sta. 136+75 to Sta. 139+55 Lt.	\$448,000	Yes	This will be done.
32	Use a fill retaining wall to save ROW impacts at Sta. 140+55 to Sta. 143+75 Lt.	\$308,000	Yes	This will be done.
33	Use a cut retaining wall to save ROW impacts from Sta. 211+40 Lt. to Sta. 215+70 Lt.	\$389,000	Yes	This will be done.
35	Reduce the ROW acquisition on the south side from Sta. 269+00 to Sta. 278+00 by using a 2 ft wide grass strip in lieu of a 6 ft wide grass strip	\$838,000	Yes	This will be done.

36	Reduce the median width from 20 ft wide to 16 ft wide at the historic district from Diggs Boulevard to Mulberry Street	Design Suggestion	Yes	This will be done.
37	Use the narrowest possible typical section in the 35 mph portion of the project from S. Corder Road	Proposed = \$23,020,000 Actual = \$0	Yes	This narrowest possible footprint will be used; however, many of the ideas proposed by this recommendation were also included in other recommendations that will be implemented. The savings for this recommendation have already been accounted for in the other recommendations.

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

Approved:  Date: 7/8/10
 Gerald M. Ross, PE, Chief Engineer

REW/LLM
 Attachments

- c: Ben Buchan
- Bobby Hilliard/Mike Haithcock/Kimberly Nesbitt
- Amber Phillips
- Lamar Pruitt
- Ken Werho
- Lisa Myers
- Matt Sanders

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE



FILE: STP00-F128-01(013)/Houston County **OFFICE:** Program Delivery
P.I. No.: 342340-
Widening and Reconstruction SR 247C/Watson **DATE:** June 30, 2010
Boulevard from SR 11 to SR 247

FROM: Bobby K. Hilliard, PE, State Program Delivery Engineer *B.K.H.*

TO: Ronald E. Wishon, State Project Review Engineer
Attn.: Lisa Myers

SUBJECT: RESPONSE TO VALUE ENGINEERING STUDY ALTERNATIVES

Attached are responses to the VE Recommendation Report for STP00-F128-01(013)/P.I. No. 342340- in Houston County held April 2010. The value engineering comments and recommendations were done by the design consultant B&E Jackson, Engineer. The responses were reviewed and approved by the Office of Program Delivery Office Head-Bobby Hilliard and the Project Manager-Kimberly Nesbitt.

If you have any questions, please contact Kimberly Nesbitt, Project Manager at 404-631-1575.

BKH:MAH:KWN

cc: Ben Buchan-Director of Engineer
David Millen-District Three Engineer



June 30, 2010

Ms. Kimberly W. Nesbitt
Georgia Department of Transportation
Project Manager, Program Delivery
600 West Peachtree Street
Atlanta, GA 30308

Re: SR 247C WIDENING AND RECONSTRUCTION FROM SR 11 TO SR 247 PI No 342340
Value Engineering Study Recommendations

Ms. Nesbitt,

As you have requested, we are providing our responses to the recommendations that were provided by the Value Engineering Team for the above referenced project. These responses are being provided in the format that you have requested.

1. Recommendation 1: Reduce width of through lanes from 12 ft. to 11 ft.
VE Team Savings: \$3,269,000

We concur with this recommendation of 11 ft. through lanes and 12 ft. left turn lanes.
Revised Savings based on recalculated R/W areas \$2,275,900 See attached calcs.

2. Recommendation 2: Construct 24-in. curb and gutter in lieu of 30-in. section
VE Team Savings: \$1,358,000

We concur with this recommendation.
Revised Savings based on recalculated R/W areas \$861,100 See attached calcs.

3. Recommendation 4: Leave the depressed median as is from SR 11 to Margie Road.
VE Team Savings: \$1,509,000

We concur with this recommendation but question if Margie Road is a logical terminus.

4. Recommendation 5: Delete the sidewalk on the north side of SR 247C from SR 11/US 41 to
Williamson Road
VE Team Savings: \$126,000

We do not concur with this recommendation. Since this roadway is classified as an Urban Principal Arterial we feel sidewalks are warranted. While there is limited pedestrian traffic in this area to date, this traffic is bound to increase throughout the life of the project. Additionally, as stated on page 358 of the AASHTO Green Book, "...As a general practice, sidewalks should be constructed along any street or highway not provided with shoulders, even though pedestrian traffic may be light."

The Extra Mile Company

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5. Recommendation 6: Selectively use a 2-ft. wide grass strip adjacent to the sidewalk (reduce shoulder width from 16-ft. to 12-ft.)
VE Team Savings: \$3,559,000

We concur with this recommendation.
Revised Savings based on recalculated R/W areas \$2,505,000 See attached calcs.

6. Recommendation 7: Selectively use a 4-ft. wide grass strip adjacent to the sidewalk (reduce shoulder width from 16-ft to 14-ft.)
VE Team Savings: \$1,719,000

We do not concur with this recommendation. We recommend implementing number 5.
Revised Savings based on recalculated R/W areas \$1,226,000 See attached calcs.

7. Recommendation 10: Delete sidewalk on the south side of SR 247C from SR 11/US 41 to the Comfort Suites Hotel
VE Team Savings: \$91,000

We do not concur with this recommendation. Since this roadway is classified as an Urban Principal Arterial we feel sidewalks are warranted. While there is limited pedestrian traffic in this area to date, this traffic is bound to increase throughout the life of the project. Additionally, as stated on page 358 of the AASHTO Green Book, "...As a general practice, sidewalks should be constructed along any street or highway not provided with shoulders, even though pedestrian traffic may be light.

8. Recommendation 11: Use grass in lieu of concrete in the median where the width is 20-ft.
VE Team Savings: \$549,000

We concur with this recommendation.

