

# VALUE ENGINEERING REPORT

**Big Creek Parkway  
PI No. 0010874  
City of Roswell, Fulton County**

May 28, 2014

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## PROJECT OWNER AND SPONSOR:



City of Roswell  
38 Hill Street  
Roswell, GA 31402

## PROJECT OVERSIGHT:



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

## VALUE ENGINEERING CONSULTANT:



**AMEC Environment & Infrastructure, Inc.**  
1075 Big Shanty Road NW, Suite 100  
Kennesaw, GA 30144

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## VALUE ENGINEERING REPORT

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City of Roswell, Fulton County

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## Disclaimer

This Value Engineering (VE) report presents recommendations for consideration by the design team for alternate methods of completing the current design that may be acceptable to both the design team and the owner. In most cases, each recommendation contains a cost estimate to help evaluate each recommendation on a cost effective basis including both capital and life cycle costs. These estimates are generated whenever possible using the design team's best estimate of cost and mark-ups for quantities and/or unit costs for items proposed to be changed. Using this method, a comparison can be made of the cost estimates for each item by evaluating the original design concept against the proposed change in the VE recommendation. The VE recommendation cost estimates are developed based on the information provided by the design team during the study. At this stage of design, and considering the limited time available for a VE study, the costs should be considered as order of magnitude costs only and do not reflect the final design estimated costs or actual construction costs. The difference in the original design concept and proposed VE recommendation reflects the potential cost change that may be considered by decision makers.

Finally, the VE recommendations and associated cost estimates are for consideration by only the design team and owner. The VE team does not make decisions as to which, if any, of the recommendations are incorporated into the project design. A decision to incorporate a VE recommendation is the responsibility of the design team. Also, the VE recommendations do not have to be accepted as presented in the VE study report. The recommendations should be considered a concept that can be improved and/or modified by the design team to result in a design modification that is mutually acceptable to the design team, project sponsor and owner and includes GDOT.

# **EXECUTIVE SUMMARY**

# **Executive Summary**

## **VALUE ENGINEERING STUDY**

**Big Creek Parkway  
PI No. 0010874  
City of Roswell, Fulton County  
May 12-15, 2014**

### **Introduction**

This report presents the results of a value engineering (VE) study conducted on the proposed design for the Big Creek Parkway. The City of Roswell is sponsoring and developing this project with GDOT oversight. This project is primarily a new location roadway that in conjunction with other improvements will create a roadway network connecting SR140/Holcomb Bridge Road on both sides of US19/SR 400 and providing a by-pass to the congested interchange in the City of Roswell in northern Fulton County.

The primary goals of the project include 1) enhancing local connectivity for motorists, bicyclists and pedestrians, 2) reducing the traffic volumes on Holcomb Bridge Road, 3) improving east/west emergency vehicle responses and 4) complying with a GDOT directive to construct an additional US19/SR 400 crossing. This project will provide additional connectivity for local residents travelling east/west across US19/SR 400.

The proposed Big Creek Parkway will include 2, 11-foot lanes, 4 foot, on-road bicycle lanes and 2 ½ foot concrete curb and gutter. It will also include a 5 foot buffer strip with a 12 foot wide, concrete multi-use path on the north side and a 2 foot buffer strip with a 5 foot wide concrete sidewalk on the south side. The project also includes widening and improvements to Warsaw Road from Holcomb Bridge Road to a new roundabout where the new alignment, Big Creek Parkway will begin. It will continue across the Big Creek and associated floodplain, cross US 19/SR400 with accommodations for the future managed lanes alignment and tie into an existing intersection at Old Alabama Road and Holcomb Woods Parkway. The project will continue along Holcomb Woods Parkway with modifications to include the on-road bike lane, multi-use trail and sidewalk to the project's eastern terminus at the intersection of Holcomb Bridge Road. The total project length is about 14,100 feet, 2.67 miles. Major project bridges include Big Creek Parkway over Big Creek, over US 19/SR 400 and Old Holcomb Bridge connector over Big Creek. There are no new proposed signals however there are major intersection improvements and signal modifications at 3 existing signalized intersections. There are also several proposed retaining walls. The projected traffic volumes along Big Creek Parkway are 11,850 AADT for 2018 (opening year) and 14,400 AADT for 2038 (design year).

Major contract work items include new structures, asphalt paving, earthwork, MSE retaining walls and erosion control measures. The total project cost of \$53,711,115 includes the right of way cost of \$15,900,000 and the utility estimate of \$800,000. It also includes contingencies of 5% for engineering and inspection, 15% for construction and a liquid A/C adjustment of \$1,435,814. The contingencies and adjustment yield an effective mark-up of 24.84%. A project cost model and breakdown is included in the Appendix.

The project is sponsored and currently managed by the City of Roswell and follows the GDOT Plan Development Process (PDP). The current overall schedule is for R/W authorization in January 2017 and project letting in September 2018. The design is currently in the concept stage, preparing for final concept plans. The environmental document is not yet approved. The VE study was conducted May 12-15, 2013, at the Georgia DOT Headquarters in Atlanta using a four person VE team.

This report presents the Team's recommendations and all back-up information for consideration by the decision-makers. This Executive Summary includes a brief description of each recommendation. The Study Identification contains information about the project and the team. The Recommendations presents a detailed description and support information about each recommendation . The Appendix includes a complete record of the team's activities and findings. The reader is encouraged to review all sections of the report in order to obtain a complete understanding of the VE process.

## **Results Obtained**

The VE team focused their efforts on the high cost items of the project. Using function analysis and brain storming techniques, the team generated 35 ideas with 22 identified for additional evaluation as possible recommendations or design considerations. The VE team developed a total of 14 recommendations with 2 alternative recommendations. A detailed write-up of each recommendation is contained in the respective portion of this report. Implementing all the recommendations is not feasible however implementation of the independent, exclusive recommendations has the potential to reduce the project cost approximately \$13,803,000. The following is a summary of the recommendations.

## **Recommendation Summary**

**Idea A-2:** Reduce the width of the multi-use trail to 10 feet.

A 10 foot wide multi-use path is an acceptable width and used in other portions of the City's overall trail network.

*The total potential savings is \$690,000.*

**Idea A-3:** Reduce the width of the multi-use trail to 8 feet on the bridges.

The minimum trail width in constrained areas is 8 feet. This will also reduce the overall R/W and environmental impacts.

*The total potential savings is \$1,098,000.*

**Idea A-5:** Eliminate the on-road bike lane.

Bicyclist will be able to use the multi-use path, reducing the overall roadway template and impacts. Heavy on-road bicycle use is not anticipated within this corridor.

*The total potential savings is \$2,808,000*

**Idea A-6:** Reduce the 5 foot buffer on the trail side to 2 feet.

This recommendation follows the conventional 2 foot buffer offset for the trail. An additional buffer is provided by the on-road bicycle lane.

*The total potential savings is \$979,000*

**Idea A-7:** Eliminate the buffer strips on the bridges.

This will reduce the bridge width and conform to current acceptable bridge policy standards. The on-road bike lanes will provide and acceptable clear zone area for pedestrians and trail users.

*The total potential savings is \$1,894,000*

**Idea A-10:** Use a new alignment for multi-use path.

This recommendation will create a more trail oriented alignment along the Big Creek and match other current trail sections with full connectivity to the City's trail network.

*The total potential savings is \$1,761,000*

**Idea A-12:** Replace the 12 foot multi-use path with a 5 foot wide sidewalk.

This will reduce the overall roadway and bridge template and associated costs and impacts and continue to provide pedestrian and bicycle connectivity.

*The total potential savings is \$2,414,000.*

**Idea A-13:** Shift the roundabout south along Warsaw Road.

There will be available space for the roundabout shift which will eliminate a residential taking and increase the distance between the adjacent intersection thereby improving the roundabout operations.

*The total potential cost savings is \$150,000*

**Idea A-16a:** Holcomb Woods Parkway: Use the current layout.

Use the current roadway template that includes 2 through lanes and a 5 foot sidewalk on both sides of the road. Review the ultimate project connectivity and termini.

*The total potential savings is \$1,136,000*

**Idea A-16b:** Holcomb Woods Parkway: Mill, resurface and restripe the outer lane for an on-road bicycle lane.

This will use some of the additional capacity and space for an on-road bicycle lane.

*The total potential savings is \$976,000*

**Idea A-16c:** Holcomb Woods Parkway: Construct an additional 7 foot sidewalk width for a full 12 foot wide multi-use trail.

This reduces some of the proposed required right of way and will provide the full 12 foot wide multi-use trail on the north side of the road.

*The total potential savings is \$539,000*

**Idea A-20:** Realign the Big Creek Parkway as a more direct route.

This will shorten the overall length of the roadway and bridges by providing a more direct crossing through the floodplain/floodway, reducing overall environmental and right of way impacts. It will affect the small recreation area at the northern end of the Aspen Point Apartments.

*The total potential savings is \$5,114,000*

**Idea A-21:** Use a TEE intersection for the Old Holcomb Bridge Road Connection.

This will shorten the overall connection, reduce the bridge area, right of way and environmental impacts.

*The total potential savings is **\$2,329,000***

**Idea C-1:** Steepen the side slopes from 4:1 to 2:1.

There could be some earthwork and right of way reductions by steepening the side slopes.

*The total potential savings is **\$391,000***

**Idea C-3:** Review the Big Creek Profile.

Increasing/steepening the profile grade in some areas could reduce earthwork and property impacts.

*The total potential savings is **\$57,000***

**Idea C-4:** Lower the Old Holcomb Bridge Road profile.

This will reduce earthwork and retaining walls along the Old Holcomb Bridge Road connector.

*The total potential savings is **\$751,000***

## SUMMARY OF RECOMMENDATIONS AND POTENTIAL COST SAVINGS

### Big Creek Parkway

PI No. 0010874

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
A-2	Reduce multi-use trail width to 10 feet	690,000	0	690,000	0	690,000	\$0
A-3	Reduce width of multi-use trail on bridges to 8 feet	1,098,000	0	1,098,000	0	1,098,000	\$0
A-5	Eliminate on-road bike lane	2,808,000	0	2,808,000	0	2,808,000	\$2,808,000
A-6	Reduce buffer area on trail side to 2 ft	979,000	0	979,000	0	979,000	\$0
A-7	Eliminate buffer areas on bridges	1,894,000	0	1,894,000	0	1,894,000	\$0
A-10	Use new alignment for multi-use trail	2,759,000	998,000	1,761,000	0	1,761,000	\$1,761,000
A-12	Replace 12 foot wide multi-use trail with 5 foot sidewalk	2,414,000	0	2,414,000	0	2,414,000	\$1,000,000
A-13	Shift roundabout south on Warsaw Road	150,000	0	150,000	0	150,000	\$150,000
A-16a	Holcomb Woods Parkway: maintain current alignment and template	1,136,000	0	1,136,000	0	1,136,000	\$1,136,000
A-16b	Holcomb Woods Parkway: mill, resurface and restripe outer lane for on-road bike lane	976,000	0	976,000	0	976,000	\$0

## SUMMARY OF RECOMMENDATIONS AND POTENTIAL COST SAVINGS

### Big Creek Parkway

PI No. 0010874

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
A-16c	Holcomb Woods Parkway: construct additional 7 foot width sidewalk for 12 foot multi-use trail	539,000	0	539,000	0	539,0	\$0
A-20	Realign Big Creek Parkway across Big Creek	5,443,000	319,000	5,114,000	0	5,114,000	\$4,500,000
A-21	Use a TEE intersection for Old Holcomb Bridge Road connection	3,031,000	702,000	2,329,000	0	2,329,000	\$1,500,000
C-1	Steepen side-slopes from 4:1 to 2:1	391,000	0	391,000	0	391,000	\$391,000
C-3	Steepen Big Creek Parkway profile grade	57,000	0	57,000	0	57,000	\$57,000
C-4	Lower Old Holcomb Bridge Road	751,000	0	751,000	0	751,000	\$500,000
	<b>TOTAL POTENTIAL SAVINGS</b>						<b>\$13,803,000</b>

## **STUDY IDENTIFICATION**

## Study Identification

<b>Project: Big Creek Parkway</b>	<b>Date: May 12- 15, 2014</b>
<b>Study Location: GDOT General Offices, Atlanta, GA</b>	

## VE Team Members

Name:	Discipline:	Organization:	Telephone:
Jeff VanDyke, PE	Roadway/Construction	RS & H	678-528-7234
Steve Linley, PE	Roadway/Construction	HMM	770-335-1428
Greg Grant, PE, VMP	Structural Design	RS & H	678-429-7501
George Obaranec, PE, CVS	VE Team Facilitator	AMEC	770-421-3346
Rob Dell-Ross, PE (1)	Project Manager	Roswell	770-594-6292

(1) Part-time participation; Monday, Tuesday and Thursday.

### **Project Description**

This project is primarily a new location roadway that in conjunction with other improvements will create a roadway network connecting SR140/Holcomb Bridge Road on both sides of US19/SR 400 and providing a by-pass to the congested interchange in the City of Roswell in northern Fulton County

The proposed Big Creek Parkway will include 2, 11-foot lanes, 4 foot, on-road bicycle lanes and 2 ½ foot concrete curb and gutter. It will also include a 5 foot buffer strip with a 12 foot wide, concrete multi-use path on the north side and a 2 foot buffer strip with a 5 foot wide concrete sidewalk on the south side. The project also includes widening and improvements to Warsaw Road from Holcomb Bridge Road to a new roundabout where the new alignment, Big Creek Parkway will begin. It will continue across the Big Creek and associated floodplain, cross US 19/SR400 with accommodations for the future managed lanes alignment and tie into an existing intersection at Old Alabama Road and Holcomb Woods Parkway. The project will continue along Holcomb Woods Parkway with modifications to include the on-road bike lane, multi-use trail and sidewalk to the project's eastern terminus at the intersection of Holcomb Bridge Road. The total project length is about 14,100 feet, 2.67 miles. Major project bridges include Big Creek Parkway over Big Creek, over US 19/SR 400 and Old Holcomb Bridge connector over Big Creek. There are no new proposed signals however there are

major intersection improvements and signal modifications at 3 existing signalized intersections. There are also several proposed retaining walls. The projected traffic volumes along Big Creek Parkway are 11,850 AADT for 2018 (opening year) and 14,400 AADT for 2038 (design year).

Major contract work items include new structures, asphalt paving, earthwork, MSE retaining walls and erosion control measures. The total project cost of \$53,711,115 includes the right of way cost of \$15,900,000 and the utility estimate of \$800,000. It also includes contingencies of 5% for engineering and inspection, 15% for construction and a liquid A/C adjustment of \$1,435,814. The contingencies and adjustment yield an effective mark-up of 24.84%. A project cost model and breakdown is included in the Appendix.