9. Recommendation 13: Use a 14-ft. wide shoulder with a 6-ft. wide grass strip in lieu of a 16-ft. wide shoulder for the entire length of the project.
VE Team Savings: \$3,010,000

We do not concur with this recommendation. We recommend implementing number 5.
Revised Savings based on recalculated R/W areas \$1,958,000 See attached calcs.

10. Recommendation 15: Construct an 18-ft. wide median in lieu of a 20-ft. wide median.
VE Team Savings: \$1,291,000

We concur with this recommendation.

11. Recommendation 16: Eliminate the U-turn and close the median opening at Sta. 202+00
VE Team Savings: \$88,000

We concur with this recommendation.

12. Recommendation 18: Raise the profile grade to avoid undercutting existing pavement.
VE Team Savings: \$3,236,000

We concur with this recommendation.

13. Recommendation 20: Eliminate the U-turn and remove the “eye-brow” extra pavement at Napier Avenue (Sta. 147+50)
VE Team Savings: \$336,000

We concur with this recommendation.

14. Recommendation 22: Eliminate the eastbound U-turn at 6th Street to save property at northwest corner of the intersection.
VE Team Savings: \$618,000

We concur with this recommendation.

15. Recommendation 23: At the Tower Inc. property reduce the width of the pavement area and grass strip to save parking and the potential acquisition of the property.
VE Team Savings: \$353,000

We concur with this recommendation.

16. Recommendation 26: Do not run sidewalks up side streets where no sidewalks currently exist.
VE Team Savings: \$3,387,000

We concur with this recommendation.

17. Recommendation 28: Use fill retaining walls to save right-of-way at Wall 1 Sta 103+45 to Sta. 105+20 Right; Wall 2 Sta. 105+75 to 110+30 Right; and Wall 3 Sta. 110+85 to Sta. 113+40 Right.
VE Team Savings: \$932,000

We concur with this recommendation.

18. Recommendation 29: Use fill retaining walls to save right-of-way at Wall 1 Sta. 117+40 to Sta. 118+10 Right and Wall 2 Sta. 119+10 to 122+80 Right.
VE Team Savings: \$420,000

We concur with this recommendation.

19. Recommendation 30: At areas where the roadway is widened to allow for U-turns, place the sidewalk 2-ft. behind the curb in lieu of 6-ft. behind the curb.
VE Team Savings: \$2,042,000

We concur with this recommendation

20. Recommendation 31: Use fill retaining walls to save right-of-way at Wall 1 Sta. 132+20 to Sta. 134+75 left and Wall 2 Sta. 136+75 to 139+55 left.
VE Team Savings: \$448,000

We concur with this recommendation

21. Recommendation 32: Use a fill retaining wall to save right-of-way impacts at Sta. 140+55 to Sta. 143+75 left.
VE Team Savings: \$308,000

We concur with this recommendation.

22. Recommendation 33: Use a cut retaining wall to save right-of-way impacts from Sta. 211+40 left to Sta. 215+70 left
VE Team Savings: \$389,000

We concur with this recommendation.

23. Recommendation 35: Reduce the right-of-way acquisition from Sta 269 to Sta. 278 by using a 2-ft. wide grass strip on the south side in lieu of a 6-ft wide grass strip.
VE Team Savings: \$838,000

We concur with this recommendation.

24. Recommendation 36: Reduce the median width from 20-ft. wide to 16-ft. wide at the Historic district from Diggs Boulevard to Mulberry Street.
VE Team Design Suggestion

We concur with this recommendation.

25. Recommendation 37: Use the narrowest possible typical section in the 35 mph portion of the project from S. Corder Road to the end of the project
VE Team Savings: \$23,020,000

We concur with this recommendation.

These response are to the recommendations that are contained in the Value Engineering Study for SR 247C dated April 2010.

If you have any questions or require any additional information please contact me at your earliest convenience.

Donald P. Miller



Project Manager

Attachments

Cc: 27026

VALUE ENGINEERING ALTERNATIVE



PROJECT: SR 247 CONNECTOR WIDENING AND RECONSTRUCTION FROM SR 11 TO SR 247 STP00-F128-01(013); PI No.342340 Houston County, GA	ALTERNATIVE NO.: 1
DESCRIPTION: REDUCE THE THROUGH LANE WIDTHS FROM 12 FT. TO 11 FT.	SHEET NO.: 1 of 4

ORIGINAL DESIGN: (sketch attached)

All through lanes are 12-ft.-wide from the start of the project to the end of the project.

ALTERNATIVE: (sketch attached)

Use through lanes that are 11-ft.-wide from the start of the project to the end of the project.

ADVANTAGES:

- Saves substantial costs
- Reduces amount of pavement to maintain
- Reduces storm water runoff due to reduction in impervious area

DISADVANTAGES:

- Perceived loss of comfort to drivers

DISCUSSION:

The speed limit on the downtown Atlanta interstate freeways is 55 mph. These freeways have 11-ft.-wide lanes. The traffic flows smoothly without crashes most of the time. The speed limit on this project is 35 mph and 45 mph. With only 2.5% truck traffic, 11-ft.-wide lanes are a suitable choice. According to AASHTO guidelines, lanes narrower than 12-ft.-wide are acceptable in areas where the speed limit is 45 mph or lower. On page 312 of the AASHTO A Policy on Geometric Design of Highways and Streets, 2004 Edition, it states that "Although lanes widths of 3.6 m [12 ft] are desirable on both rural and urban facilities, there are circumstances where lanes less than 3.6 m [12 ft] wide should be used. In urban areas where pedestrian crossings, right-of-way, or existing development become stringent controls, the use of 3.3 m [11 ft] lanes is acceptable."

The reduction in the pavement surface will also cause a reduction in the impervious area. This will reduce storm water which will result in reduction in the number and size of storm drainage pipes. Two feet of right-of-way and two feet of full-depth pavement will be saved on each side of the road by implementing this alternative.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 3,269,000	—	\$ 3,269,000
ALTERNATIVE	\$ 0	—	\$ 0
SAVINGS (Original minus Alternative)	\$ 3,269,000	—	\$ 3,269,000

2,275,900

JPM 4/28/10

CALCULATIONS



PROJECT: **SR 247 CONNECTOR WIDENING AND RECONSTRUCTION** ALTERNATIVE NO.:
FROM SR 11 TO SR 247
 STP00-F128-01(013); PI No. 342340
 Houston County, GA

1

SHEET NO.: 3 of 4

Length of the Road: 6.5 miles => $6.5 \times 5,280' = 34,064'$ ft.
 Two feet of pavement width will be saved in each direction.

1-1/2" of 12.5 mm recycled asphalt - 165 lbs/sy	Total Weight: $(2'+2')(165 \text{ lbs}/2000) \times 34,064'/9 \text{ sf./sy}$	= 1,249 tons
2" of 19.0 mm recycled asphalt - 220 lbs/sy	Total Weight: $(2'+2')(220 \text{ lbs}/2000) \times 34,064'/9 \text{ sf./sy}$	= 1,665 tons
4" of 25.0 mm recycled asphalt - 440 lbs/sy	Total Weight: $(2'+2')(440 \text{ lbs}/2000) \times 34,064'/9 \text{ sf./sy}$	= 3,331 tons
12" graded aggregate base	Total Area: $(2'+2') \times 34,064'/9 = 15,140 \text{ sy}$	

Fuel Adjustments

Diesel fuel percentage factor for excavations: $34,348/(34,348+58,867+310,532) = 0.085$ or 8.5%
 Diesel price adjustment: $\$1,256,887.28 \times 0.085 = \$106,835$
 Unleaded gasoline fuel % factor for excavations: $17,768/(17,768+48,718+76,026) = 0.125$ or 12.5%
 Unleaded gasoline price adjustment: $\$441,030.75 \times 0.125 = \$55,129$
 Subtracting the fuel price adjustments from the total adjustments: $\$4,417,098 - \$106,835 - \$55,129 = \$4,255,134$

Total pavement: $(34,064' \times 12')/9 \times (6 \text{ lanes on average}) = 272,512 \text{ sy}$
 Fuel adjustment: $\$4,255,134/272,512 = \$15.62/\text{sy}$

Fuel savings: $(2'+2') \times 34,064'/9 = 15,140 \text{ sy}$

From the next sheet, the total savings in pavement without any markup is \$971,511.
 Therefore, per square yard cost is: $971,511 / 15,140 \text{ sy} = \64.17 per square yard.

Right-of-Way saved: $(2'+2') \times 34,064'/43,560 \text{ sf/acre} = 3.128 \text{ acres}$

Lt $13,583 \times 2/43560 = 0.624 \text{ Ac}$
 Rt $23,362 \times 2/43560 = 1.073 \text{ Ac}$
 1.697 Ac

bpm 6/28/10

This takes into Account Areas where R/W is not required & Cross Streets.

COST WORKSHEET



PROJECT:	SR 247 CONNECTOR WIDENING AND RECONSTRUCTION FROM SR 11 TO SR 247 STP00-F128-01(013); PI No. 342340 Houston County, GA	ALTERNATIVE NO.: SHEET NO.:
		1 4 of 4

PROJECT ITEM		ORIGINAL ESTIMATE			ALTERNATIVE ESTIMATE		
ITEM	UNITS	NO. OF UNITS	COST/ UNIT	TOTAL	NO. OF UNITS	COST/ UNIT	TOTAL
12.5 mm A.C. Pavement	Ton	1,249	99.52	124,300			
19.0 mm A.C. Pavement	Ton	1,665	81.04	134,932			
25.0 mm A.C. Pavement	Ton	3,331	74.66	248,692			
12" G.A.B.	SY	15,140	15.00	227,100			
Fuel savings	SY	15,140	15.62	236,487			
Sub-Total				971,511			
Construction Mark-up is 13%				126,296			
Total				1,097,807			
Subtotal				3,268,639			
Markup (%) at				Included			
TOTAL				3,268,639			
TOTAL (ROUNDED)				3,269,000			

1.697
 3.128
 200,000.00
 625,600
 1,545,232
 2,170,832
 339,400
 838,318
 1,177,718

\$ 2,275,886

VALUE ENGINEERING ALTERNATIVE



PROJECT: SR 247 CONNECTOR WIDENING AND RECONSTRUCTION FROM SR 11 TO SR 247 STP00-F128-01(013); PI No. 342340 Houston County, GA	ALTERNATIVE NO.: 2
DESCRIPTION: USE A 24-IN.-WIDE CURB AND GUTTER SECTION IN LIEU OF A 30-IN.-WIDE CURB AND GUTTER SECTION	SHEET NO.: 1 of 3

ORIGINAL DESIGN:

Construct a 30-in.-wide curb and gutter section from the start of the project to the end of the project.

ALTERNATIVE:

Construct a 24-in.-wide curb and gutter section from the start of the project to the end of the project.