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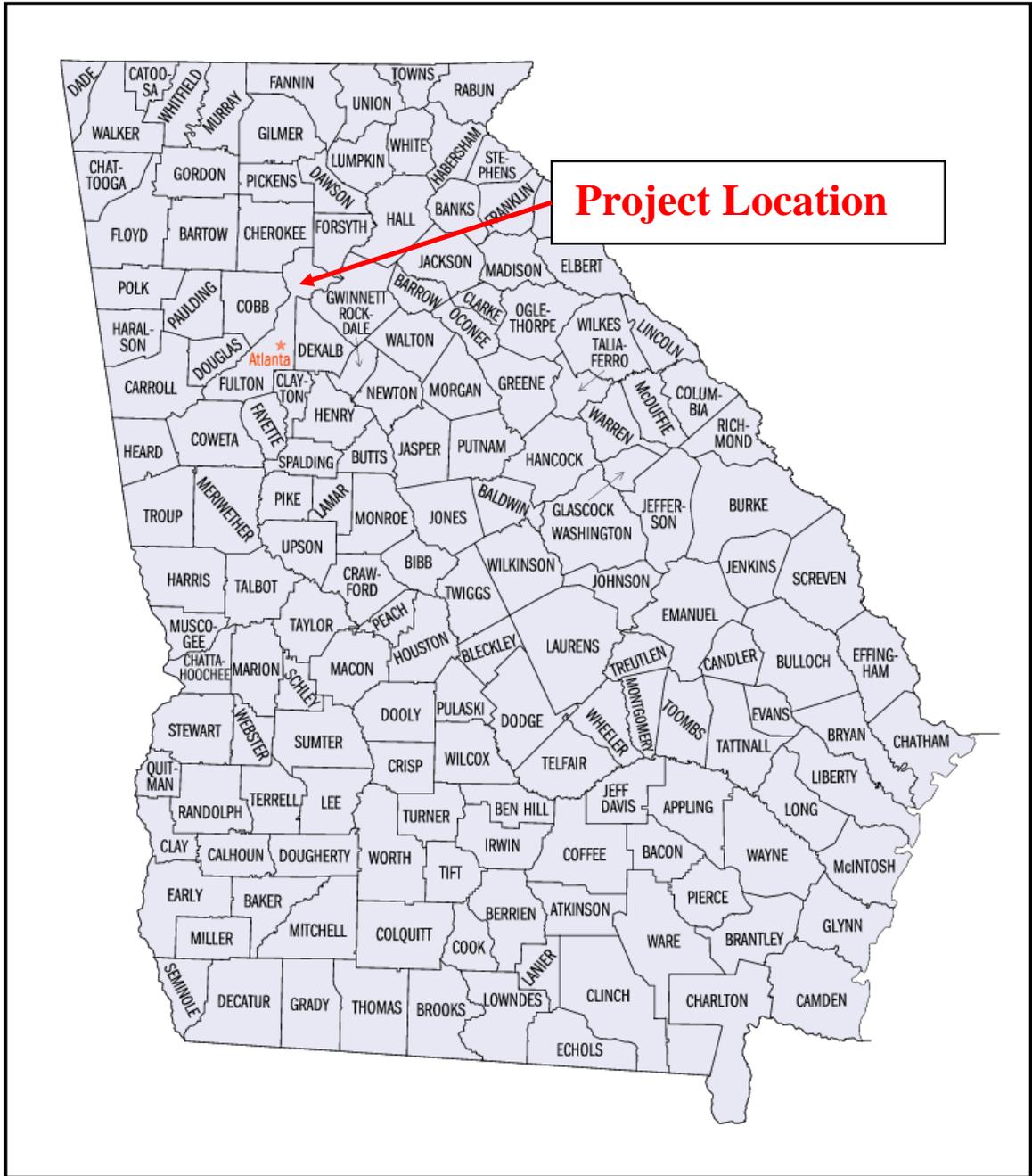
### **Project Design Briefing**

The VE team received a project briefing by the City of Roswell's project team represented by Rob Dell-Ross, the City's Project Manager and Jay Bockisch and Eric Rickert, the consultant Project Manager and Engineer with Gresham, Smith and Partners (GSP). GDOT's project manager is Robert Murphy. The following information and comments were presented:

- The overall project improvements represent the City's development to include multi-modal transportation connectivity as a by-pass route for the Holcomb Bridge Road interchange.
- To date, the City and the design representatives have had numerous informational meetings and presentations with the public, City Council and Mayor. The presented concept plan is the City's locally preferred alternative.
- The typical section includes a travel lane and an on-road bicycle lane in each direction, a 12 foot multi-use path on the north side and a 5 foot sidewalk on the south side.
- The bridge span over US 19/SR 400 includes accommodations for the future managed lane project. The bridge will also include some amenities and enhancement.
- Several key project factors include: maintaining the Liberty Square neighborhood and Aspen Pointe Apartment complex, allowing for future Kimberly Clark campus development and access, connecting Old Holcomb Bridge Road to Big Creek Parkway and allowing for future trail and roadway

extensions.

- The project is in the Draft Concept Stage. The display plans are on aerial mapping and the plans presented are schematic at this point. Additional detailed survey and plan development is required and will be continuing based on approvals and further documentation as part of the Concept Phase progress. The plan development is following the GDOT PDP process.
- There are wetlands and stream impacts on this project that are being further developed and refined. The anticipated document is expected to be an Environmental Assessment (EA).
- There are several other adjacent projects being developed in this vicinity. The design team is coordinating the efforts and overall improvements.
- The project schedule is for R/W authorization in January 2017 and project letting in September 2018.



**Project Location Map**

## **VE RECOMMENDATIONS**

## DEVELOPMENT AND RECOMMENDATION PHASE

**Big Creek Parkway; PI No. 0010874  
City of Roswell / GDOT**

<b>IDEA No.:</b> A-2	<b>PAGE No.:</b> 1 of 3	<b>CREATIVE IDEA:</b> Reduce the width of the multi-use trail
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Comp By: JJV      Date: 5/13/14      Checked By: GAO      Date: 5-20-14

**Original Concept:** The Concept Plans use a 12 ft wide multi-use trail along the north side of Big Creek Parkway.

**Proposed Change:** Reduce the multi-use trail width to 10 feet.

**Justification:** While a 12 foot wide trail is desirable, a 10 foot wide trail is acceptable based on GDOT and AASHTO standards and used throughout the City and other areas. Narrowing the width will reduce the overall project costs, R/W impacts and environmental footprint while achieving the required project function.

LIFE CYCLE COST SUMMARY	CAPITAL COST	FUTURE COST	PRESENT WORTH
<b>INITIAL COST - Original</b>	\$ 690,000		
<b>- Recommended</b>	\$0		
<b>- Savings</b>	\$ 690,000		\$690,000
<b>FUTURE COST - Savings</b>		\$0	\$0
<b>TOTAL PRESENT WORTH SAVINGS</b>			<b>\$690,000</b>



## CALCULATIONS / ASSUMPTIONS

**Big Creek Parkway; PI No. 0010874**  
**City of Roswell / GDOT**

ITEM N<sup>o</sup>: A-2  
CLIENT: Roswell/GDOT  
Sheet 3 of 3

### BCP

#### **Multi-Use Trail Calculations**

Begin Project Station 56+00

End Project Station 135+00

Length of BCP= 7900 lf

7,900 lf – 1935 lf bridge = 5,965 lf roadway

5,965 lf X 2 ft width reduction = 11,930 sf X sy/9sf = 1,326 sy

#### **Bridge Calculations**

1,935 lf bridge X 2 ft width reduction = 3,870 sf X sy/9sf = 430 sy

#### **ROW Calculations**

1,800 lf residential X 2ft width reduction = 3,600 sf x \$5 per sf = \$18,000

3,540 lf commercial X 2ft width reduction = 7,080 sf x \$11 per sf = \$77,880

2,560 lf wetland X 2ft width reduction = 5,120 sf x \$1 per sf = \$5,120

Total R/W cost:

(\$18,000 + \$77,880 + \$5,120) x 1.15 (City acquisition mark-up) = \$116,150

#### **Cost Assumptions:**

Multi-Use Trail (4in sidewalk) = \$22.33 / sy from furnished cost estimate

Bridge Cost = \$1000 / sy from furnished cost estimate

Residential ROW Cost = \$5 / sf from furnished cost estimate

Commercial ROW Cost = \$11 / sf from furnished cost estimate

Wetland ROW Cost = \$1 / sf from furnished cost estimate

## DEVELOPMENT AND RECOMMENDATION PHASE

**Big Creek Parkway; PI No. 0010874  
City of Roswell / GDOT**

<b>IDEA No.:</b> A-3	<b>PAGE No.:</b> 1 of 3	<b>CREATIVE IDEA:</b> Reduce width of multi-use trail on the bridge to minimum
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Comp By: JJV      Date: 5/13/14      Checked By: GAO      Date: 5-20-14

**Original Concept:** The concept Plans use a 12 foot wide multi-use trail along the north side of Big Creek Parkway and the bridges over Big Creek and SR 400.

**Proposed Change:** Reduce the multi-use trail width on the bridges only to the minimum acceptable width of 8 feet.

**Justification:** The bridge area is one of the most expensive items on the project and can be considered a design constraint. If we apply the absolute minimum trail width on the bridge areas only, there are significant cost and impact reductions.

LIFE CYCLE COST SUMMARY	CAPITAL COST	FUTURE COST	PRESENT WORTH
<b>INITIAL COST - Original</b>	\$ 1,098,000		
<b>- Recommended</b>	\$0		
<b>- Savings</b>	\$ 1,098,000		\$1,098,000
<b>FUTURE COST - Savings</b>		\$0	\$0
<b>TOTAL PRESENT WORTH SAVINGS</b>			<b>\$1,098,000</b>

COST WORKSHEET							
PROJECT: <b>Big Creek Parkway PI No. 0010874</b>					ITEM No: A-3		
					CLIENT: Roswell / GDOT		
					Sheet 2 of 3		
CONSTRUCTION ELEMENT		ORIGINAL ESTIMATE			VE ESTIMATE		
ITEM	Units	No. Units	Cost/ Unit	Total Cost	No. Units	Cost/ Unit	Total Cost
<b>Original Design</b>							
4 ft Reduction Bridge Width	SY	860	1,000	860,000			
		-	0.00				
		-	0.00				
<b>VE Recommendation</b>							
					0	0.00	
					0		
SUBTOTAL				860,000			0
Markup	24.84%			213,624			0
R/W				24,541			
TOTAL				1,098,165			0
TOTAL ROUNDED				1,098,000			0

## CALCULATIONS / ASSUMPTIONS

**Big Creek Parkway; PI No. 0010874**  
**City of Roswell / GDOT**

ITEM N<sup>o</sup>: A-3  
CLIENT: Roswell/GDOT  
Sheet 3 of 3

### **BCP**

#### **Multi-Use Trail Calculations**

Begin Project Station 56+00

End Project Station 135+00

Length of BCP= 7900 lf

7900 lf – 1935 lf bridge = 5965 lf roadway

#### **Bridge Calculations**

1935 lf bridge X 4 ft width reduction = 7740 sf X sy/9sf = 860 sy

#### **ROW Calculations**

340 lf commercial X 4 ft width reduction = 1,360 sf x \$11 per sf = \$14,960

1,595 lf wetland X 4 ft width reduction = 6,380 sf x \$1 per sf = \$6,380

Total R/W cost;

$\$14,960 + \$6,380 = 21,340 \times 1.15$  (City acquisition markup) = \$24,541

#### **Cost Assumptions:**

Multi-Use Trail (4in sidewalk) = \$22.33 / sy from furnished cost estimate

Bridge Cost = \$1000 / sy from furnished cost estimate

Residential ROW Cost = \$5 / sf from furnished cost estimate

Commercial ROW Cost = \$11 / sf from furnished cost estimate

Wetland ROW Cost = \$1 / sf from furnished cost estimate

## DEVELOPMENT AND RECOMMENDATION PHASE

**Big Creek Parkway; PI No. 0010874  
City of Roswell / GDOT**

<b>IDEA No.:</b> A-5	<b>PAGE No.:</b> 1 of 3	<b>CREATIVE IDEA:</b> Use proposed multi-use trail and eliminate on-road bicycle lanes
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Comp By: SJL      Date: 05/13/14      Checked By: GAO      Date: 5-19-14

**Original Concept:** The Concept Plans include 4 ft wide, on-road bicycle lanes in each direction, a 12 foot wide multi-use trail on the north side and a 5 foot wide sidewalk on the south side.

**Proposed Change:** Use the proposed 12 foot wide multi-use trail and eliminate the on-road bicycle lanes on each side of the roadway.

**Justification:** The typical section contains a multi-use path that the cyclists can use. The on-road users will be able to share the road with the relatively low-volume of vehicles. The on-road cyclists are assumed to be low through this corridor and there are no on-road connections at the project limits. This will have a significant cost and R/W reductions as well as a reduced environmental footprint.

LIFE CYCLE COST SUMMARY	CAPITAL COST	FUTURE COST	PRESENT WORTH
<b>INITIAL COST - Original</b>	\$2,808,000		
<b>- Recommended</b>	\$0		
<b>- Savings</b>	\$2,808,000		\$2,808,000
<b>FUTURE COST - Savings</b>		\$0	\$0
<b>TOTAL PRESENT WORTH SAVINGS</b>			<b>\$2,808,000</b>



## CALCULATIONS / ASSUMPTIONS

**Big Creek Parkway; PI No. 0010874**  
**City of Roswell / GDOT**

ITEM N<sup>o</sup>: A-5  
CLIENT: Roswell/GDOT  
Sheet 3 of 3

Big Creek Parkway; Beg Sta 56+00; End Sta 135+00; Bridge Length = 1935 ft  
 $(13500 - 5600) - 1,935 = 5,965$  ln ft

Asphalt pavement area reduction:  $(5965 \times 8) / 9 = 5,300$  SY

12.5 mm Superpave

$(165 \text{ lb/sy}) \times 5300 \text{ sy} / 2000 = 437$  tons

19 mm Superpave

$(220 \text{ lb/sy}) \times 5300 \text{ sy} / 2000 = 583$  tons

25 mm Superpave

$(440 \text{ lb/sy}) \times 5300 \text{ sy} / 2000 = 1166$  tons

Cr Aggregate

$(10/12/3) \times 5300 \text{ sy} * 4000 \text{ lb} / 2000 = 2945$  tons

Total R/W Reduction;  $7900 \times 8 = 63,200$  SF

Residential =  $7200 \text{ SF} \times \$5/\text{SF} = \$36,000$

Commercial =  $3000 \text{ SF} + 8000 \text{ SF} + 17,600 \text{ SF} = 28,600 \text{ SF} \times \$11/\text{SF} = \$314,600$

Other Wetland =  $27,400 \times \$1/\text{SF} = \$27,400$

Total R/W Savings =  $\$378,000 \times 1.15\%$  (City acquisition mark-up) = **\$434,700**

Bridge Savings

$1,935 \times 8 = 15,480 \text{ SF} / 9 = 1,720$  SY

Use bridge cost of  $\$1,000/\text{SY}$

## DEVELOPMENT AND RECOMMENDATION PHASE

**Big Creek Parkway; PI No. 0010874  
City of Roswell / GDOT**

<b>IDEA No.:</b> A-6	<b>PAGE No.:</b> 1 of 3	<b>CREATIVE IDEA:</b> Reduce the width of the buffer area on the trail side
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Comp By: JJV      Date: 5/13/14      Checked By: GAO      Date: 5-20-14

**Original Concept:** The Concept Plans use a 5 foot grass buffer strip between the multi-use trail and the back of the curb and gutter along the north side of Big Creek Parkway.

**Proposed Change:** Reduce the 5 ft grass buffer strip to 2 ft.

**Justification:** 2 ft wide buffer strips are the standard width for sidewalks and conform to GDOT typical section elements. The on-road, 4 foot wide bicycles lane will provide an additional buffer area between the trail users and the vehicles on the road. This recommendation will reduce the bridge area, R/W impacts and overall environmental footprint.

LIFE CYCLE COST SUMMARY	CAPITAL COST	FUTURE COST	PRESENT WORTH
<b>INITIAL COST - Original</b>	\$ 979,000		
<b>- Recommended</b>	\$0		
<b>- Savings</b>	\$ 979,000		\$979,000
<b>FUTURE COST - Savings</b>		\$0	\$0
<b>TOTAL PRESENT WORTH SAVINGS</b>			<b>\$979,000</b>

COST WORKSHEET							
PROJECT: Big Creek Parkway PI No. 0010874				ITEM No: A-6 CLIENT: Roswell / GDOT Sheet 2 of 3			
CONSTRUCTION ELEMENT		ORIGINAL ESTIMATE			VE ESTIMATE		
ITEM	Units	No. Units	Cost/ Unit	Total Cost	No. Units	Cost/ Unit	Total Cost
<b>Original Design</b>							
3 ft Reduction Bridge Width	SY	645	1,000	645,000			
		-	0				
		-	0.00				
		-	0.00				
<b>VE Recommendation</b>							
					0	0.00	
					0		
SUBTOTAL				645,000			0
Markup	24.84%			160,218			0
R/W				174,225			
TOTAL				979,443			0
TOTAL ROUNDED				979,000			0

## CALCULATIONS / ASSUMPTIONS

**Big Creek Parkway; PI No. 0010874  
City of Roswell / GDOT**

ITEM N<sup>o</sup>: A-6  
CLIENT: Roswell/GDOT  
Sheet 3 of 3

### **BCP**

#### **Multi-Use Trail Calculations**

Begin Project Station 56+00

End Project Station 135+00

Length of BCP= 7900 lf

7,900 lf – 1,935 lf bridge = 5,965 lf roadway

#### **Bridge Calculations**

1935 lf bridge X 3 ft width reduction = 5805 sf X sy/9sf = 645 sy

#### **ROW Calculations**

1,800 lf residential X 3 ft width reduction = 5,400 sf x \$5 per sf = \$27,000

3,540 lf commercial X 3 ft width reduction = 10,620 sf x \$11 per sf = \$116,820

2,560 lf wetland X 3 ft width reduction = 7,680 sf x \$1 per sf = \$7,680

Total R/W Cost:

$\$27,000 + \$116,820 + \$7,680 = \$151,500 \times 1.15(\text{City acquisition markup}) = \$174,225$

#### **Cost Assumptions:**

Multi-Use Trail (4in sidewalk) = \$22.33 / sy from furnished cost estimate

Bridge Cost = \$1000 / sy from furnished cost estimate

Residential ROW Cost = \$5 / sf from furnished cost estimate

Commercial ROW Cost = \$11 / sf from furnished cost estimate

Wetland ROW Cost = \$1 / sf from furnished cost estimate

Assume minor reduction in overall earthwork, drainage; no cost impacts.

## DEVELOPMENT AND RECOMMENDATION PHASE

**Big Creek Parkway; PI No. 0010874  
City of Roswell / GDOT**

<b>IDEA No.:</b> A-7	<b>PAGE No.:</b> 1 of 5	<b>CREATIVE IDEA:</b> Remove buffer strips on bridges
-------------------------	----------------------------	-------------------------------------------------------

Comp By: GCG      Date: 05/13/14      Checked By: GAO      Date: 5-20-14

**Original Concept:** The Concept Plan bridge section is 2 - 11ft lanes, 4 ft on-road bike lanes, 2 ft gutters with a 17.5 ft for multi-use trail (12 foot trail and 5 foot buffer) and 7.5 ft for the sidewalk (5 foot sidewalk and 2 foot buffer) with grass strip. See Sketches 1 & 2.

**Proposed Change:** Remove the buffer strips from the bridge area: Use 5.5 feet wide sidewalk and jog the sidewalk in at the bridges and approach slabs. This will reduce the typical section by 2 feet. See Sketch 3. Use 12 feet wide multi-use trail with no buffer (5 feet reduction). See Sketch 4

**Justification:** 5.5 feet is the standard sidewalk for a GDOT bridge. It is common practice to jog and transition the sidewalk in and eliminate the buffer strips on the bridges. This will reduce the project costs. The on-road, 4 foot wide bicycles lane will provide an additional buffer area between the trail users and the vehicles on the road.

LIFE CYCLE COST SUMMARY	CAPITAL COST	FUTURE COST	PRESENT WORTH
<b>INITIAL COST - Original</b>	\$1,894,000		
<b>- Recommended</b>	\$0		
<b>- Savings</b>	\$1,894,000		\$1,894,000
<b>FUTURE COST - Savings</b>		\$0	\$0
<b>TOTAL PRESENT WORTH SAVINGS</b>			\$1,894,000

## SKETCH

**Big Creek Parkway; PI No. 0010874  
City of Roswell / GDOT**

ITEM N<sup>o</sup>: A-7  
CLIENT: Roswell/GDOT  
Sheet 2 of 5



**Sketch 1 - Original Concept - Typical Section View – BCP over Big Creek**

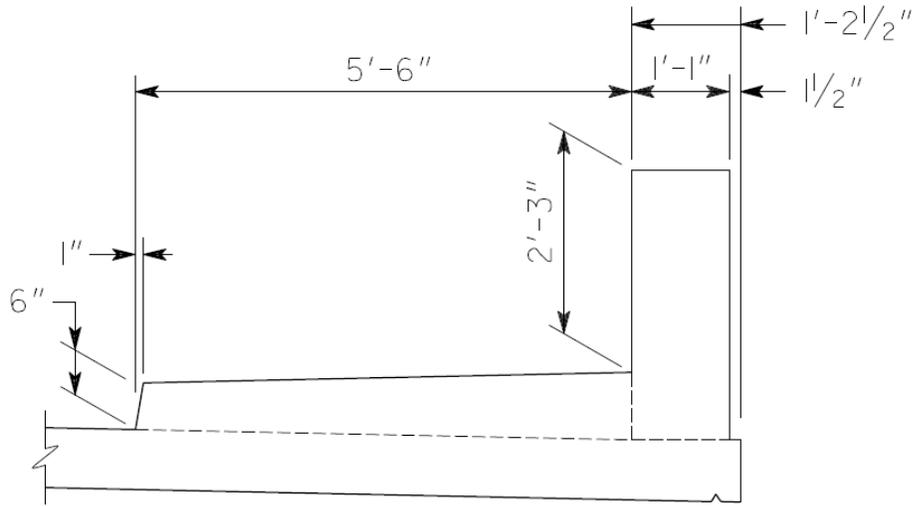


**Sketch 2 - Original Concept - Typical Section View - BCP over GA 400**

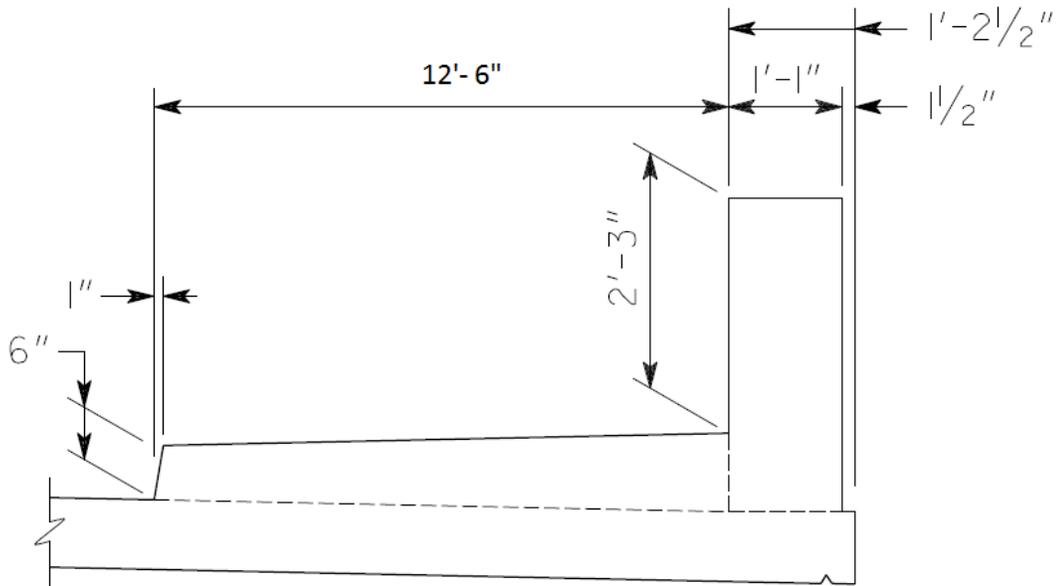
**SKETCH**

**Big Creek Parkway; PI No. 0010874  
City of Roswell / GDOT**

ITEM N<sup>o</sup>: A-7  
CLIENT: Roswell/GDOT  
Sheet 3 of 5



**Sketch 3 - Proposed Change - Standard GDOT Sidewalk Section**



**Section 4 - Multi-Use Trail**



## CALCULATIONS / ASSUMPTIONS

**Big Creek Parkway; PI No. 0010874**  
**City of Roswell / GDOT**

ITEM N<sup>o</sup>: A-7  
CLIENT: Roswell/GDOT  
Sheet 5 of 5

### Differential Cost

Bridge length from Original Concept plans is:

- BCP over Big Creek = 1,598 feet
- BCP over GA 400 = 337.5 feet

Bridge Unit Cost = \$ 1,000 / yd<sup>2</sup> (from Original Concept Cost Estimate)

Area Reduced = (1,598 ft + 337.5 ft) x (2 ft+5 ft) / 9 ft<sup>2</sup> / yd<sup>2</sup> = 1,505 yd<sup>2</sup>

R/W area reduction:

(1,598 + 337.5) x (2 + 5) \$1 per sf (wetland) x 1.15 (City acquisition markup)  
= \$15,581

## DEVELOPMENT AND RECOMMENDATION PHASE

### Big Creek Parkway; PI No. 0010874 City of Roswell / GDOT

<b>IDEA No.:</b> A-10	<b>PAGE No.:</b> 1 of 6	<b>CREATIVE IDEA:</b> Create a Multi-Use trail on separate alignment
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Comp By: GCG      Date: 05/13/14      Checked By: GAO      Date: 5-21-14

**Original Concept:** The Original Concept has a multi-use trail on the north side of Big Creek Parkway (BCP) following the roadway alignment and crossing Big Creek and US 19/SR 400 on new bridge structures. See Sketch 1 & 2

**Proposed Change:** Construct the BCP roadway/vehicular/sidewalk portion as currently shown on the Concept Plans but separate the multi-use trail from BCP and route the trail generally along and through the Big Creek floodplain similar to other portions of the trail system. Typically, this type of trail is 12 feet wide with a pedestrian truss bridge crossing Big Creek.

**Justification:** Separating the trail on new alignment from the BCP road and bridge establishes the trail as more of a community trail rather than a wide sidewalk following the roadway alignment. It makes the trail experience similar to the existing Big Creek Greenway.

It provides a substantial cost reduction by narrowing the width of the BCP bridges (10 feet reduction) and using the existing underpass area of the US 19/SR 400 Big Creek crossing. The BCP will continue to have a 5 foot sidewalk on both sides.

This recommendation creates a more pleasant trail experience that will be connected to the existing trail and park under this project and not necessarily at some future date while significantly reducing project costs.

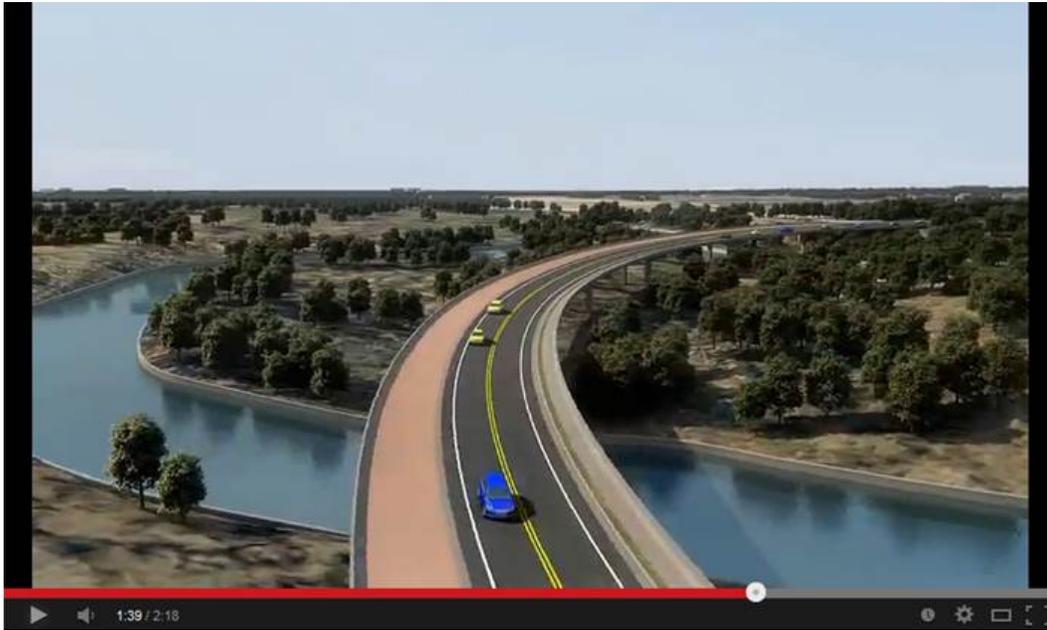
LIFE CYCLE COST SUMMARY	CAPITAL COST	FUTURE COST	PRESENT WORTH
<b>INITIAL COST - Original</b>	\$2,759,000		
<b>- Recommended</b>	\$998,000		
<b>- Savings</b>	\$1,761,000		\$1,761,000
<b>FUTURE COST - Savings</b>		\$0	\$0
<b>TOTAL PRESENT WORTH SAVINGS</b>			<b>\$1,761,000</b>

## SKETCH

**Big Creek Parkway; PI No. 0010874  
City of Roswell / GDOT**

ITEM N<sup>o</sup>: A-10  
CLIENT: Roswell/GDOT  
Sheet 2 of 6

Here are some shots of the bridge animation and the link:



**Sketch 1 - Original Concept - Typical Section View showing multi-use trail on BCP over Big Creek Bridge**

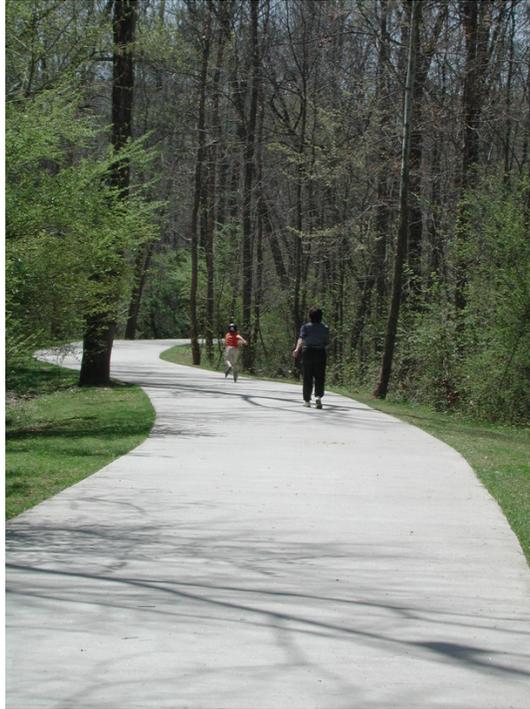


**Sketch 2 - Original Concept - Typical Section View showing multi-use trail on BCP over GA 400 Bridge**

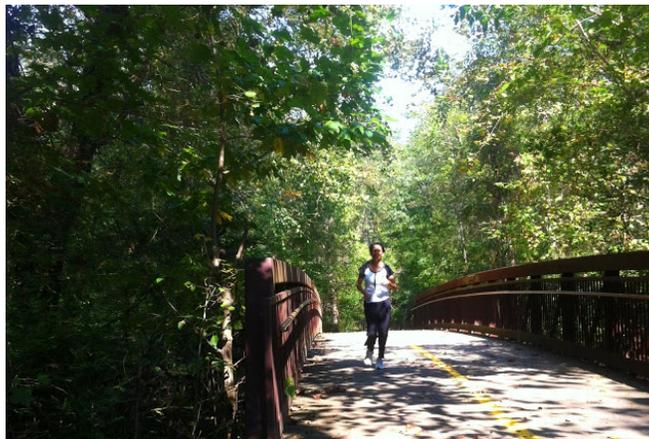
**SKETCH**

**Big Creek Parkway; PI No. 0010874  
City of Roswell / GDOT**

ITEM N<sup>o</sup> : A-10  
CLIENT: Roswell/GDOT  
Sheet 3 of 6



**Concrete Walkway (existing Big Creek Greenway in Alpharetta)**

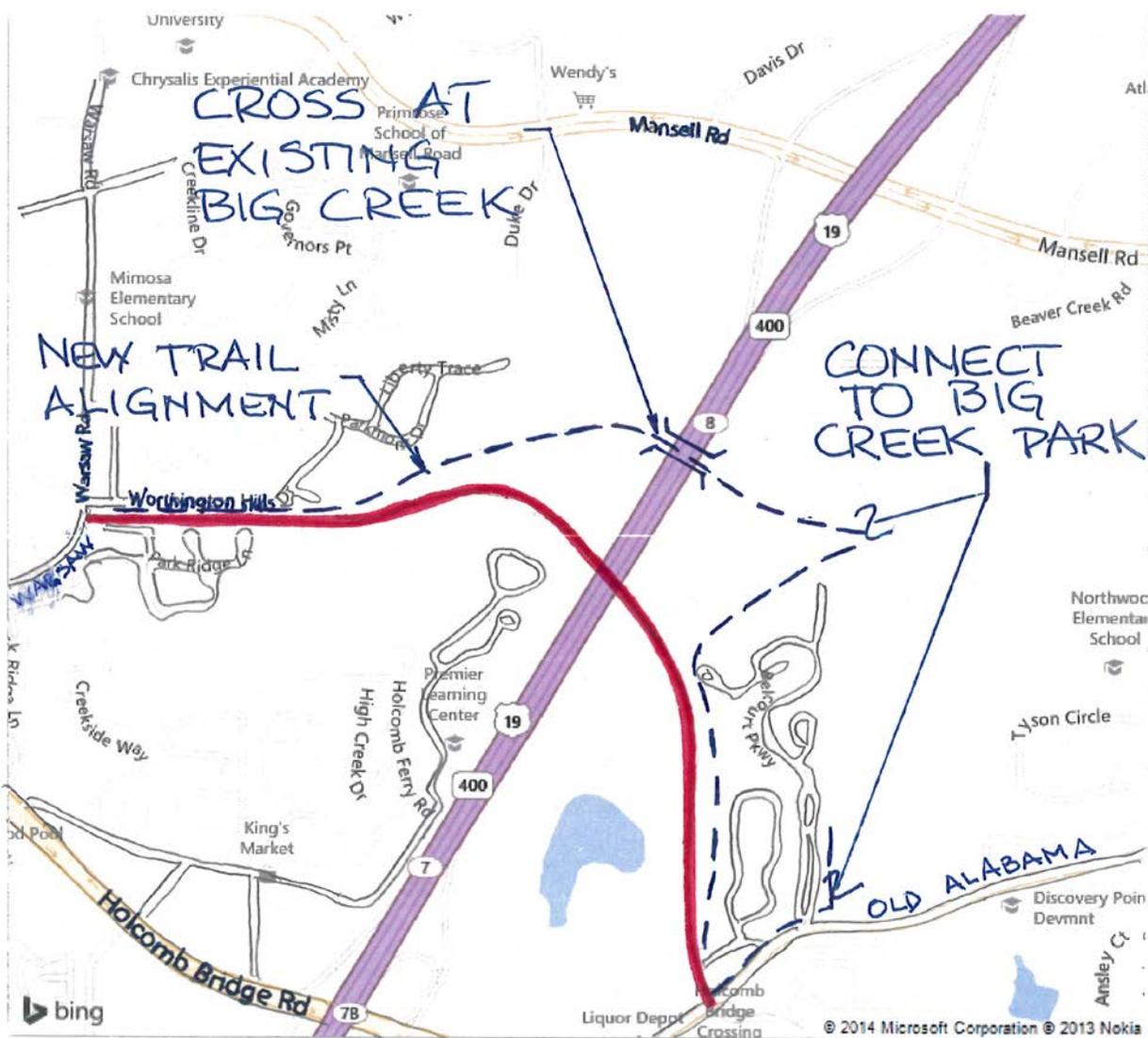


**Existing Big Creek Greenway Bridge**

# SKETCH

**Big Creek Parkway; PI No. 0010874**  
**City of Roswell / GDOT**

ITEM N<sup>o</sup>: A-10  
CLIENT: Roswell/GDOT  
Sheet 4 of 6



## COST WORKSHEET

PROJECT:		Big Creek Parkway PI No. 0010874			ITEM No: A-10 CLIENT: Roswell / GDOT Sheet 5 of 6		
CONSTRUCTION ELEMENT		ORIGINAL ESTIMATE			VE ESTIMATE		
ITEM	Units	No. Units	Cost/Unit	Total Cost	No. Units	Cost/Unit	Total Cost
<b>Original Design</b>							
reduced bridge area	SY	2,150	1,000	2,150,000			
reduced trail	SY	1,556	22	34,590			
		-	0.00				
<b>VE Recommendation</b>							
Concrete trail	SY				6667	40	266,680
Truss pedestrian bridge	LS				1	400,000	400,000
<b>SUBTOTAL</b>				2,184,590			666,680
Markup	24.84%			542,652			165,603
R/W				32,000			100,000
<b>TOTAL</b>				2,759,242			997,887
<b>TOTAL ROUNDED</b>				2,759,000			998,000

## CALCULATIONS / ASSUMPTIONS

**Big Creek Parkway; PI No. 0010874**  
**City of Roswell / GDOT**

ITEM N<sup>o</sup>: A-10  
CLIENT: Roswell/GDOT  
Sheet 6 of 6

### Reductions in Cost

Width of Bridge Deck Removed by Separating the Trail = 10 feet

Total Length of Bridges = 1598 ft + 337.5 ft = 1935.5 ft

Reduction = 10 ft x 1935.5 ft / 9 ft/SY = 2,150 SY

Width of Trail Narrowed Removed by Separating the Trail = 7 feet

Total Length of Roadway Narrowed = = 2000 ft

Cost Reduction = 7 ft x 2000 ft / 9 ft/SY = 1,556 SY

Width of Bridge RW Removed

2000 linear feet x 8 ft x \$1/SF = \$16,000

Width of Roadway RW Removed

2000 linear feet x 8 ft x \$1/SF = \$16,000

Total R/W; \$16,000 + \$16,000 = \$32,000

### Additions in Cost

RW Added (reduce bridge & R/W by 8 ft, buy 20 feet of R/W)

5000 linear feet x 20 ft x \$1/SF = \$100,000

New Trail Construction: assume 5,000 LF

5000 LF trail x 12 feet wide / 9 sf/SY = 6,667 SY

New Trail Bridge

Estimate \$400K for a Through Truss Bridge

## DEVELOPMENT AND RECOMMENDATION PHASE

### Big Creek Parkway; PI No. 0010874 City of Roswell / GDOT

<b>IDEA No.:</b> A-12	<b>PAGE No.:</b> 1 of 3	<b>CREATIVE IDEA:</b> Reduce the width of the multi-use trail and use the conventional 5 foot sidewalk
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Comp By: JJV      Date: 5/14/14      Checked By: GAO      Date: 5-20-14

**Original Concept:** The Concept Plan uses a full 12 foot wide multi-use trail along the north side of Big Creek Parkway.

**Proposed Change:** Use the conventional 5 foot wide sidewalk in lieu of a full 12 foot wide multi-use trail along the north side of Big Creek Parkway.

**Justification:** Incorporating 5 foot wide sidewalks with on-road bicycle lanes is a conventional GDOT approach to facilitating multi-modal transportation. In this case, it will reduce the project cost, R/W impacts and provide a narrower environmental template.

LIFE CYCLE COST SUMMARY	CAPITAL COST	FUTURE COST	PRESENT WORTH
<b>INITIAL COST - Original</b>	\$2,414,000		
<b>- Recommended</b>	\$0		
<b>- Savings</b>	\$2,414,000		\$2,414,000
<b>FUTURE COST - Savings</b>		\$0	\$0
<b>TOTAL PRESENT WORTH SAVINGS</b>			<b>\$2,414,000</b>

<b>COST WORKSHEET</b>							
PROJECT: <b>Big Creek Parkway PI No. 0010874</b>					ITEM No: A-12		
					CLIENT: Roswell / GDOT		
					Sheet 2 of 3		
<b>CONSTRUCTION ELEMENT</b>		<b>ORIGINAL ESTIMATE</b>			<b>VE ESTIMATE</b>		
ITEM	Units	No. Units	Cost/ Unit	Total Cost	No. Units	Cost/ Unit	Total Cost
<b>Original Design</b>							
7 ft Reduct Multi-Use Trail Width	SY	4,639	22.23	103,125			
7 ft Reduction Bridge Width	SY	1,505	1,000	1,505,000			
		-	0				
		-	0.00				
		-	0.00				
<b>VE Recommendation</b>							
					0	0.00	
					0		
SUBTOTAL				1,608,125			0
Markup	24.84%			399,458			0
R/W				406,525			
TOTAL				2,414,108			0
TOTAL ROUNDED				2,414,000			0

## CALCULATIONS / ASSUMPTIONS

**Big Creek Parkway; PI No. 0010874  
City of Roswell / GDOT**

ITEM N<sup>o</sup>: A-12  
CLIENT: Roswell/GDOT  
Sheet 3 of 3

### BCP

#### **Multi-Use Trail Calculations**

Begin Project Station 56+00

End Project Station 135+00

Length of BCP= 7,900 lf

7,900 lf – 1,935 lf bridge = 5,965 lf roadway

5,965 lf X 7 ft width reduction = 41,755 sf X sy/9sf = 4,639 sy

#### **Bridge Calculations**

1,935 lf bridge X 7 ft width reduction = 13,545 sf X sy/9sf = 1,505 sy

#### **ROW Calculations**

1,800 lf residential X 7ft width reduction = 12,600 sf x \$5 per sf = \$63,000

3,540 lf commercial X 7ft width reduction = 24,780 sf x \$11 per sf = \$272,580

2,560 lf wetland X 7ft width reduction = 17,920 sf x \$1 per sf = \$17,920

Total R/WCost:

$(\$63,000 + \$272,580 + \$17,920) \times 1.15$  (City acquisition markup) = \$406,525

#### **Cost Assumptions:**

Multi-Use Trail (4in sidewalk) = \$22.33 / sy from furnished cost estimate

Bridge Cost = \$1000 / sy from furnished cost estimate

Residential ROW Cost = \$5 / sf from furnished cost estimate

Commercial ROW Cost = \$11 / sf from furnished cost estimate

Wetland ROW Cost = \$1 / sf from furnished cost estimate

## DEVELOPMENT AND RECOMMENDATION PHASE

### Big Creek Parkway; PI No. 0010874 City of Roswell / GDOT

<b>IDEA No.:</b> A-13	<b>PAGE No.:</b> 1 of 3	<b>CREATIVE IDEA:</b> Shift roundabout south on Warsaw Road
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Comp By: SJL      Date: 5-14-14      Checked By: GAO      Date: 5-19-14

**Original Concept:** Use the current alignment with the roundabout about 150 feet from the Worthington Hills Drive/Willow Stream Court intersection.

**Proposed Change:** Shift the roundabout south along Warsaw Road, about 150 feet.

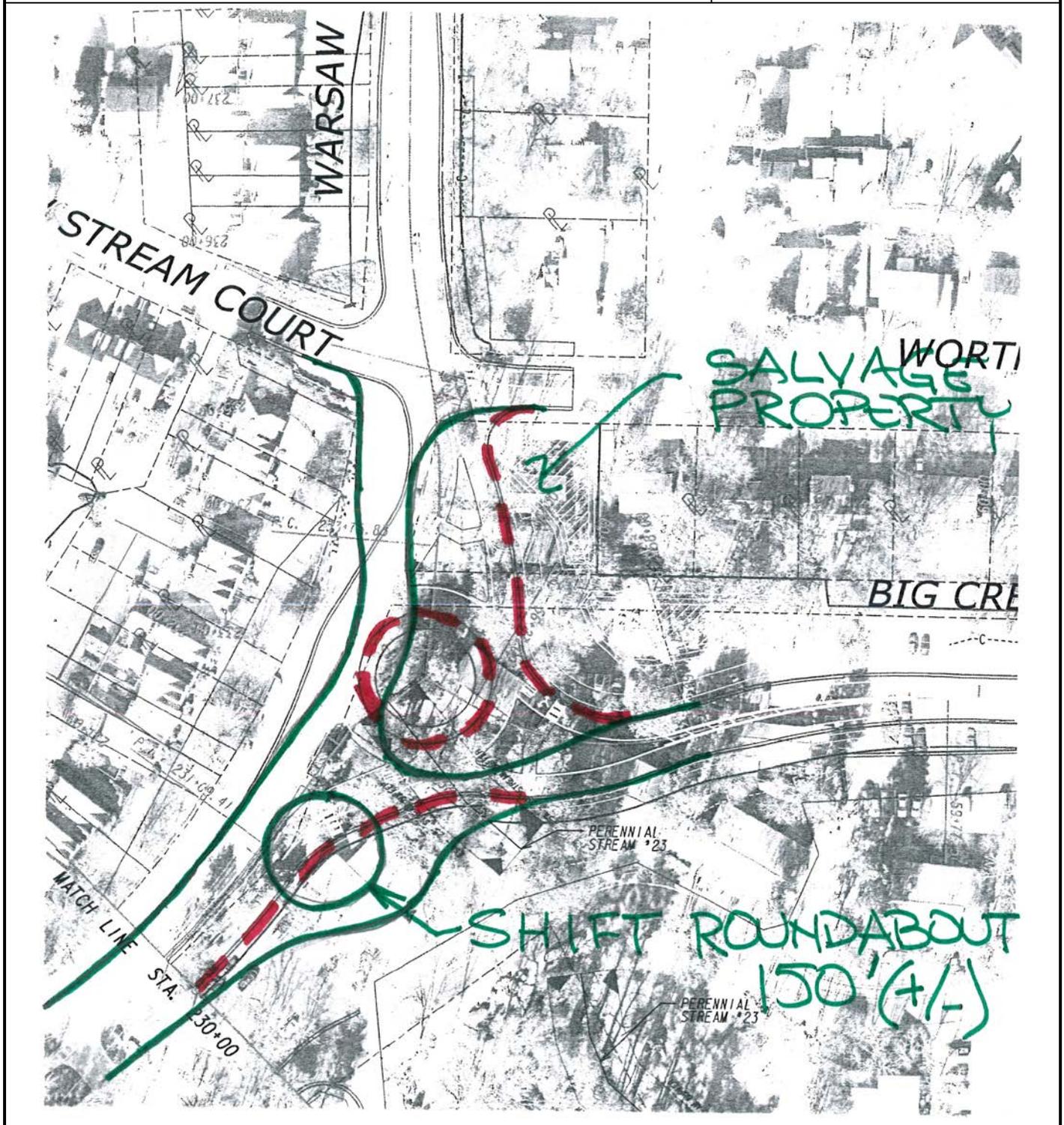
**Justification:** Shifting the roundabout south, estimated at about 150 feet, will provide additional space between the roundabout and the intersection, which should improve overall operations and traffic flow. This shift will also eliminate one of the property acquisitions of the Liberty Square neighborhood. Several of the apartment buildings in the area will require complete taking so the intent of this recommendation is to use the available space to shift the roundabout thereby improving traffic operations and potentially saving an existing residence and displacement.

LIFE CYCLE COST SUMMARY	CAPITAL COST	FUTURE COST	PRESENT WORTH
<b>INITIAL COST - Original</b>	\$150,000		
<b>- Recommended</b>	\$0		
<b>- Savings</b>	\$150,000		\$150,000
<b>FUTURE COST - Savings</b>		\$0	\$0
<b>TOTAL PRESENT WORTH SAVINGS</b>			<b>\$150,000</b>

SKETCH

Big Creek Parkway; PI No. 0010874  
City of Roswell / GDOT

ITEM N<sup>o</sup>: A-13  
CLIENT: Roswell/GDOT  
Sheet 2 of 3



## CALCULATIONS / ASSUMPTIONS

**Big Creek Parkway; PI No. 0010874**  
**City of Roswell / GDOT**

ITEM N<sup>o</sup> : A-13  
CLIENT: Roswell/GDOT  
Sheet 3 of 3

Assume cost of roundabout construction remains the same, no appreciable difference

Savings: eliminate one complete taking/displacement.

Residential: assume \$130,000; use 1.15 mark-up for acquisition, displacement and relocation costs

$$130,000 \times 1.15 = \$149,500$$

## DEVELOPMENT AND RECOMMENDATION PHASE

### Big Creek Parkway; PI No. 0010874 City of Roswell / GDOT

<b>IDEA No.:</b> A-16a	<b>PAGE No.:</b> 1 of 3	<b>CREATIVE IDEA:</b> Use existing roadway template on Holcomb Woods Parkway
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Comp By: SJL      Date: 05/13/14      Checked By: GAO      Date: 5-19-14

**Original Concept:** The Concept Plans include reconstructing the existing roadway template of Holcomb Woods Parkway to continue the trail and roadway extension to Holcomb Bridge Road, completing the connectivity. The proposed typical section includes using the existing curb and gutter, milling and resurfacing the roadway for 1 through lane and an on-road bike lane in each direction. It also includes constructing a new raised, concrete median, a 12 foot wide multi-use trail on the north side and a 5 foot sidewalk on the south side. These improvements will require additional R/W on both sides through a commercial area.