ADVANTAGES:

- Saves substantial costs
- Reduces storm water due to reduction in impervious area
- Reduces the right-of-way requirement

DISADVANTAGES:

- Higher gutter spread

DISCUSSION:

A 24in.-wide curb and gutter is standard in many parts of the country as well as Georgia. 6 in. of concrete will be reduced with this alternative. Since the median has curb and gutter on both sides, the 6 in. width of concrete will be eliminated throughout the project. The reduction in the concrete surface will also cause reduction in the impervious area. This will reduce storm water runoff. However, because of higher gutter spread, the savings will be partially offset by more catch basins and pipes. One foot of right-of-way will be saved on each side of the road as a result of implementing this alternative.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 2,737,000 <i>2,240,100</i>	—	\$ 2,737,000 <i>2,240,100</i>
ALTERNATIVE	\$ 1,379,000	—	\$ 1,379,000
SAVINGS (Original minus Alternative)	\$ 1,358,000 <i>861,100</i>	—	\$ 1,358,000 <i>861,100</i>

861,100

861,100

DPN: 6/25/10

CALCULATIONS



PROJECT: **SR 247 CONNECTOR WIDENING AND RECONSTRUCTION** ALTERNATIVE NO.:
FROM SR 11 TO SR 247
STP00-F128-01(013); PI No.342340 2
Houston County, GA

SHEET NO.: 2 of 3

Length of the Road: 6.5 miles => $6.5 \times 5,280' = 34,064$ feet
One foot of gutter will be saved in each direction.

Rights-of-Way saved: $(1'+1') \times 34,064' / 43,560 = 1.564$ acres

$$\text{LT } 13,583 \times 1 / 43560 = .312 \text{ Ac}$$

$$\text{RT } 23,362 \times 1 / 43560 = .536 \text{ Ac}$$

$$.848 \text{ Ac}$$

This Accounts for Areas where R/W is
not req'd ; Cross Streets

DPM 6/28/0

VALUE ENGINEERING ALTERNATIVE



PROJECT: SR 247 CONNECTOR WIDENING AND RECONSTRUCTION FROM SR 11 TO SR 247 STP00-F128-01(013); PI No.342340 Houston County, GA	ALTERNATIVE NO.: 6
DESCRIPTION: SELECTIVELY USE A 2-FT.-WIDE GRASS STRIP ADJACENT TO THE SIDEWALK IN LIEU OF 6-FT.-WIDE GRASS STRIP (USE A 12 FT. SHOULDER IN LIEU OF 16 FT. SHOULDER)	SHEET NO.: 1 of 4

ORIGINAL DESIGN: (sketch attached)

The current design uses a 6-ft.-wide grass strip adjacent to the sidewalk within a 16-ft.-wide shoulder.

ALTERNATIVE: (sketch attached)

Use a 2-ft-wide grass strip adjacent to the sidewalk and reduce the shoulder width to 12 ft.

ADVANTAGES:

- Reduces construction costs
- Reduces right-of-way impacts to businesses
- Reduces right-of-way costs
- Reduces historical property impacts

DISADVANTAGES:

- Sidewalk is 4 ft. closer to the travel lanes

DISCUSSION:

The 6 ft. grass strip is to maintain the sidewalk on a "straight" path across curb-cut type driveways; however on projects in a highly commercial area, the extra 8 ft. (4 ft. x 2 sides) of right-of-way can get very expensive. The 2-ft.-wide grass strip is used selectively for this alternate and not in areas where there are many driveways located close together and the sidewalk would just be "jogging" in and out around curb-cut type driveways. The right-of-way cost is the largest expense for this project, so reducing the 6-ft.-wide grass strip to 2-ft.-wide would save approximately \$2.5 million, which includes 70 parking spaces (conservative estimate).

Many of the parking spaces belong to small businesses which are crucial to their patrons. If too many parking spaces are removed, the property ceases to be viable for the business, and thus must be totally acquired and damages paid by GDOT. Eliminating too many small businesses could damage the vitality of the commercial district.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 3,559,000	—	\$ 3,559,000
ALTERNATIVE	\$ 0	—	\$ 0
SAVINGS (Original minus Alternative)	\$ 3,559,000	—	\$ 3,559,000

2,508,000

JPM 6/29/10

CALCULATIONS



PROJECT: **SR 247 CONNECTOR WIDENING AND RECONSTRUCTION** ALTERNATIVE NO.:
FROM SR 11 TO SR 247
 STP00-F128-01(013); PI No.342340
 Houston County, GA

6

SHEET NO.: 3 of 4

Stations where 2 ft. grass strip is used in lieu of a 6 ft. grass strip would work because of few driveways and would produce the greatest cost savings:

Save: Sta 5+90 - 78+00 RT = ~~7,210~~ ft
 Save: Sta 94+00 - 221+00 LT & RT = 12,700 x 2 sides = ~~25,400~~ ft
 Save: Sta 227+00 - 258+00 RT = 3,100 ft
 Save Sta 304+00 - 314+00 LT & RT = 1,000 ft x 2 sides = 2,000 ft
 Save: Sta 334+00 - 339+00 RT = 500 ft
 Save: Sta 315+00 - 339+00 LT = 2,400 ft

R/W NOT Req'd

17,065

Total Length = ~~40,610~~ ft

25,065

R/W area saved: [~~40,610~~' x (6' - 2')] / (43,560 sf/ac) = ~~3.8~~ AC

25,065

2.3 AC

Estimate less earthwork: [163,000 sf x 2.5' avg. ht.]/27 cf/cy = 15,100 CY

Clearing & grubbing = ~~3.8~~ AC

Save approximately 70 parking spaces at \$3,500/space

Dpm 6/28/10

This takes into account areas where R/W is not required and cross streets.