**Proposed Change:** Use the existing roadway template as the extension of the trail and roadway and the connection to Holcomb Bridge Road. The existing typical section is 2 lanes with curb and gutter and a 5 foot sidewalk in both directions with center turn lanes at the driveway access points.

**Justification:** The current roadway template of Holcomb Wood Parkway provides vehicular, pedestrian and multi-use access and connectivity to Holcomb Bridge Road. It can be used to provide the overall project function of creating an alternate, complete by-pass route. Although it is not the City's desirable alternative, there are sections in the City where a sidewalk is used for connectivity. The intersection improvements at Holcomb Bridge Road can continue to be included to address the required traffic operations. This will address the logical termini concern and can continue along Holcomb Bridge Road to the east to meet an existing trail. The Concept Report's termini discussion can be modified to include the ultimate trail connection.

LIFE CYCLE COST SUMMARY	CAPITAL COST	FUTURE COST	PRESENT WORTH
<b>INITIAL COST - Original</b>	\$1,136,000		
<b>- Recommended</b>	\$0		
<b>- Savings</b>	\$1,136,000		\$1,136,000
<b>FUTURE COST - Savings</b>		\$0	\$0
<b>TOTAL PRESENT WORTH SAVINGS</b>			<b>\$1,136,000</b>

<b>COST WORKSHEET</b>							
PROJECT: <b>Big Creek Parkway PI No. 0010874</b>					ITEM No: A-16a		
					CLIENT: Roswell / GDOT		
					Sheet 2 of 3		
<b>CONSTRUCTION ELEMENT</b>		<b>ORIGINAL ESTIMATE</b>			<b>VE ESTIMATE</b>		
ITEM	Units	No. Units	Cost/Unit	Total Cost	No. Units	Cost/Unit	Total Cost
<b>Original Design</b>							
Sidewalk / Trail	SY	5,100	22	113,373			
Concrete Median	SY	1,135	54	60,825			
Milling	SY	18,865	1.29	24,336			
Asphalt resurfacing	Ton	1,556	66.69	103,770			
<b>VE Recommendation</b>							
					0	0.00	
					0		
SUBTOTAL				302,303			0
Markup	24.84%			75,092			0
Right of Way				759,000			
TOTAL				1,136,395			0
TOTAL ROUNDED				1,136,000			0

## CALCULATIONS / ASSUMPTIONS

**Big Creek Parkway; PI No. 0010874**  
**City of Roswell / GDOT**

ITEM N<sup>o</sup>: A-16a  
CLIENT: Roswell/GDOT  
Sheet 3 of 3

Length of Segment = 3000 LF

Required R/W

North Side = 15' x 3000' = 45,000 SF

South Side = 5' x 3000' = 15,000 SF

Total R/W = 60,000 SF; commercial R/W at \$11/SF; use 15% mark-up for Roswell R/W acquisition.

Total R/W reduction:  $(60,000 \text{ SF} \times \$11/\text{SF}) \times 1.15 = \$759,000$

Sidewalk & Multi-purpose trail; Assume about 10% of existing will be reconstructed

$(5'+12') \times 3000' \times 90\% = 5,100 \text{ SY}$

Raised Concrete Median; 1,135 SY

Mill & Resurface

$(3000 \times 60)/9 - 1,135 = 18,865 \text{ SY}$

Resurface (12.5 mm Superpave)

$18,865 \text{ SY} \times 165 \text{ lb/sy} / 2000 = 1,556 \text{ Tons}$

## DEVELOPMENT AND RECOMMENDATION PHASE

### Big Creek Parkway; PI No. 0010874 City of Roswell / GDOT

<b>IDEA No.:</b> A-16b	<b>PAGE No.:</b> 1 of 3	<b>CREATIVE IDEA:</b> Use existing roadway template on Holcomb Woods Parkway. Restripe for on-road bike lane.
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Comp By: SJL      Date: 05/13/14      Checked By: GAO      Date: 5-19-14

**This is an alternate recommendation to A-16a.**

**Original Concept:** The Concept Plans include reconstructing the existing roadway template of Holcomb Woods Parkway to continue the trail and roadway extension to Holcomb Bridge Road, completing the connectivity. The proposed typical section includes using the existing curb and gutter, milling and resurfacing the roadway for 1 through lane and an on-road bike lane in each direction. It also includes constructing a new raised, concrete median, a 12 foot wide multi-use trail on the north side and a 5 foot sidewalk on the south side. These improvements will require additional RW on both sides through a commercial area.

**Proposed Change:** Use the existing roadway template as the extension of the trail and roadway and the connection to Holcomb Bridge Road. Mill, resurface and restripe the roadway to include an on-road bicycle lane and one traffic lane. The existing typical section is 2 lanes with curb and gutter and a 5 foot sidewalk in both directions with center turn lanes at the driveway access points.

**Justification:** This is an alternate recommendation to A-16a that provides an on-road bicycle lane on Holcomb Woods Parkway by milling and resurfacing the entire roadway and restriping for the on-road bicycle lane. The current roadway template of Holcomb Wood Parkway provides vehicular, pedestrian and multi-use access and connectivity to Holcomb Bridge Road. It can be used to provide the overall project function of creating an alternate, complete by-pass route. Although it is not the City's desirable alternative, there are sections in the City where a sidewalk is used for connectivity. The intersection improvements at Holcomb Bridge Road can continue to be included to address the required traffic operations.

This will address the logical termini concern and can continue along Holcomb Bridge Road to the east to meet an existing trail. The Concept Report's termini discussion can be modified to include the ultimate trail connection.

LIFE CYCLE COST SUMMARY	CAPITAL COST	FUTURE COST	PRESENT WORTH
<b>INITIAL COST - Original</b>	\$976,000		
<b>- Recommended</b>	\$0		
<b>- Savings</b>	\$976,000		\$976,000
<b>FUTURE COST - Savings</b>		\$0	\$0
<b>TOTAL PRESENT WORTH SAVINGS</b>			<b>\$976,000</b>

COST WORKSHEET							
PROJECT: Big Creek Parkway PI No. 0010874				ITEM No: A-16b CLIENT: Roswell / GDOT Sheet 2 of 3			
CONSTRUCTION ELEMENT		ORIGINAL ESTIMATE			VE ESTIMATE		
ITEM	Units	No. Units	Cost/ Unit	Total Cost	No. Units	Cost/ Unit	Total Cost
<b>Original Design</b>							
Sidewalk / Trail	SY	5,100	22	113,373			
Concrete Median	SY	1,135	54	60,825			
Milling	SY	18,865	0.00				
Asphalt resurfacing	Ton	1,556	0.00				
<b>VE Recommendation</b>							
					0	0.00	
					0		
SUBTOTAL				174,198			0
Markup	24.84%			43,271			0
Right of Way				759,000			
TOTAL				976,468			0
TOTAL ROUNDED				976,000			0

## CALCULATIONS / ASSUMPTIONS

**Big Creek Parkway; PI No. 0010874  
City of Roswell / GDOT**

ITEM N<sup>o</sup>: A-16b  
CLIENT: Roswell/GDOT  
Sheet 3 of 3

Length of Segment = 3000 LF

Required R/W

North Side = 15' x 3000' = 45,000 SF

South Side = 5' x 3000' = 15,000 SF

Total R/W = 60,000 SF; commercial R/W at \$11/SF; use 15% mark-up for Roswell R/W acquisition.

Total R/W reduction:  $(60,000 \text{ SF} \times \$11/\text{SF}) \times 1.15 = \$759,000$

Sidewalk & Multi-purpose trail; Assume about 10% of existing will be reconstructed  
 $(5'+12') \times 3000' \times 90\% = 5,100 \text{ SY}$

Raised Concrete Median; 1,135 SY

## DEVELOPMENT AND RECOMMENDATION PHASE

### Big Creek Parkway; PI No. 0010874 City of Roswell / GDOT

<b>IDEA No.:</b> A-16c	<b>PAGE No.:</b> 1 of 3	<b>CREATIVE IDEA:</b> Use existing roadway template on Holcomb Woods Parkway. Restripe for on-road bike lane and construct additional sidewalk for multi-use trail
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Comp By: SJL      Date: 05/13/14      Checked By: GAO      Date: 5-19-14

**This is an alternate recommendation to A-16a.**

**Original Concept:** The Concept Plans include reconstructing the existing roadway template of Holcomb Woods Parkway to continue the trail and roadway extension to Holcomb Bridge Road, completing the connectivity. The proposed typical section includes using the existing curb and gutter, milling and resurfacing the roadway for 1 through lane and an on-road bike lane in each direction. It also includes constructing a new raised, concrete median, a 12 foot wide multi-use trail on the north side and a 5 foot sidewalk on the south side. These improvements will require additional R/W on both sides through a commercial area.

**Proposed Change:** Use the existing roadway template as the extension of the trail and roadway and the connection to Holcomb Bridge Road. Mill, resurface and restripe the roadway to include an on-road bicycle lane and one traffic lane. Also, construct an additional 7 foot sidewalk to provide the 12 wide, multi-use trail on the north side.

**Justification:** This is an alternate recommendation to A-16a that provides an on-road bicycle lane on Holcomb Woods Parkway by milling and resurfacing the entire roadway and restriping for the on-road bicycle lane and constructing an additional 7 feet wide sidewalk to provide the full width multi-use trail on the north side. This includes an additional R/W width of 5 feet. The current roadway template of Holcomb Wood Parkway provides vehicular, pedestrian and multi-use access and connectivity to Holcomb Bridge Road. It can be used to provide the overall project function of creating an alternate, complete by-pass route. Although it is not the City's desirable alternative, there are sections in the City where a sidewalk is used for connectivity. The intersection improvements at Holcomb Bridge Road can continue to be included to address the required traffic operations.

This will address the logical termini concern and can continue along Holcomb Bridge Road to the east to meet an existing trail. The Concept Report's termini discussion can be modified to include the ultimate trail connection.

LIFE CYCLE COST SUMMARY	CAPITAL COST	FUTURE COST	PRESENT WORTH
<b>INITIAL COST - Original</b>	\$539,000		
<b>- Recommended</b>	\$0		
<b>- Savings</b>	\$539,000		\$539,000
<b>FUTURE COST - Savings</b>		\$0	\$0
<b>TOTAL PRESENT WORTH SAVINGS</b>			<b>\$539,000</b>



## CALCULATIONS / ASSUMPTIONS

**Big Creek Parkway; PI No. 0010874  
City of Roswell / GDOT**

ITEM N<sup>o</sup>: A-16c  
CLIENT: Roswell/GDOT  
Sheet 3 of 3

Length of Segment = 3000 LF

Required R/W (reduction)

North Side = 5' x 3000' = 15,000 SF

South Side = 5' x 3000' = 15,000 SF

Total R/W = 30,000 SF; commercial R/W at \$11/SF; use 15% mark-up for Roswell R/W acquisition.

Total R/W reduction:  $(30,000 \text{ SF} \times \$11/\text{SF}) \times 1.15 = \$379,500$

Sidewalk & Multi-purpose trail; Assume about 10% of existing will be reconstructed  
 $(5'+5') \times 3000' \times 90\% = 3,000 \text{ SY}$

Raised Concrete Median; 1,135 SY

## DEVELOPMENT AND RECOMMENDATION PHASE

### Big Creek Parkway; PI No. 0010874 City of Roswell / GDOT

<b>IDEA No.:</b> A-20	<b>PAGE No.:</b> 1 of 7	<b>CREATIVE IDEA:</b> Realign Big Creek Parkway across Big Creek to reduce impacts and shorten bridge
--------------------------	----------------------------	-------------------------------------------------------------------------------------------------------

Comp By: GCG      Date: 05/14/14      Checked By: GAO      Date: 5-20-14

**Original Concept:** The original concept layout across Big Creek as it leaves the Liberty Square area turns left to skirt the western edge of the Big Creek Floodway and then turns right to cross the flood way landing across the floodway behind the Aspen Point Apartments recreation area (tennis courts). The proposed bridge is 1,598 feet long.

**Proposed Change:** Realign Big Creek Parkway (BCP) and cross the floodplain at a flatter horizontal curve (more direct crossing) that aligns just behind the apartments traversing the recreational area/tennis courts. The proposed BCP bridge over Big Creek would be approximately 1000 feet long.

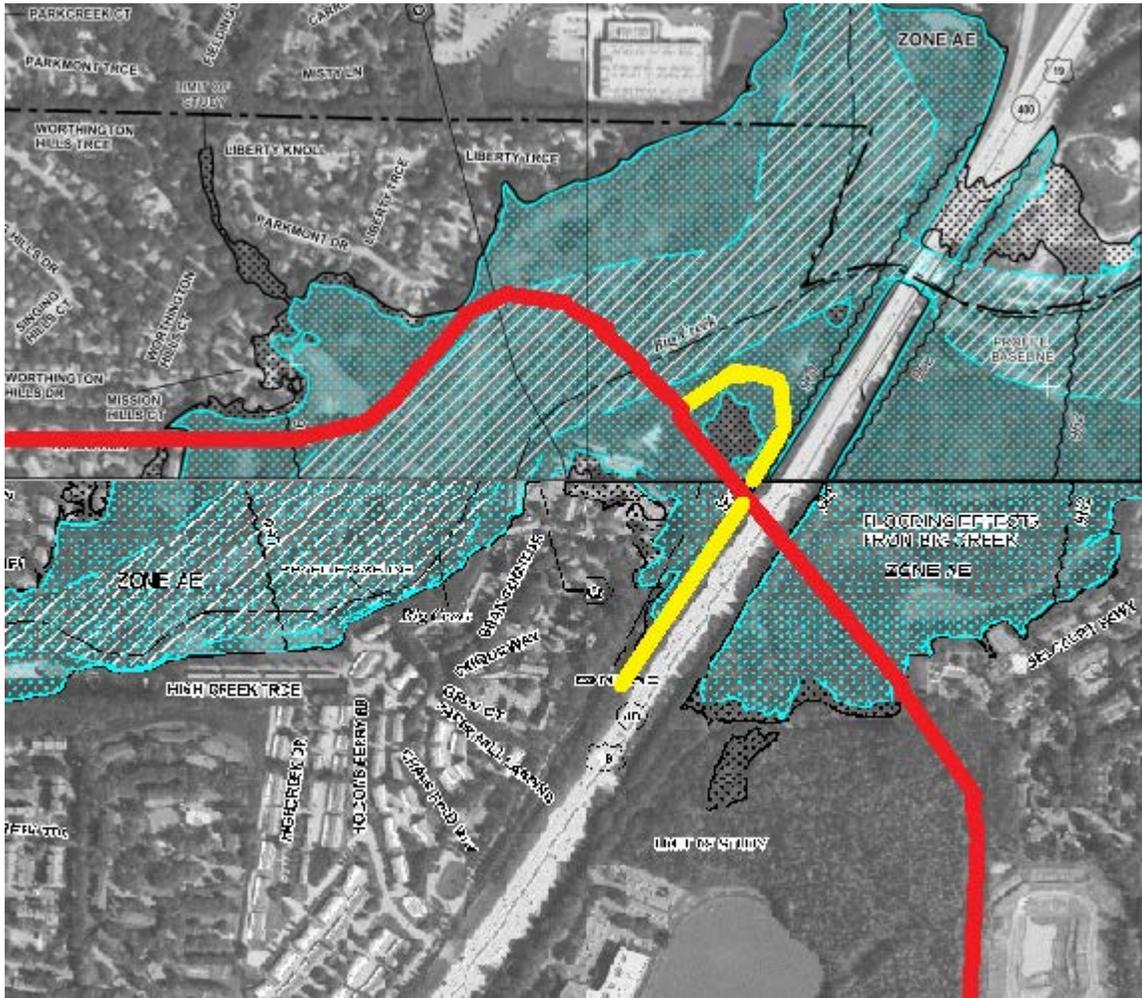
**Justification:** This recommendation significantly reduces the overall project costs by shortening bridge lengths and the roadway alignment. It will also reduce R/W and environmental impacts through the floodplain area. It does however affect the northern portion of the Aspen Pointe apartments although it does not affect any structures or units. The only affects will be to the rec area/tennis courts that can be readily replaced and enhanced as an amenity to the community. Included is an allowance of \$250,000 for acquisition and replacement of the rec area. Additionally, the jug handle ramp would be aligned on the roadway portion, off the bridge as currently shown on the concept plan, simplifying the bridge geometry and constructability at that section of the bridge. The new alignment should also reduce impacts to the Kimberly Clark property on the east side of SR 400.

LIFE CYCLE COST SUMMARY	CAPITAL COST	FUTURE COST	PRESENT WORTH
<b>INITIAL COST - Original</b>	\$5,433,000		
<b>- Recommended</b>	\$319,000		
<b>- Savings</b>	\$ 5,114,000		\$ 5,114,000
<b>FUTURE COST - Savings</b>		\$ 0	\$ 0
<b>TOTAL PRESENT WORTH SAVINGS</b>			\$ 5,114,000

SKETCH

Big Creek Parkway; PI No. 0010874  
City of Roswell / GDOT

ITEM N<sup>o</sup>: A20  
CLIENT: Roswell/GDOT  
Sheet 2 of 7



Original Concept Alignment



<b>COST WORKSHEET</b>							
PROJECT: <b>Big Creek Parkway PI No. 0010874</b>				ITEM No: A-20 CLIENT: Roswell / GDOT Sheet 4 of 7			
<b>CONSTRUCTION ELEMENT</b>		<b>ORIGINAL ESTIMATE</b>			<b>VE ESTIMATE</b>		
ITEM	Units	No. Units	Cost/ Unit	Total Cost	No. Units	Cost/ Unit	Total Cost
<b>Original Design</b>							
bridge deck area	LF	6,800	640	4,352,000			
roadway area	LF	-	0				
		-	0				
<b>VE Recommendation</b>							
Roadway area	LF				290	190	55,100
					0		
<b>SUBTOTAL</b>				4,352,000			55,100
Markup	24.84%			1,081,037			13,687
R/W allowance							250,000
<b>TOTAL</b>				5,433,037			318,787
<b>TOTAL ROUNDED</b>				5,433,000			319,000

## CALCULATIONS / ASSUMPTIONS

**Big Creek Parkway; PI No. 0010874  
City of Roswell / GDOT**

ITEM N<sup>o</sup>: A20  
CLIENT: Roswell/GDOT  
Sheet 5 of 7

### Differential Cost

#### Original Concept

##### Roadway

- Approaching roadway from the PC of curve parallel to liberty Square
- 74+45 to 78+00 (say 350 feet)

##### Bridge length from Original Concept plans is:

- BCP over Big Creek = 1598 feet (say 1600 feet)

##### Roadway

- Between Bridges  
Station 93+98 to 98+62 (say 460 feet)

##### Bridge length from Original Concept plans is:

- BCP over GA 400 = 337.5 feet (say 340 feet)

##### Roadway

- End 400 bridge to Station 110+00  
Station 101+99.5 to 110+00 (say 800 feet)

## CALCULATIONS / ASSUMPTIONS

**Big Creek Parkway; PI No. 0010874  
City of Roswell / GDOT**

ITEM N<sup>o</sup>: A20  
CLIENT: Roswell/GDOT  
Sheet 6 of 7

### Differential Cost

#### Proposed Change

##### Roadway

- Approaching roadway from the PC of curve parallel to Liberty Square Station 74+45 to 78+00 (say 350 feet)

##### Bridge length from Original Concept plans is:

- BCP over Big Creek = 1000 feet (say 1000 feet)
- Measured on concept layout display 2 of 3

##### Roadway

- Between Bridges  
(scaled off layout, say 750 feet)

##### Bridge length over 400 is:

- BCP over GA 400 = 337.5 feet
- Bridge is closer to 90 degrees
- Original  $337.5 * \sin 61.5 \text{ degrees} = 296.6$  (say 300 feet)

##### Roadway

- End 400 bridge to Station 110+00  
(Say 800 feet)

## CALCULATIONS / ASSUMPTIONS

**Big Creek Parkway; PI No. 0010874**  
**City of Roswell / GDOT**

ITEM N<sup>o</sup>: A20  
CLIENT: Roswell/GDOT  
Sheet 7 of 7

Bridge cost = \$ 1000 / SY

Bridge = 59 feet gutter to gutter + 1.21 ft \*2 = 61.4 feet

Bridge per linear foot = \$1000 / SY = \$111.11 / SF

$\$111.11 * 61.4 = \$6,822 / \text{ft}$  (say 6,800)

Roadway for BCP = \$1,000,000 /mile = \$190 / linear foot

Reduced quantities:

Approach Roadway	350feet; no change
Bridge BCP over Big Creek	1,600 feet – 1,000 feet = 600 ft
Roadway Between Bridges	460 feet - 750 feet = 290 ft (increase)
Bridge length over 400	340 feet – 300 feet = 40 ft
Roadway from bridge to sta 110+00;	no change

## DEVELOPMENT AND RECOMMENDATION PHASE

### Big Creek Parkway; PI No. 0010874 City of Roswell / GDOT

<b>IDEA No.:</b> A-21	<b>PAGE No.:</b> 1 of 4	<b>CREATIVE IDEA:</b> Use TEE intersection for Old Holcomb Bridge Road connection
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Comp By: SJL      Date: 5-14-14      Checked By: GAO      Date: 5-20-14

**Original Concept:** Construct Old Holcomb Bridge connection as an underpass and loop connector to Big Creek Parkway.

**Proposed Change:** Construct the connection as a TEE intersection directly to the Big Creek Parkway using MSE walls as required.

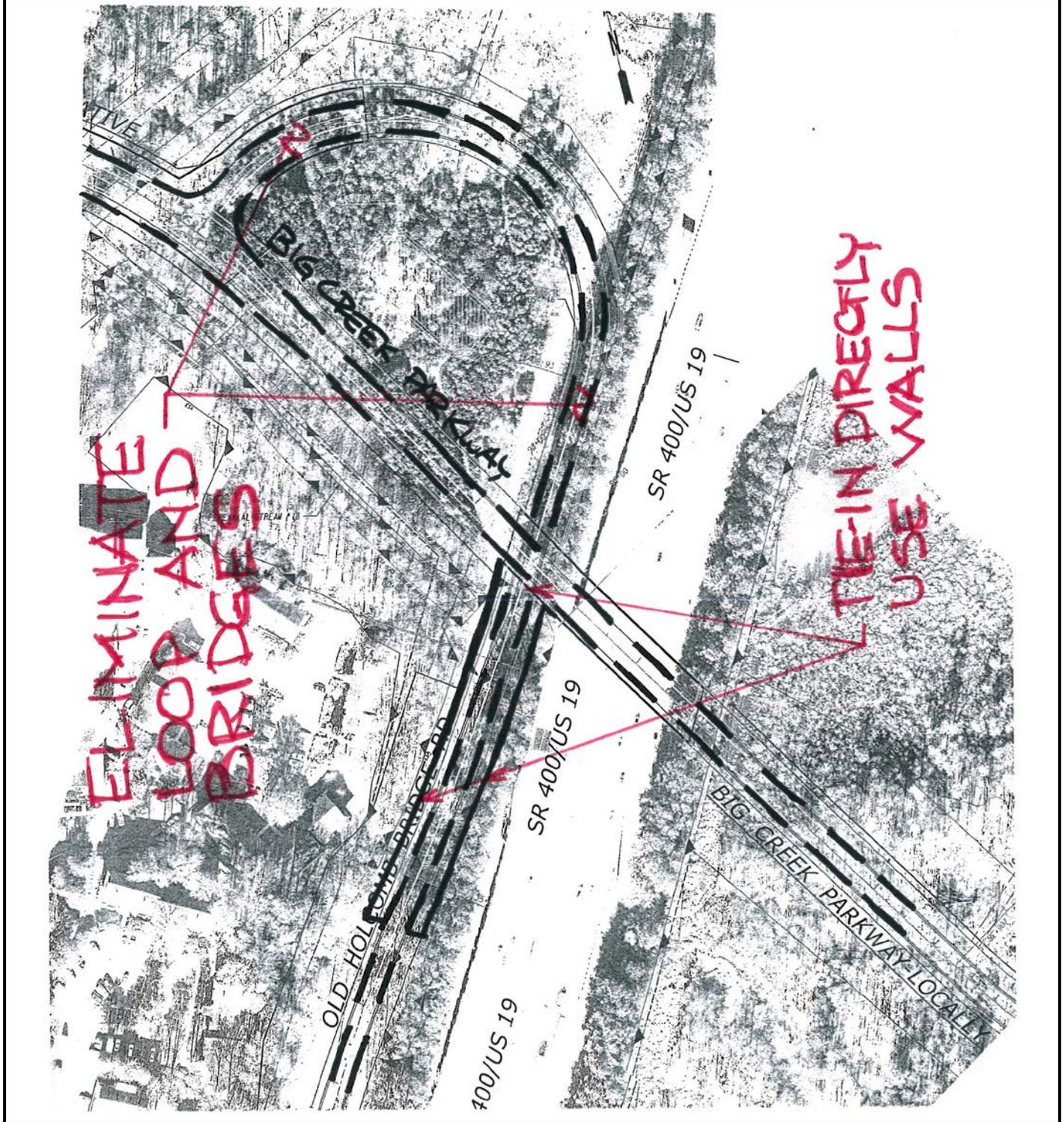
**Justification:** This recommendation will eliminate the loop alignment and significantly reduce the bridge lengths by creating a more direct connection. It will also reduce property and environmental area impacts. This will require additional walls however there will be significant overall cost savings. Constructing the embankment and walls for this tie-in could also potentially reduce some sound barrier walls.

LIFE CYCLE COST SUMMARY	CAPITAL COST	FUTURE COST	PRESENT WORTH
<b>INITIAL COST - Original</b>	\$3,031,000		
<b>- Recommended</b>	\$702,000		
<b>- Savings</b>	\$2,329,000		\$2,329,000
<b>FUTURE COST - Savings</b>		\$0	\$0
<b>TOTAL PRESENT WORTH SAVINGS</b>			<b>\$2,329,000</b>

SKETCH

Big Creek Parkway; PI No. 0010874  
City of Roswell / GDOT

ITEM N<sup>o</sup>: A-21  
CLIENT: Roswell/GDOT  
Sheet 2 of 4



<b>COST WORKSHEET</b>							
PROJECT: <b>Big Creek Parkway PI No. 0010874</b>					ITEM No: A-21		
					CLIENT: Roswell / GDOT		
					Sheet 3 of 4		
<b>CONSTRUCTION ELEMENT</b>		<b>ORIGINAL ESTIMATE</b>			<b>VE ESTIMATE</b>		
ITEM	Units	No. Units	Cost/ Unit	Total Cost	No. Units	Cost/ Unit	Total Cost
<b>Original Design</b>							
bridge area	SY	2,168	1,000	2,168,000			
roadway pavement	SY	2,000	35	70,000			
sidewalk/trail	SY	1,417	22.23	31,500			
curbing	LF	1,500	11.08	16,620			
<b>VE Recommendation</b>							
MSE walls	sq ft				11250	50.00	562,500
					0		
<b>SUBTOTAL</b>				2,286,120			562,500
Markup	24.84%			567,872			139,725
right of way	sq ft	176,800	1	176,800			
<b>TOTAL</b>				3,030,792			702,225
<b>TOTAL ROUNDED</b>				3,031,000			702,000

## CALCULATIONS / ASSUMPTIONS

**Big Creek Parkway; PI No. 0010874  
City of Roswell / GDOT**

ITEM N<sup>o</sup>: A-21  
CLIENT: Roswell/GDOT  
Sheet 4 of 4

Reduced bridge areas:

$$(218.5 \times 68) + (75 \times 62) \times 1/9 = 2,168 \text{ SY}$$

Reduced roadway length:

Station 39+50 to 47+00; 750 ft

Pavement area  $750 \times 24 = 18,000 \text{ sq ft} = 2,000 \text{ sq yds}$

Sidewalk area  $750 \times (5 + 12) = 12,750 \text{ sq ft} = 1,417 \text{ sq yds}$

Curbing  $2 \times 750 = 1,500 \text{ ln ft}$

Pavement Cost: 7.5 inches of asphalt over 10 inches of stone base (GAB)

$$(7.5 \text{ in} / 12 \text{ ft}) (150 \# / \text{CF}) (1 \text{ Ton} / 2,000 \#) = 0.046875 \text{ Ton} / \text{SF}$$

$$(10 \text{ in} / 12 \text{ ft}) (135 \# / \text{CF}) (1 \text{ Ton} / 2,000 \#) = 0.05625 \text{ Ton} / \text{SF}$$

Unit Cost: Asphalt: \$70 per ton; Stone (GAB) \$10 per ton

Cost per SY:

$$(0.046875 \text{ ton/sf} \times 9 \text{ sf/sy} \times \$70/\text{ton}) + (0.05625 \text{ ton/sf} \times 9 \text{ sf/sy} \times \$10/\text{ton}) = 29.53 + 5.06 = \$34.59 \text{ per SY}$$

**USE: \$35 per SY**

Right of Way:

$$(650 \times 320) \times 85\% = 176,800 \text{ sq ft}$$

Retaining wall required, both sides of road:

$$\frac{1}{2} (450 \text{ ft} \times 25 \text{ ft}) \times 2 = 11,250 \text{ sq ft}$$

## DEVELOPMENT AND RECOMMENDATION PHASE

**Big Creek Parkway; PI No. 0010874  
City of Roswell / GDOT**

<b>IDEA No.:</b> C-1	<b>PAGE No.:</b> 1 of 4	<b>CREATIVE IDEA:</b> Use 2:1 cut slope in lieu of 4:1
-------------------------	----------------------------	--------------------------------------------------------

Comp By: SJL      Date: 05/13/14      Checked By: GAO      Date: 5-19-14

**Original Concept:** The break point for the right side of the typical section lies within the clear zone. All cut sections are utilizing a 4:1 back slope.

**Proposed Change:** Extend terrace to clear zone and use a 2:1 cut slope to replace the 4:1 slope. This recommendation reviews the area between STA 111+50 and 115+00 RT however it can be applied in other project areas as appropriate.

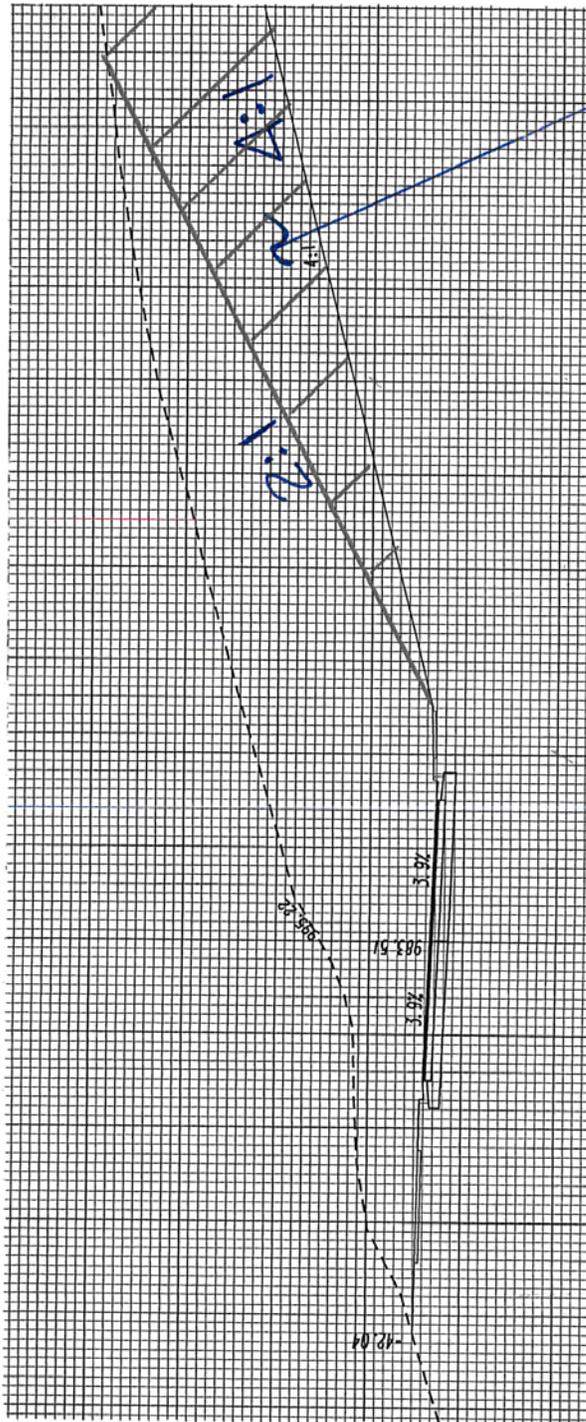
**Justification:** A 2:1 cut slope is the conventional and standard sideslope to use especially in areas of large cuts. This will reduce R/W impacts and costs. Any concerns with access and remaining areas of the Kimberly Clark property can be worked out during continued plan development and R/W negotiations. Using a 2:1 slope will increase the remaining areas.