COST WORKSHEET



PROJECT:	SR 247 CONNECTOR WIDENING AND RECONSTRUCTION FROM SR 11 TO SR 247 STP00-F128-01(013); PI No. 342340	ALTERNATIVE NO.:	6
	Houston County, GA	SHEET NO.:	4 of 4

PROJECT ITEM		ORIGINAL ESTIMATE			ALTERNATIVE ESTIMATE		
ITEM	UNITS	NO. OF UNITS	COST/UNIT	TOTAL	NO. OF UNITS	COST/UNIT	TOTAL
ORIGINAL COSTS SAVED							
Earthwork	CY	15,100.0	2.67	40,317			
Clearing & Grubbing	AC	3.8	6,000.00	22,800	13,800		
Subtotal Construction		2.3		63,117	54,117		
Markup @ 13%				8,205	7,035		
Total Construction				71,322	61,152		
R/W saved: land	AC	3.8	200,000.00	760,000	460,000		
Parking spaces saved	EA	70.0	3,500.00	245,000			
Subtotal R/W				1,005,000	705,000		
Markup @ 247%				2,482,350	1,741,350		
Total R/W				3,487,350	2,446,350		
				2,507,502			
Construction Subtotal				3,558,672			
Constr Mkup				Included			
TOTAL				3,558,672			
TOTAL (ROUNDED)				3,559,000			

2,508,000

VALUE ENGINEERING ALTERNATIVE



PROJECT: **SR 247 CONNECTOR WIDENING AND RECONSTRUCTION** ALTERNATIVE NO.:
FROM SR 11 TO SR 247
STP00-F128-01(013); P1 No.342340 **7**
Houston County, GA

DESCRIPTION: **SELECTIVELY USE A 4-FT.-WIDE GRASS STRIP ADJACENT** SHEET NO.: **1 of 4**
TO SIDEWALK IN LIEU OF A 6-FT.-WIDE GRASS STRIP
(REDUCE THE SHOULDER FROM 16 FT. WIDE TO 12 FT.
WIDE)

ORIGINAL DESIGN: (sketch attached)

The current design uses a 6-ft.-wide grass strip adjacent to the sidewalk with a 16-ft.-wide shoulder.

ALTERNATIVE: (sketch attached)

Use a 4-ft.-wide grass strip adjacent to the sidewalk with a 14-ft.-wide shoulder.

ADVANTAGES:

- Reduces construction costs
- Reduces right-of-way impacts to businesses
- Reduces right-of-way costs
- Reduces historical property impacts

DISADVANTAGES:

- Sidewalk is 2 ft. closer to the travel lanes

DISCUSSION:

The 6 ft. grass strip is to maintain the sidewalk on a "straight" path across curb-cut type driveways; however, on projects in highly commercial area the extra 4 ft of (2 ft. x 2 sides) right-of-way can get very expensive. The 4 ft. grass strip was used selectively for this alternate and not in areas where there are too many driveways and the sidewalk would just be "jogging" in and out around curb-cut type driveways. The right-of-way cost is the largest expense for this project, so reducing the 6 ft. grass strip to 4 ft. would save approximately \$1.2 million which includes 30 parking spaces (conservative estimate).

Many of the parking spaces belong to small businesses, which are crucial to their business. If too many parking spaces are removed, the property ceases to be viable for the business, and thus must be totally acquired and damages paid by GDOT. Eliminating too many small businesses could damage the vitality of the commercial district.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 1,719,000	—	\$ 1,719,000
ALTERNATIVE	\$ 0	—	\$ 0
SAVINGS (Original minus Alternative)	\$ 1,719,000	—	\$ 1,719,000

DPN 6/28/10 \$1,226,000

CALCULATIONS



PROJECT: **SR 247 CONNECTOR WIDENING AND RECONSTRUCTION** ALTERNATIVE NO.:
FROM SR 11 TO SR 247
 STP00-F128-01(013); PI No.342340
 Houston County, GA

7

SHEET NO.: 3 of 4

Stations where 4 ft grass strip in lieu of a 6 ft grass strip would work because of less driveways and would produce the greatest cost savings:

Save: Sta 5+90 - 78+00 RT = ~~7,210~~ ft
 Save: Sta 94+00 - 221+00 LT & RT = 12,700 x 2 sides = ~~25,400~~ ft
 Save: Sta 227+00 - 258+00 RT = 3,100 ft
 Save Sta 304+00 - 314+00 LT & RT = 1,000 ft x 2 sides = 2,000 ft
 Save: Sta 334+00 - 339+00 RT = 500 ft
 Save: Sta 315+00 - 339+00 LT = 2,400 ft

RIW NOT Req'd
17,065

Total Length = ~~40,610~~ ft

25,065

R/W area saved: [~~40,610~~ x (6' - 4')] / (43,560 sf/ac) = ~~1.9~~ AC

25,065

1.2

Estimate less earthwork: [163,000 sf x 2.5' avg. ht.]/27 cf/cy = 7,550 CY

Clearing & grubbing = ~~1.9~~ AC

1.2

Save approximately 30 parking spaces at \$3,500/space

This takes into account areas where RIW is not required and cross streets.

COST WORKSHEET



PROJECT:	SR 247 CONNECTOR WIDENING AND RECONSTRUCTION FROM SR 11 TO SR 247 STP00-F128-01(013); PI No. 342340 Houston County, GA	ALTERNATIVE NO.:	7
		SHEET NO.:	4 of 4

PROJECT ITEM		ORIGINAL ESTIMATE			ALTERNATIVE ESTIMATE		
ITEM	UNITS	NO. OF UNITS	COST/UNIT	TOTAL	NO. OF UNITS	COST/UNIT	TOTAL
ORIGINAL COSTS SAVED							
Earthwork	CY	7,550.0	2.67	20,159			
Clearing & Grubbing	AC	1.9 1.2	6,000.00	11,400	7200		
Subtotal Construction				31,559	27359		
Markup @ 13%				4,103	3557		
Total Construction				35,662	30916		
R/W saved: land	AC	1.9 1.2	200,000.00	380,000	240000		
Parking spaces saved	EA	30.0	3,500.00	105,000			
Subtotal R/W				485,000	345000		
Markup @ 247%				1,197,950	852150		
Total R/W				1,682,950	1,197,150		
				1,228,066			
Construction Subtotal				1,718,612			
Constr Mkup				Included			
TOTAL				1,718,612			
TOTAL (ROUNDED)				1,719,000			

1,226,000

VALUE ENGINEERING ALTERNATIVE



PROJECT: **SR 247 CONNECTOR WIDENING AND RECONSTRUCTION
FROM SR 11 TO SR 247**
STP00-F128-01(013); PI No.342340
Houston County, GA

ALTERNATIVE NO.:

13

DESCRIPTION: **USE A 14-FT.-WIDE SHOULDER WITH 6 FT. GRASS STRIP
IN LIEU OF A 16-FT.-WIDE SHOULDER WITH A 6 FT.
GRASS STRIP**

SHEET NO.: 1 of 4

ORIGINAL DESIGN: (sketch attached)

The current design uses a 6-ft.-wide grass strip adjacent to the 5-ft.-wide sidewalk with the edge of the sidewalk 2.5 ft. from the right-of-way line. This produces a 16-ft.-wide shoulder.

ALTERNATIVE: (sketch attached)

Use a 14-ft.-wide shoulder with a 6-ft.-wide grass strip adjacent to the sidewalk and 1 ft. from the back of the sidewalk to the right-of-way line. Reduce the curb and gutter section from 30 in. wide to 24 in. wide.

ADVANTAGES:

- Reduces construction costs
- Reduces right-of-way impacts to businesses
- Reduces right-of-way costs
- Reduces historical property impacts
- Maintains 6-ft.-wide grass strip for sidewalk location

DISADVANTAGES:

- Sidewalk is 1 ft. from right-of-way

DISCUSSION:

The 6-ft.-wide grass strip is to maintain the sidewalk on a "straight" path across curb-cut type driveways, this alternative proposes to maintain the 6 ft. grass strip with a 14-ft.-wide shoulder by reducing the 16-ft.-wide shoulder by 2 ft. The 2 ft. reduction would be accomplished by using a 24-in.-wide curb and gutter section in lieu of a 30-in.-wide curb and gutter section (which saves 0.5 ft.) and reducing the distance from the back of the sidewalk to the right-of-way line from 2.5 ft. to 1 ft. (which saves 1.5 ft.). The offset from the back of the sidewalk to the right-of-way could always be increased to the 2.5 ft. in selected areas if it is warranted. The right-of-way cost is the largest expense for this project so reducing each shoulder width by 2 ft. (4 ft. of right-of-way) would save approximately \$3 million, which includes saving 60 parking spaces (conservative estimate). Many of the parking spaces belong to small businesses and are crucial to their customers. Taking these spaces may render the property non-usable for its intended purpose thus necessitating acquisition by GDOT.

COST SUMMARY	INITIAL COST	PRESENT WORTH RECURRING COSTS	PRESENT WORTH LIFE-CYCLE COST
ORIGINAL DESIGN	\$ 3,010,000	—	\$ 3,010,000
ALTERNATIVE	\$ 0	—	\$ 0
SAVINGS (Original minus Alternative)	\$ 3,010,000	—	\$ 3,010,000

\$1,958,000

DPM 6/20/10

CALCULATIONS



PROJECT: **SR 247 CONNECTOR WIDENING AND RECONSTRUCTION** ALTERNATIVE NO.:
FROM SR 11 TO SR 247
STP00-F128-01(013); PI No.342340 **13**
Houston County, GA

SHEET NO.: **3 of 4**

Savings of 14 ft. shoulder (with 24' curb & gutter and 1.5 ft off back end of shoulder) versus 16 ft. shoulder

Length = 6.5 miles x 5,280 ft. = 34,320 ft.

R/W area saved: $[34,320' \times 2 \text{ sides } 2'] / (43,560 \text{ sf/ac}) = 3.2 \text{ AC}$

$$L+ 13,583 \times 2 / 43560 = 0.62 \text{ AC}$$

$$R+ 23,362 \times 2 / 43560 = 1.073 \text{ AC}$$

$$1.697 \text{ AC}$$

Estimate less earthwork: $[137,280 \text{ sf} \times 2.5' \text{ avg. ht.}] / 27 \text{ cf/cy} = 12,700 \text{ CY}$

Clearing & grubbing = ~~3.2~~ 1.7 AC

Save approximately 60 parking spaces at \$3,500/space

This takes into account Areas where R/W
is not required @ cross streets.

DPM 6/30/10

COST WORKSHEET



PROJECT:	SR 247 CONNECTOR WIDENING AND RECONSTRUCTION FROM SR 11 TO SR 247 STP00-F128-01(013); PI No. 342340	ALTERNATIVE NO.:	13
	Houston County, GA	SHEET NO.:	4 of 4

PROJECT ITEM		ORIGINAL ESTIMATE			ALTERNATIVE ESTIMATE		
ITEM	UNITS	NO. OF UNITS	COST/UNIT	TOTAL	NO. OF UNITS	COST/UNIT	TOTAL
ORIGINAL COSTS SAVED							
Earthwork	CY	12,700.0	2.67	33,909			
Clearing & Grubbing	AC	3.2 1.7	6,000.00	19,200	10,200		
Subtotal Construction				53,109	44,109		
Markup @ 13%				6,904	5,734		
Total Construction				60,013	49,843		
R/W saved: land	AC	3.2 1.7	200,000.00	640,000	340,000		
Parking spaces saved	EA	60.0	3,500.00	210,000			
Subtotal R/W				850,000	550,000		
Markup @ 247%				2,099,500	1,358,500		
Total R/W				2,949,500	1,908,500		
				30m			
				6/28/10			
				1,958,343			
Construction Subtotal				3,009,513			
Constr Mkup				Included			
TOTAL				3,009,513			
TOTAL (ROUNDED)				3,010,000			

1,958,000

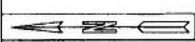
DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA

PLAN AND PROFILE OF PROPOSED WIDENING AND RECONSTRUCTION FROM FROM S. R. 11 TO S. R. 247

FEDERAL AID PROJECT
STP00-F128-01(013)

FEDERAL ROUTE • N/A
STATE ROUTE • 247C
P. I. NO. 342340

NOTE: ALL REFERENCES IN THIS DOCUMENT, WHICH INCLUDES ALL PAPERS, WRITINGS, DOCUMENTS, DRAWINGS, OR PHOTOGRAPHS USED, OR TO BE USED IN CONNECTION WITH THIS DOCUMENT, TO THE STATE HIGHWAY DEPARTMENT OF GEORGIA, STATE HIGHWAY DEPARTMENT, GEORGIA STATE HIGHWAY DEPARTMENT, AND THE STATE HIGHWAY DEPARTMENT OF GEORGIA, AND SHALL BE DEEMED TO MEAN THE DEPARTMENT OF TRANSPORTATION.



LOCATION SKETCH

DESIGN DATA:
TRAFFIC A. D. T. :
TRAFFIC A. D. T. :
TRAFFIC D. H. V. :
DIRECTIONAL DIST. :
% TRUCKS :
24 HR. TRUCKS % :
SPEED DESIGN :

BEGIN PROJECT
STP00-F128-01(013)
STA. 5+87.44

END PROJECT
STP00-F128-01(013)
STA. 351+00.62



PREPARED BY: _____ DESIGN

RECOMMENDED FOR APPROVAL BY: _____ DESIGN

MID-POINT COORDINATES	
STA	
N	
E	

THIS PROJECT HAS BEEN PREPARED USING THE HORIZONTAL GEORGIA COORDINATE SYSTEM OF 1984 (EAD 1983/94 WEST ZONE, AND THE BORTH AMERICAN VERTICAL DATUM (EAD)) OF 1988.

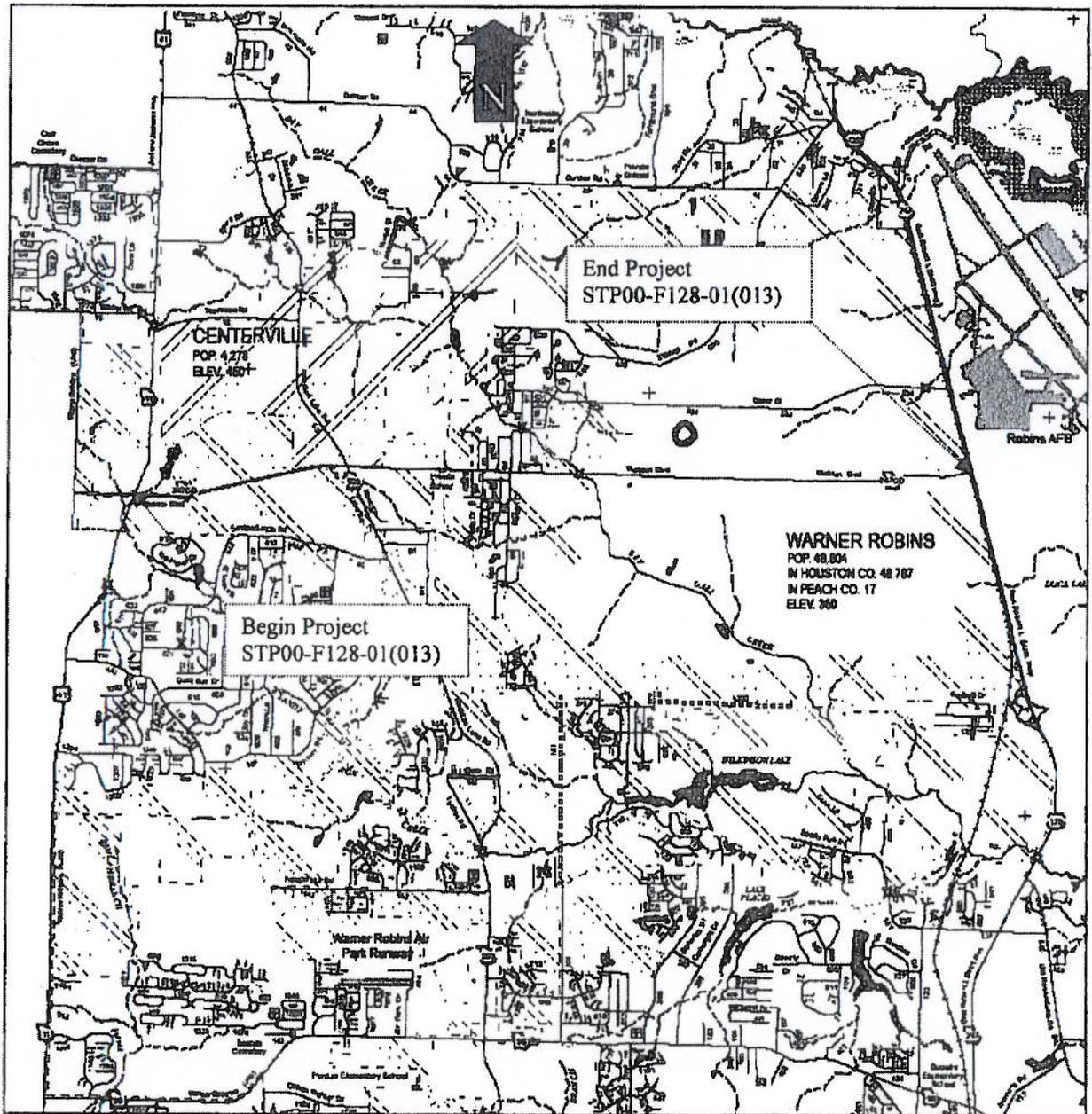
THE DATA, TOGETHER WITH ALL OTHER INFORMATION SHOWN ON THESE PLANS OR IN ANYWAY INDICATED THEREBY, WHETHER BY DRAWINGS OR NOTES, OR IN ANY OTHER MANNER, ARE BASED UPON FIELD INVESTIGATIONS AND ARE BELIEVED TO BE INDICATIVE OF ACTUAL CONDITIONS. HOWEVER, THE SAME ARE NOT GUARANTEED TO BE CORRECT AND NO LIABILITY SHALL BE ASSUMED BY THE STATE HIGHWAY DEPARTMENT OF GEORGIA, THE ATTENTION OF OTHER AGENCIES IS DIRECTED TO SUBSECTIONS 102.04, 102.05, AND 104.03 OF THE SPECIFICATIONS.