LIFE CYCLE COST SUMMARY	CAPITAL COST	FUTURE COST	PRESENT WORTH
<b>INITIAL COST - Original</b>	\$391,000		
<b>- Recommended</b>	\$0		
<b>- Savings</b>	\$391,000		\$391,000
<b>FUTURE COST - Savings</b>		\$0	\$0
<b>TOTAL PRESENT WORTH SAVINGS</b>			<b>\$391,000</b>

SKETCH

Big Creek Parkway; PI No. 0010874  
City of Roswell / GDOT

ITEM N<sup>o</sup>: C-1  
CLIENT: Roswell/GDOT  
Sheet 2 of 4



REDUCED  
EARTHWORK

COST WORKSHEET							
PROJECT: Big Creek Parkway PI No. 0010874					ITEM No: C-1		
					CLIENT: Roswell / GDOT		
					Sheet 3 of 4		
CONSTRUCTION ELEMENT		ORIGINAL ESTIMATE			VE ESTIMATE		
ITEM	Units	No. Units	Cost/ Unit	Total Cost	No. Units	Cost/ Unit	Total Cost
<b>Original Design</b>							
Earthwork - cut	CY	12,000	4.96	59,520			
		-	0				
		-	0.00				
<b>VE Recommendation</b>							
					0	0.00	
					0		
SUBTOTAL				59,520			0
Markup	24.84%			14,785			0
Right of Way				316,250			
TOTAL				390,555			0
TOTAL ROUNDED				391,000			0

**CALCULATIONS / ASSUMPTIONS**

**Big Creek Parkway; PI No. 0010874  
City of Roswell / GDOT**

ITEM N<sup>o</sup>: C-1  
CLIENT: Roswell/GDOT  
Sheet 4 of 4

Reduction in Excavation = 12,000 CY

12,000 CY x \$4.96 = \$60,000

Reduction in R/W

100'x500'x\$5.50 = \$275,000 x 1.15 (City acquisition mark-up) = \$316,250

## DEVELOPMENT AND RECOMMENDATION PHASE

### Big Creek Parkway; PI No. 0010874 City of Roswell / GDOT

<b>IDEA No.:</b> C-3	<b>PAGE No.:</b> 1 of 4	<b>CREATIVE IDEA:</b> Increase Big Creek Parkway profile
-------------------------	----------------------------	----------------------------------------------------------

Comp By: SJL      Date: 05/13/14      Checked By: GAO      Date: 05-20-14

**Original Concept:** Use profile shown on Concept Plans. This is 3.20% in the area just east of the overpass of SR 400.

**Proposed Change:** Increase the profile grade to about 5% in areas of high fill or cut. This recommendation reviews the area in the vicinity of station 102 to 111 but can be applied to other project areas as appropriate.

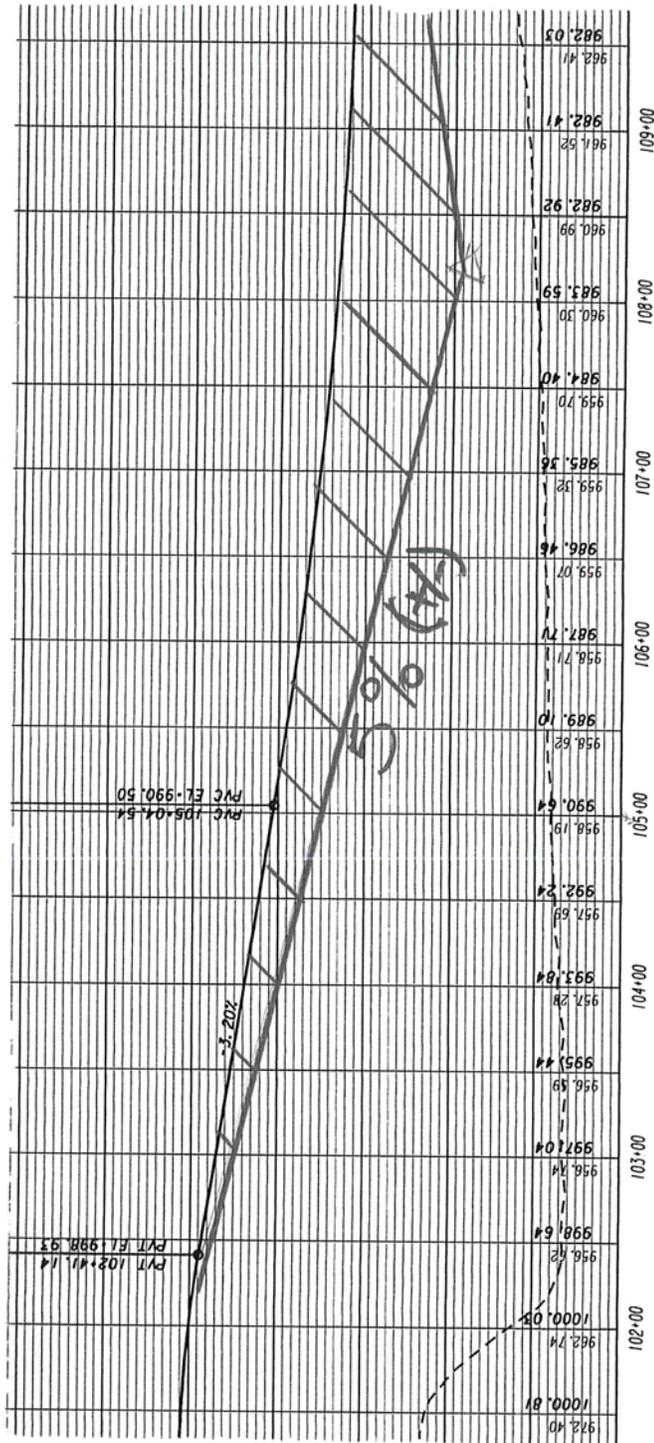
**Justification:** Based on the Concept Report, an allowable grade for the Big Creek Parkway is up to 9%. Increasing the profile grade in areas of high fill or cut will have significant savings and reduced project impacts. Any concerns with access and remaining areas of the Kimberly Clark property can be worked out during continued plan development and R/W negotiations.

LIFE CYCLE COST SUMMARY	CAPITAL COST	FUTURE COST	PRESENT WORTH
<b>INITIAL COST - Original</b>	\$57,000		
<b>- Recommended</b>	\$0		
<b>- Savings</b>	\$57,000		\$57,000
<b>FUTURE COST - Savings</b>		\$0	\$0
<b>TOTAL PRESENT WORTH SAVINGS</b>			<b>\$57,000</b>

# SKETCH

**Big Creek Parkway; PI No. 0010874**  
**City of Roswell / GDOT**

ITEM N<sup>o</sup> : C-3  
 CLIENT: Roswell/GDOT  
 Sheet 2 of 4



<b>COST WORKSHEET</b>							
PROJECT: <b>Big Creek Parkway PI No. 0010874</b>					ITEM No: C-3		
					CLIENT: Roswell / GDOT		
					Sheet 3 of 4		
<b>CONSTRUCTION ELEMENT</b>		<b>ORIGINAL ESTIMATE</b>			<b>VE ESTIMATE</b>		
ITEM	Units	No. Units	Cost/ Unit	Total Cost	No. Units	Cost/ Unit	Total Cost
<b>Original Design</b>							
Earthwork - cut	CY	2,000	4.96	9,920			
Earthwork - borrow	CY	1,500	5.60	8,400			
		-	0.00				
<b>VE Recommendation</b>							
					0	0.00	
					0		
SUBTOTAL				18,320			0
Markup	24.84%			4,551			0
Right of Way				34,155			
TOTAL				57,026			0
TOTAL ROUNDED				57,000			0

**CALCULATIONS / ASSUMPTIONS**

**Big Creek Parkway; PI No. 0010874  
City of Roswell / GDOT**

ITEM N<sup>o</sup>: C-3  
CLIENT: Roswell/GDOT  
Sheet 4 of 4

Reduction in Borrow

STA 102+00 to STA 110+75 = 2,000 CY

Reduction in Excavation

STA 110+75 to STA 115+50 = 1,500 CY

Reduction in R/W

1350'x2'x\$11 = \$29,700 x 1.15 (City acquisition mark-up) = \$34,155

**DEVELOPMENT AND RECOMMENDATION PHASE**

**Big Creek Parkway; PI No. 0010874  
City of Roswell / GDOT**

<b>IDEA No.:</b> C-4	<b>PAGE No.:</b> 1 of 4	<b>CREATIVE IDEA:</b> Lower the Old Holcomb Bridge profile
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Comp By: JJV      Date: 5/14/14      Checked By: GAO      Date: 5-19-14

**Original Concept:** The Old Holcomb Bridge profile is elevated along the area of the Aspen Point Apartments to Big Creek Parkway Bridge several feet above the existing grade.

**Proposed Change:** Lower the Old Holcomb Bridge profile to closer match the existing ground conditions.

**Justification:** There does not appear to be an apparent reason for significantly raising the profile grade along this area. The recommended profile will be above the anticipated flood elevation shown on the bridge plans. Lowering the profile will reduce earthwork, R/W impacts and required MSE walls.

<b>LIFE CYCLE COST SUMMARY</b>	<b>CAPITAL COST</b>	<b>FUTURE COST</b>	<b>PRESENT WORTH</b>
<b>INITIAL COST - Original</b>	\$751,000	/	/
<b>- Recommended</b>	\$0	/	/
<b>- Savings</b>	\$751,000	/	\$751,000
<b>FUTURE COST - Savings</b>	/	0	\$0
<b>TOTAL PRESENT WORTH SAVINGS</b>			<b>\$751,000</b>

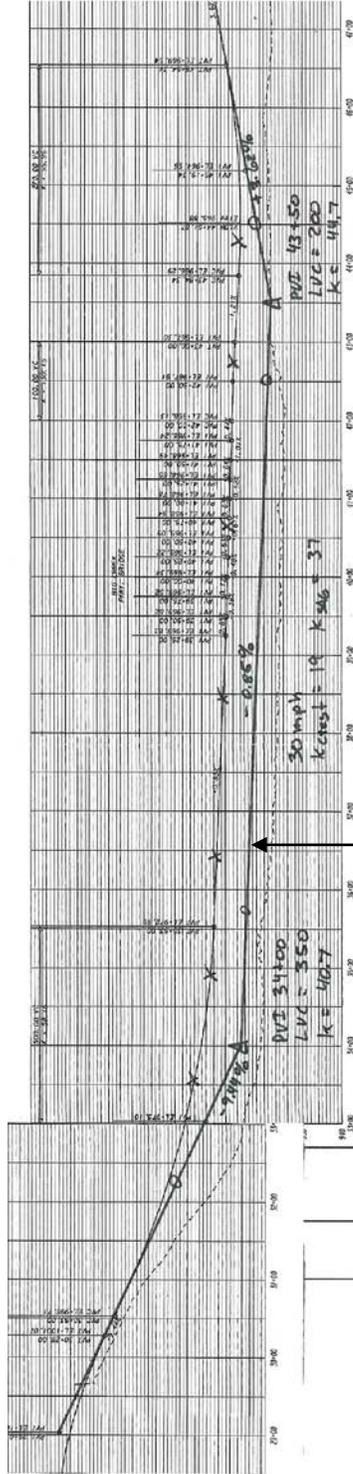
# SKETCH

Big Creek Parkway; PI No. 0010874  
City of Roswell / GDOT

ITEM N<sup>o</sup>: C-4  
CLIENT: Roswell/GDOT  
Sheet 2 of 4

Current Design Profile

Lowered Profile





## CALCULATIONS / ASSUMPTIONS

**Big Creek Parkway; PI No. 0010874  
City of Roswell / GDOT**

ITEM N<sup>o</sup>: C-4  
CLIENT: Roswell/GDOT  
Sheet 4 of 4

### Old Holcomb Bridge Road

#### **Lower Profile**

- Extend 9.44% to approximately Station 34+00
- Extend 3.62% upgrade to Big Creek Parkway back to approximately Station 43+50
- Hold -0.85% grade between new PIs

Average Cross Section Earthwork Savings approximately 400 SF

400 sf X 1100 ft long = 440,000 cf X cy/27cf = 16,296 cy

#### **ROW Calculations**

1200 lf commercial X 10ft width reduction = 12,000 sf

12,000 X \$11 (1.5) = 198,000

#### **MSE Wall Calculations**

Station 36+00 to 43+00 wall dropped = 700 lf

700 lf X 8 ft average height = 5600 sf

#### **Cost Assumptions:**

Borrow = \$5.60 cy from furnished cost estimate

Residential ROW Cost = \$5 / sf from furnished cost estimate

Commercial ROW Cost = \$11 / sf from furnished cost estimate

Wetland ROW Cost = \$1 / sf from furnished cost estimate

MSE Wall Cost (10-20) = \$39.32 / sf

# APPENDIX

### Key Authorizing Persons / Group

Name:	Position:	Telephone:
Matt Sanders	VE Program Coordinator	404-631-1752
Robert Murphy	GDOT Project Manager	404-631-1586
Rob Dell-Ross	City of Roswell - Transportation	770-594-6292

### Personal Contacts

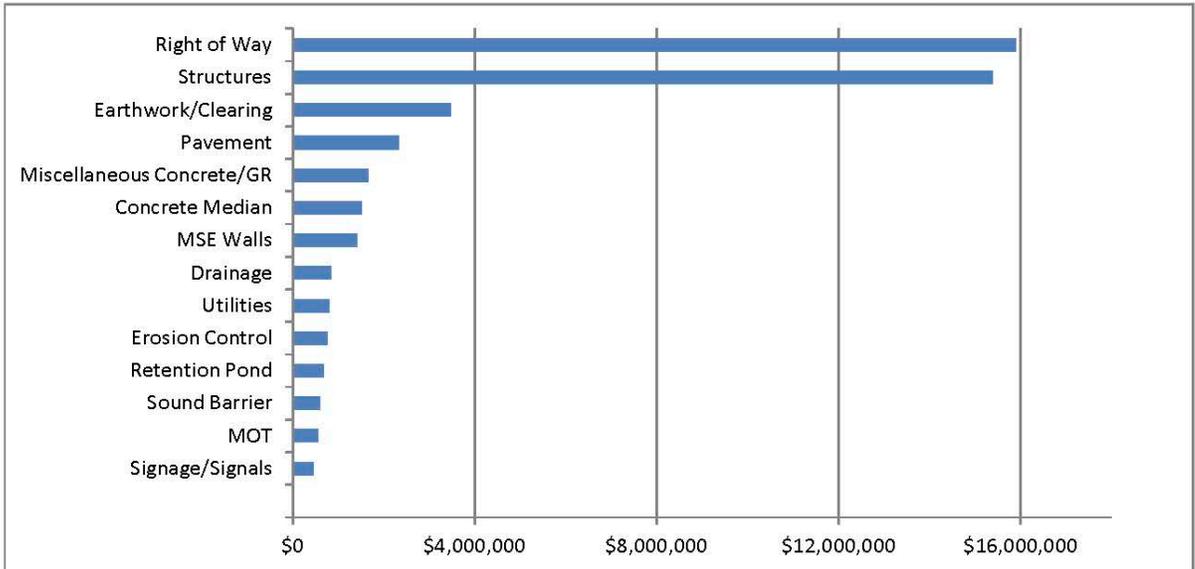
Name:	Position:	Notes:
Richard O'Hara	Environmental Services	Logical termini, 4f concerns

### Available Documents

Reference:	Reference:
Concept Report (Draft)	Concept Plans, Locally Preferred Alternative
Concept Construction Cost Estimate; March 31, 2014	Concept design information provided on disk

# Big Creek Parkway PI No. 0010874 City of Roswell/GDOT Concept Plan Estimate Cost Model

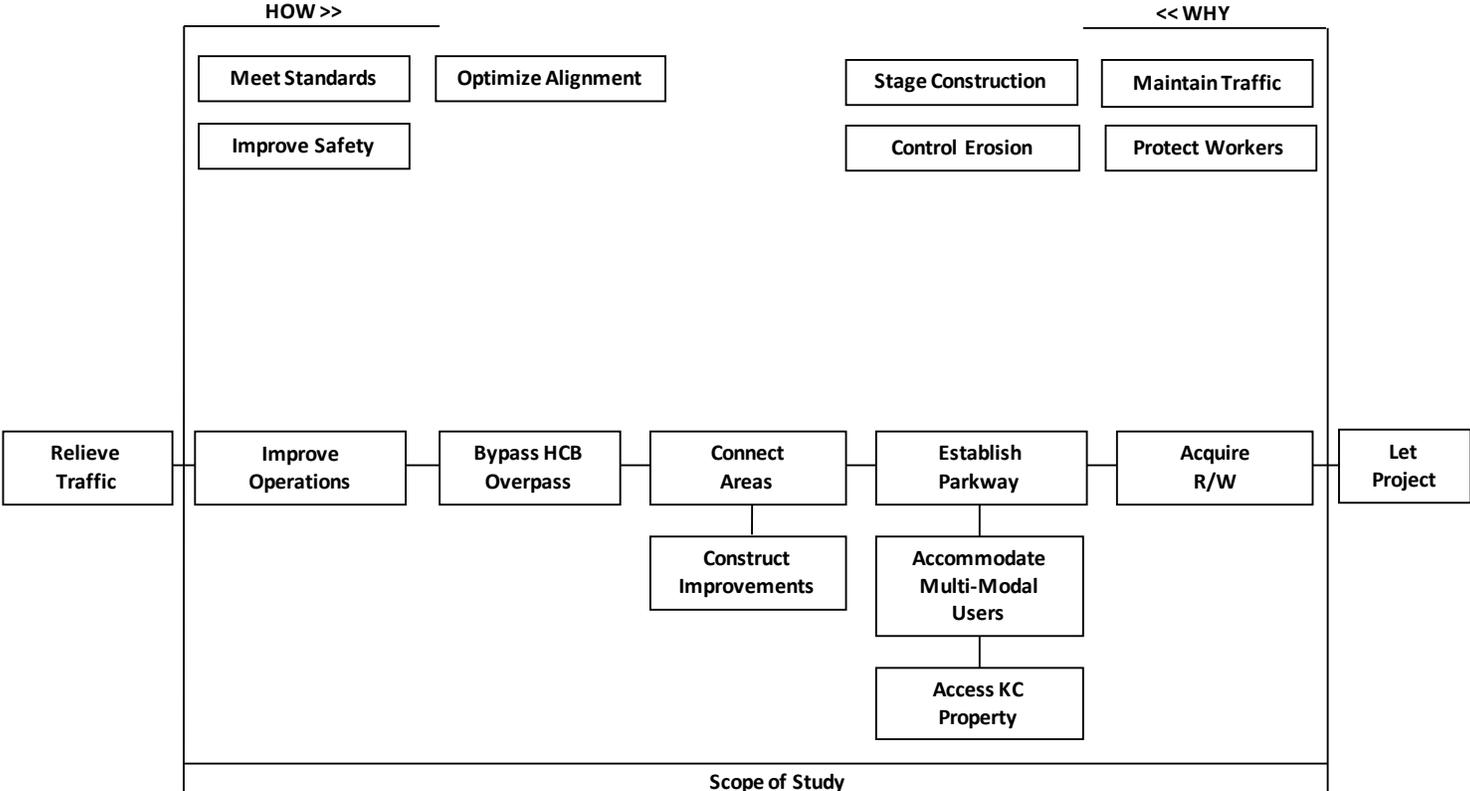
Project: Big Creek Parkway; City of Roswell PI No. : 0010874			
	Project Element	Cost	Percent
<b>A</b>	Right of Way	15,900,000	34.31%
<b>B</b>	Structures	15,390,000	33.21%
<b>C</b>	Earthwork/Clearing	3,470,798	7.49%
<b>D</b>	Pavement	2,337,146	5.04%
<b>E</b>	Miscellaneous Concrete/GR	1,646,235	3.55%
<b>F</b>	Concrete Median	1,511,406	3.26%
<b>G</b>	MSE Walls	1,414,587	3.05%
<b>H</b>	Drainage	835,528	1.80%
<b>I</b>	Utilities	800,000	1.73%
<b>J</b>	Erosion Control	761,342	1.64%
<b>K</b>	Retention Pond	680,000	1.47%
<b>L</b>	Sound Barrier	599,500	1.29%
<b>M</b>	MOT	552,553	1.19%
<b>N</b>	Signage/Signals	446,989	0.96%
	<b>Subtotal:</b>	46,346,084	100.00%
	<i>Engineering and Inspection: 5%</i>	1,482,304	
	<i>Construction Contingency: 15%</i>	4,446,913	
	<i>Liquid AC Adjustment</i>	1,435,814	
	<b>Total w/ Contingencies:</b>	53,711,115	Effective Mark-up: 24.84%



- 1 Element costs are not marked-up.
- 2 Costs based on Concept Estimate, prepared by GSP, March 31, 2014.
- 3 Effective Mark-up not applied to R/W and Utilities

# FAST DIAGRAM

## Big Creek Parkway PI No. 0010874



## INFORMATION PHASE – FUNCTION ANALYSIS

**Project:** Big Creek Parkway; PI No. 0010874

**Basic Function:** improve operations

ITEM No.	DESCRIPTION	FUNCTION		INITIAL DOLLARS		
		Verb	Noun	Cost	% of Total	Worth/ Save
<b>A</b>	<b>Right of Way</b>	store	project	\$15,900,000	34.31	Yes
		access	properties			
		preserve	residences			
		establish	template			
		accommodate	users			
		store	roundabout			
		maintain	improvements			
<b>B</b>	<b>Structures</b>	separate	grade	\$15,390,000	33.21	Yes
		connect	roads			
		improve	safety			
		follow	standards			
		reduce	impacts			
		connect	community			
		maintain	utilities			
		maintain	continuity/aesthetics			
		span	constraint			
		create	signature			
		obtain	permit			
		accommodate	movements			
<b>C</b>	<b>Earthwork/Clearing</b>	support	road/bridge	\$3,470,798	7.49	Yes
		establish	grade			
		follow	guidelines			
		establish	grade			
		support	load			
		drain	roadway			
		reduce	impacts			
		maintain	facility			
		clear	template			

## INFORMATION PHASE – FUNCTION ANALYSIS

**Project:** Big Creek Parkway; PI No. 0010874

**Basic Function:** improve operations

ITEM No.	DESCRIPTION	FUNCTION		INITIAL DOLLARS		
		Verb	Noun	Cost	% of Total	Worth/ Save
<b>D</b>	<b>Pavement</b>	upgrade	pavement	\$2,337,146	5.04	Yes
		improve	safety			
		improve	LOS			
		follow	standards			
		facilitate	movements			
		connect	movements			
		control	access			
		reduce	conflicts			
		eliminate	intersections			
		conform	complete streets			
		accommodate	peds/bike			
<b>E</b>	<b>Miscellaneous Concrete/GR</b>	control	access	\$1,646,235	3.55	No
		improve	operations			
<b>F</b>	<b>Concrete median</b>	separate	roadways	\$1,511,406	3.26	Yes
		follow	standard			
<b>G</b>	<b>MSE walls</b>	retain	embankment	\$1,414,587	3.05	Yes
		reduce	impacts			
		support	bridges			
		maintain	properties			
<b>H</b>	<b>Drainage</b>	convey	run-off	\$835,528	1.80	No
		discharge	run-off			
		address	deficiencies			
		follow	criteria			
<b>I</b>	<b>Utilities</b>	service	clients	\$800,000	1.73	No
		maintain	continuity			

## INFORMATION PHASE – FUNCTION ANALYSIS

**Project:** Big Creek Parkway; PI No. 0010874

**Basic Function:** improve operations

ITEM No.	DESCRIPTION	FUNCTION		INITIAL DOLLARS		
		Verb	Noun	Cost	% of Total	Worth/ Save
<b>J</b>	<b>Erosion Control</b>	control	run-off	\$761,342	1.64	Yes
		follow	criteria			
<b>K</b>	<b>Retention Pond</b>	obtain	permit	\$680,000	1.47	No
		mitigate	pollution			
<b>L</b>	<b>Sound Barrier</b>	deflect	sound	\$599,500	1.29	No
		follow	guidelines			
<b>M</b>	<b>MOT</b>	protect	motorists	\$552,553	1.19	No
		construct	project			
<b>N</b>	<b>Signage/Signals</b>	inform	motorists	\$446,989	0.96	No
		convey	information			
		control	users			

<b>CREATIVE PHASE Creative Idea Listing</b>		<b>JUDGMENT PHASE Idea Evaluation</b>	
<b>No.</b>	<b>CREATIVE IDEA</b>	<b>COMMENTS</b>	<b>IDEA RATING**</b>
<b>A</b>	<b>Right of Way</b>		
A-1	Revise roundabout to a TEE intersection	Roundabout is preferred alternate; no potential elimination of takings	X
A-2	Reduce width of multi-use trail to 10 feet		✓
A-3	Reduce width of multi-use trail at constraint points only	Use 8 feet wide on bridges	✓
A-4	Reduce 6 foot clear zone strip	Not applicable (6 “)	X
A-5	Eliminate on-road bike lanes		✓
A-6	Eliminate 5 foot buffer on trail side		✓
A-7	Eliminate 2 foot buffer on bridge		✓
A-8	Shift all trail users to north side; eliminate southside sidewalk	See A-10	✓
A-9	Separate trail at the bridge section	See A-10	✓
A-10	Break out multi-use trail on separate alignment		✓
A-11	Reduce bike lane width	See A-5	✓
A-12	Reduce multi-use trail width		✓
A-13	Shift roundabout to the south		✓
A-14	Use Worthington Hill Drive as Big Creek Parkway and City easement for trail	Multiple driveways on parkway; neighborhood affects	X
A-15	Use existing Big Creek Park driveway	Too lengthy and costly	X
A-16	Review Holcomb Woods Parkway improvements; reduce R/W width	Multiple options	✓
A-17	Shift west section of Big Creek Parkway toward homes	Will not eliminate takings	X
A-18	Reduce width of template of west section of Big Creek Parkway thru apartments	Will not eliminate takings	X

\*\* “✓” = idea developed further; “X”= idea dropped from further consideration; “DC” = design consideration

<b>CREATIVE PHASE Creative Idea Listing</b>		<b>JUDGMENT PHASE Idea Evaluation</b>	
<b>No.</b>	<b>CREATIVE IDEA</b>	<b>COMMENTS</b>	<b>IDEA RATING**</b>
A-19	Use new alignment over SR 400 through back of Kimberly Clark and Aspen Point apartments	Not enough room to eliminate impacts; bisects property	X
A-20	Use new alignment through northern section of Aspen Point apartments (rec area)		✓
A-21	Incorporate TEE intersection at Old Holcomb Bridge Road; eliminate loop		✓
A-22	Review Kimberly Clark displaced building and remaining access	Potential DC; access/driveway concerns	✓
A-23	Use Old Alabama as tie in; eliminate Holcomb Woods Parkway	DC; see A-16	✓
A-24	Extend trail to make complete tie-in to eastern section.	Potential DC	✓
<b>B</b>	<b>Structures</b>		
B-1	Review profile through flood plain	Adequate clearance	X
B-2	Reduce/eliminate amenity areas on bridge	Latest proposal already addressed	X
<b>C</b>	<b>Earthwork/Clearing</b>		
C-1	Revise sideslope from 4:1 to 2:1		✓
C-2	Reduce/eliminate retaining walls	Already optimized	X
C-3	Use steeper profile grade; reduce earthwork	Use at multiple locations	✓
C-4	Review profiles; use steeper		
<b>D</b>	<b>Pavement – See R/W</b>	No ideas generated	
<b>E</b>	<b>Miscellaneous Concrete/GR</b>	No ideas generated	

\*\* “✓” = idea developed further; “X”= idea dropped from further consideration; “DC” = design consideration

<b>CREATIVE PHASE Creative Idea Listing</b>		<b>JUDGMENT PHASE Idea Evaluation</b>	
<b>No.</b>	<b>CREATIVE IDEA</b>	<b>COMMENTS</b>	<b>IDEA RATING**</b>
<b>F</b>	<b>Concrete median</b>		
F-1	Reduce/eliminate work on Holcomb Woods Road	See A-16	✓
F-2	Re-use sidewalk on Holcomb Bridge Road	See A-16	✓
F-3	Review cost for median	DC; quantity and cost appear excessive	✓
F-4	Review Holcomb Bridge Road improvements at Warsaw intersection	Requirement to improve entire intersection operations	X
F-5	Review potential bridge median amenity area	Updated rendering does not include and raised bridge median	X
<b>G</b>	<b>MSE Walls</b>		
G-1	Review/reduce walls	See C-2	X
<b>H</b>	<b>Drainage</b>	No ideas generated	
<b>I</b>	<b>Utilities</b>	No ideas generated	
<b>J</b>	<b>Erosion Control</b>	No ideas generated	
<b>K</b>	<b>Retention Pond</b>	No ideas generated	
<b>L</b>	<b>Sound Barrier</b>	No ideas generated	
<b>M</b>	<b>MOT</b>	No ideas generated	
<b>N</b>	<b>Signage/Signals</b>	No ideas generated	

\*\* "✓" = idea developed further; "X" = idea dropped from further consideration; "DC" = design consideration

**VE ANALYSIS SIGN-IN SHEET**

Project No.: N/A County: Fulton PI No.: 0010874 Date: May 12-15, 2014

Days

LAST FIRST	NAME	GDOT OFFICE OR COMPANY NAME	PHONE NUMBER	EMAIL ADDRESS
X	Robert Reid Jr.	Engineering Services	404-631-1754	rreid@dot.ga.gov
X	Matt Sanders	Engineering Services	404-631-1752	msanders@dot.ga.gov
X	Ken Werho	Traffic Operations	404-635-8144	kwerho@dot.ga.gov
O	Robert Murphy	OPD	404-631-1586	romurphy@dot.ga.gov
X	George Obaranec	AMEC	770-421-3346	george.obaranec@amec.com
X	Jeff Van Dyke	RS&H	678-528-7234	jeff.vandyke@rsandh.com
X	Rob Dell-Ross	City of Roswell	770-594-6292	rdellross@roswellgov.com
X	Sebastian Nesbitt	GDOT- Construction	770-528-3238	snesbitt@dot.ga.gov
X	Percy Combay	GDOT- Construction	770-528-3232	pcombay@dot.ga.gov
X	Steve Linley	HMM	770-335-1428	Steve.Linley@hatchmott.com
X	Greg Grant	RS&H	678-429-7501	greg.grant@rsandh.com
X	Shun Pringle	GDOT-Construction	770-986-1414	springle@dot.ga.gov
X	Lily Manavi	GDOT - TEA Maintenance	404-631-1382	lmanavi@dot.ga.gov
X	Glenn Bowman	Director of Preconstruction	404-631-1519	gbowman@dot.ga.gov
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X	Albert Shelby	OPD	404-631-1758	ashelby@dot.ga.gov
X	Jay Bockisch	GS&P	770-754-0755	jay_bockisch@gspnet.com
X	Eric Rickert	GS&P	770-754-0755	eric_rickert@gspnet.com
O	Gerald McDaniel	OPD	229-529-0323	gmcDaniel@dot.ga.gov

Place an "X" for all who attend "O" = Did Not Attend 17 Attended Project Overview (Day 1) 13 Attended Project Presentation (Day 4)