LENGTH OF PROJECT	COUNTY:	
	Project No.	MILES
NET LENGTH OF ROADWAY		
NET LENGTH OF BRIDGES		
NET LENGTH OF PROJECT		
GROSS LENGTH OF PROJECT		

DATE	CHIEF ENGINEER
PLANS COMPLETED	
REVISIONS	

Project Concept Report page 2
Project Number: STP00-F128-01(013)
P.I. Number: 342340
County: Houston

PROJECT LOCATION MAP - PROJECT NO.: STP00-F128-01(013), HOUSTON COUNTY



PRECONSTRUCTION STATUS REPORT FOR PI:342340-

PROJ ID: 342340- Houston
 COUNTY: Houston
 LENGTH (MI): 6.47
 PROJ NO.: STP00-F128-01(013).
 PROJ MGR: Nesbitt, Kimberly
 AOH Initials: MAH
 OFFICE: Program Delivery
 CONSULTANT: Turnkey Consultant, (Contract with GDOT)
 SPONSOR: GDOT
 DESIGN FIRM: B & E Jackson Engineers

SR 247 CONN FM SR 11/US 41 TO SR 247
 MPO: Warner Robins
 TIP #: WR1985-6
 MODEL YR: Widening
 TYPE WORK: AUXILIARY LANES
 CONCEPT: Reconstruction/Rehabilitation
 PROG TYPE: N
 Prov. for ITS: N
 BOND PROJ: N

PRIORITY CODE:
 DOT DIST: 3
 CONG. DIST: 8
 BIKE: N
 MEASURE: E
 NEEDS SCORE:
 BRIDGE SUFF:

MGMT LET DATE:
 MGMT ROW DATE:
 BASELINE LET DATE:
 SCHED LET DATE:
 WHO LETS?: GDOT Let
 LET WITH:

BASE START	BASE FINISH	LATE START	LATE FINISH	TASKS	ACTUAL START	ACTUAL FINISH	%
		7/16/2010	7/29/2010	Concept Development Concept Meeting PM Submit Concept Report Receive Preconstruction Concept Approval Management Concept Approval Complete	7/13/1990	1/9/2000	89
		8/6/2010	7/15/2010	Revise or Re-validate Approved Concept Value Engineering Study Public Information Open House Held Environmental Approval Mapping Field Surveys/SDE Preliminary Plans	11/19/1996	10/8/1996	100
			7/27/2010		11/5/1996	11/5/1996	100
			7/15/2010		11/19/1997	1/9/1997	100
			8/6/2010		5/13/2008	12/7/2009	100
					10/1/1997	10/9/1996	67
					9/25/1996	3/31/1999	100
					7/22/1997	11/4/1996	100
					11/4/1996		53

PROGRAMMED FUNDS				STIP AMOUNTS			
Activity	Approved	Proposed	Cost	Fund	Status	Date	Auth
PE	2007	2007	500,000.00	HY20	AUTHORIZED	5/21/1992	
PE	2007	2007	574,773.07	L240	AUTHORIZED	5/21/1992	
PE	2007	2007	1,003,687.50	LY20	AUTHORIZED	5/21/1992	
PE	1992	1992	24,000.00	Q28	AUTHORIZED	5/21/1992	
ROW	LR	LR	121,811,461.12	L200	PRECST		
UTL	LOCL	LOCL	8,648,460.00	LOC	PRECST		
CST	LR	LR	84,687,903.75	L200	PRECST		

Activity	Cost	Fund
PE	75,562,000.00	Q28
PE	8,648,460.00	LY20
PE	55,593,000.00	HY20
ROW	12/6/2006	L240
Utility	9/30/2008	L200
CST	1/3/2007	LOC
CST		L200

DDI: Locals now want 20' raised median. 3/10/03. Reassigned to Road Design. 1/26/04. Reassigned to OCD. 9/19/06.

Bridge: NO BRIDGE REQUIRED

Design: B&E Jackson | ICTM held on 5/13/08 | 080702/CONTRACT CLOSED

EIS: EA(not approved)|NoSchedDates|Phillips 3-18-09

LGPA: SGN ROW & UTILITIES 5-18-88 | MSW 12-6-99

PIT: RECEIVED 9400 M3 COMMON FILL. PIT 4-22-98 POSSIBLE SOURCE

Planning: COST ESTIMATE 5-5-98 LETTER FM BOBBY MUSTIN (DATES ONLY)

Prog. Develop: PREV PE UNDER PIESTP-0128-1(013)

Programming: ACCEL/DECL @ SOME XSECTIONS... PR2/PE-6-22-92

Traffic Op: SM/SEND CONSLT PLANS FOR PPR REVIEW WHEN READY 8-14-06 57

UST: S

Utility: NEED R. PLANS 10/01;OCD SUE. TK4.C16

EMG: 1169A(H27-W/V29);OLDJOBM1475(1185(94)-W/V88);REFLY 6563707

Acquired by: LOC Perry, Carol (LOC)

Acquisition MGR:

R/W Cert Date:

DEEDS CT: