

## VALUE ENGINEERING REPORT

**Johnson Ferry Road and Glenridge Drive Connector Improvements  
City of Sandy Springs, Fulton County  
STP00-9252-00(007), PI No. 751420  
COSS Project No. T-0011**

September 27, 2011

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PROJECT SPONSOR:



City of Sandy Springs  
7840 Roswell Road  
Building 500  
Sandy Springs, GA 30350

OWNER:



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

VALUE ENGINEERING CONSULTANT:



**AMEC E&I, Inc.**  
3200 Town Point Drive NW, Suite 100  
Kennesaw, GA 30144

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## **EXECUTIVE SUMMARY**

# Executive Summary

## VALUE ENGINEERING STUDY

### Johnson Ferry Road and Glenridge Drive Connector Improvements City of Sandy Springs, Fulton County STP00-9252-00(007) September 12 – 15, 2011

#### Introduction

This report presents the results of a value engineering (VE) study conducted on the proposed design for traffic operation and pedestrian improvements along Johnson Ferry Road, Sandy Springs Circle, Roswell Road, and Mount Vernon Highway in the City of Sandy Springs. This project is part of a larger project to upgrade a 2.2-mile section of Johnson Ferry Road through the City of Sandy Springs. This project involves improving approximately 1,500 feet of Roswell Road, 700 feet of Mount Vernon Highway, and 1,500 feet of Johnson Ferry Road. It will widen Johnson Ferry Road between Sandy Springs Circle and Roswell Road, eliminate the one-way pair alignment on Johnson Ferry Road / Mount Vernon Highway east of Roswell Road, and upgrade Roswell Road from Sandy Springs Circle to south of Mount Vernon Highway. This project will also construct two roundabouts on the east end of the project to access Boylston Drive and connect to Mount Vernon Highway and Johnson Ferry Drive on the east end of the project.

Major contract work items include roadway widening, asphalt pavement, signal modification, sidewalk construction, and drainage modification. This project has an estimated construction cost of \$2.865 million and an estimated right-of-way (R/W) cost of \$14.4 million. The study took place September 12-15, 2011, at the Georgia Department of Transportation (GDOT) in Atlanta, GA, using a three-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** section contains information about the project and the team. The **Recommendations** section presents a more detailed description and support information about each recommendation. The **Appendix** includes a complete record of the Team's activities and findings. The reader is encouraged to review all sections of the report in order to obtain a complete understanding of the VE process.

#### Considerations

The VE team was presented with several constraints to consider when developing their recommendations. The constraints were; to maintain two-lane roadways through the residential areas on the east and west ends of the project, to maintain the dual roundabout concept on the east end of the project, and to maintain the proposed design for the Sandy Springs Circle / Johnson Ferry Road intersection (separate project).

Current project status: The Draft Project Concept Report has been prepared. The Draft Environmental Assessment should be complete by December 2011 and the Final Environmental Assessment should be complete by the end of 2012. The City of Sandy Springs is acquiring the R/W for this project. Right-of-way acquisition is scheduled for 2012 / 2013 and construction is scheduled for 2013.

## **Results Obtained**

The VE team focused their efforts on the high cost items of the project. Through the use of functional analysis and “brain storming” techniques, the team generated 24 ideas with 14 being identified for additional evaluation as possible recommendations or design suggestions. The VE team developed nine independent recommendations and one alternative recommendation. Implementation of the nine independent recommendations has the potential to reduce the project cost by approximately \$4.01 million. A detailed write-up of each recommendation is contained in the respective portion of this report. A summary of the recommendations follows.

## **Recommendation Highlights**

### **Idea A-2: Combine the dual roundabouts into a single large oval roundabout and shift the eastern roundabout approximately 75 feet to the west.**

The original design constructs two roundabouts on the eastern end of the project. One at Boylston Drive and the second one at the Johnson Ferry Road / Mount Vernon Highway split. The northeastern quadrant of the eastern roundabout encroaches on the parking area of an adjacent business and requires R/W from the Library and the relocation of a Historic Marker.

This recommendation consolidates the two roundabouts by shifting the eastern roundabout approximately 75 closer to the western roundabout and closing the inner circular turning movements. This concept eliminates the damages to the existing commercial parking area, shifts the driveway from this business further away from the Mount Vernon Highway entrance into the roundabout, and provides more space in the library quadrant area.

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

### **Idea A-4: Shift Johnson Ferry Road alignment south and avoid taking R/W from the strip mall on the north side.**

The original alignment for Johnson Ferry Road impacts parcels on the north and south side of the roadway in the vicinity of the Target shopping center. Much of this shopping center has been acquired by the City of Silver Springs with the remaining parcels to be acquired in the future.

This recommendation shifts the Johnson Ferry Road alignment south so only parcels on the south side of the road are impacted. Shifting the alignment south eliminates property impacts to the

business on the north side and the need to remove the large trees along the roadway. Acquiring all R/W from the south side should not significantly impact the City's site plan for this area and will save R/W cost since the City already owns this property.

*The total potential savings is \$351,000.*

**Idea A-8: Construct a 12-foot center turn lane in-lieu-of a 14-foot center turn lane on Johnson Ferry Road to match the width of other center turn lanes.**

The original concept proposes to install a 14-foot center turn lane on Johnson Ferry Road between Sandy Springs Circle and Roswell Road. All other center turn lanes throughout the project area are less than 14 feet wide.

This recommendation would install a 12-foot center turn lane on Johnson Ferry Road. The reduction in width from 14 feet to 12 feet for this short section of Johnson Ferry Road is consistent with the adjoining turn lane sections and will result in R/W savings.

*The total potential savings is \$156,000.*

**Idea A-10: Eliminate the NB Roswell Road outside lane north of Johnson Ferry Road.**

The original design includes three NB lanes on Roswell Road north of Johnson Ferry Road with the outside lane ending in a right turn into the strip mall shopping area across from the Sandy Springs Circle intersection. Adding this NB lane requires additional R/W and the relocation of two large electrical utility lines.

This recommendation eliminates the outside Roswell Road NB lane between Johnson Ferry Road and Sandy Springs Circle. This short lane does not continue past the Sandy Springs Circle intersection. Removing this outside lane and maintaining the current east side curb and gutter line eliminates the need to relocate two large electrical high voltage power lines. Eliminating the relocation of these facilities will reduce the cost and eliminate potential delays while the utilities are being relocated.

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

**Idea A-11: Acquire all R/W for the proposed six-lane Roswell Road section and its intersection approach sections from the west side of existing Roswell Road.**

The original design widens Roswell Road from five lanes to six lanes between Johnson Ferry Road and Mount Vernon Highway. It also widens the NB and SB approaches to the new six-lane section. This concept requires R/W acquisition from both sides of Roswell Road and would impact the large electrical utilities on the east side of the roadway.

This recommendation would acquire all R/W for widening Roswell Road to six-lanes from only the west side of Roswell Road. This concept maintains the existing east side curb and gutter

line. Eliminating any Roswell Road widening on the east side will allow the two electrical utility lines to remain in-place thereby reducing project cost and project development / construction time.

*The total potential savings is \$725,000.*

**Idea B-1 Eliminate the SB Roswell Road left turn at Mount Vernon Highway and use the lane for additional NB left turn lane storage at Johnson Ferry Road.**

The original design widens Roswell Road from five lanes to six lanes between Johnson Ferry Road and Mount Vernon Highway. Half of the new lane would function as a SB Roswell Road left turn lane at Mount Vernon Highway and the second half would function as a second NB Roswell Road left turn lane at Johnson Ferry Road.

This recommendation eliminates the SB Roswell Road left turn lane at Mount Vernon Highway portion and converts the space to expanded storage at the second NB Roswell Road left turn lane at Johnson Ferry Road. The SB left turn at Mount Vernon Highway movement appears to be a hold-over from the current traffic pattern which is dictated by the one-way alignment. This concept provides approximately 150 feet of additional NB left turn lane storage at Johnson Ferry Road. This recommendation does not address the issue of acquiring R/W on the east side of Roswell Road and its impact on the large utility poles next to the existing curb and gutter line. That issue is discussed in Recommendation A-11.

*The total potential savings is \$0.*

**Idea B-2: Eliminate the SB Roswell Road left turn lane at Mount Vernon Highway and make Roswell Road 5-lanes wide with a single NB left turn lane at Johnson Ferry Road.**

The original design widens Roswell Road from five lanes to six lanes between Johnson Ferry Road and Mount Vernon Highway. Half of the new lane would function as a SB Roswell Road left turn lane at Mount Vernon Highway and the second half would function as a second NB Roswell Road left turn lane at Johnson Ferry Road.

This recommendation eliminates the SB Roswell Road left turn lane at Mount Vernon Highway and reduces the reconstructed width of Roswell Road to five lanes. This concept eliminates the double NB left turn lane at Johnson Ferry Road and maintains the existing east side curb and gutter line. Eliminating the additional turn lane and prohibiting SB left turns at Mount Vernon Highway allows the entire center turn lane to function as a NB left turn lane at Johnson Ferry Road. Eliminating the 250-foot sixth lane and its required approach lane shifts to the north and south will reduce the roadway footprint and its associated R/W impacts.

*The total potential savings is \$1,196,000.*

**Idea B-2.1: Alternative to Idea B-2 Eliminate the Roswell Road SB and NB left turns at Mount Vernon Highway and make Roswell Road 5-lanes wide with an extended single NB left turn lane at Johnson Ferry Road.**

The original design widens Roswell Road from five lanes to six lanes between Johnson Ferry Road and Mount Vernon Highway. Half of the new lane would function as a SB Roswell Road left turn lane at Mount Vernon Highway and the second half would function as a second NB Roswell Road left turn lane at Johnson Ferry Road.

This recommendation prohibits SB and NB left turns at Mount Vernon Highway and reduces the reconstructed width of Roswell Road to five lanes. It provides a single NB left turn lane at Johnson Ferry Road and maintains the existing east side curb and gutter line. Prohibiting NB left turns at Mount Vernon Highway allows this area to be used for additional storage for the NB left turn at Johnson Ferry Road. It is assumed that most of the left turning vehicles at Mount Vernon Highway are ultimately destined to use Johnson Ferry road and are turning at Mount Vernon Highway to shortcut the left turn at Johnson Ferry Road. Eliminating left turns in both directions at Mount Vernon Highway may require some additional signage especially for the NB movement.

*The total potential savings is \$1,176,000.*

**Idea I-6: Construct a 6-foot sidewalk with a 3-foot grass area in-lieu-of a 9-foot sidewalk with 3-foot grass area.**

The original concept proposes to install 9-foot-wide sidewalks with a 3-foot-wide grass strip on Roswell Road and Johnson Ferry Road from Sandy Springs Circle to Roswell Road.

This recommendation would construct 6-foot-wide sidewalks with 3-foot-wide grass strips in-lieu-of 9-foot-wide sidewalks with 3-foot-wide grass strips throughout the project. The function of sidewalks to provide pedestrian access and connect to existing adjacent sidewalk sections can be accomplished through the installation of 6-foot-wide sidewalks.

*The total potential savings is \$731,000.*

**Idea I-7: Construct a 2-foot brick area in-lieu-of a 3-foot grass area between the sidewalk and the curb & gutter.**

The original concept proposes to install 6-foot and / or 9-foot sidewalks with 3-foot grass strips throughout the project.

The revised concept would install a 2-foot-wide brick strip in-lieu-of the 3-foot-wide grass strip for both 6-foot and 9-foot-wide sidewalks. The 2-foot brick strip will provide separation between pedestrians and roadway traffic and use the same concept that has been constructed on Roswell Road south of this project.

*The total potential savings is \$202,000.*

## Johnson Ferry Road and Glenridge Drive Connector Improvements

### SUMMARY OF POTENTIAL COST SAVINGS

ITEM No.	CREATIVE IDEA DESCRIPTION	ORIGINAL INITIAL COST	PROPOSED INITIAL COST	INITIAL COST SAVINGS	FUTURE SAVINGS	TOTAL LIFE CYCLE SAVINGS
<b>RECOMMENDATIONS</b>						
A-2	Combine the dual roundabouts into a single large oval roundabout and shift the eastern roundabout approximately 75 feet to the west.	\$136,000	\$0	\$136,000	N/A	\$136,000
A-4	Shift Johnson Ferry Road alignment south and avoid taking R/W from the strip mall on the north side.	\$351,000	\$0	\$351,000	N/A	\$351,000
A-8	Construct a 12-foot center turn lane in-lieu-of a 14-foot center turn lane on Johnson Ferry Road to match the width of other center turn lanes.	\$156,000	\$0	\$156,000	N/A	\$156,000
A-10	Eliminate the Roswell Road NB outside lane north of Johnson Ferry Road.	\$1,000,000	\$0	\$1,000,000	N/A	\$1,000,000
A-11	Acquire all the R/W for the proposed six-lane Roswell Road section & the intersection approach sections from the west side of the existing roadway.	\$1,138,000	\$413,000	\$725,000	N/A	\$725,000
B-1	Eliminate the SB Roswell Road left turn movement at Mount Vernon Highway and use the lane for additional NB left turn lane storage at Johnson Ferry Road. (Assumes equal R/W split on both sides)	\$0	\$0	\$0	N/A	\$0

## Johnson Ferry Road and Glenridge Drive Connector Improvements

### SUMMARY OF POTENTIAL COST SAVINGS

ITEM No.	CREATIVE IDEA DESCRIPTION	ORIGINAL INITIAL COST	PROPOSED INITIAL COST	INITIAL COST SAVINGS	FUTURE SAVINGS	TOTAL LIFE CYCLE SAVINGS
	<b>RECOMMENDATIONS (Continued)</b>					
B-2	Eliminate the SB Roswell Road left turn lane at Mount Vernon Highway and make Roswell Road 5-lanes wide with a single NB left turn lane at Johnson Ferry Road.	\$1,196,000	\$0	\$1,196,000	N/A	\$1,196,000
B-2.1	<b>Alternative to Idea B-2</b> Eliminate the Roswell Road SB and NB left turns at Mount Vernon Highway and make Roswell Road 5-lanes wide with an extended single NB left turn lane at Johnson Ferry Road.	\$1,196,000	\$20,000	\$1,176,000	N/A	\$1,176,000
I-6	Construct a 6-foot sidewalk with a 3-foot grass area in-lieu-of a 9-foot sidewalk with 3-foot grass area.	\$731,000	\$0	\$731,000	N/A	\$731,000
I-7	Construct a 2-foot brick area in-lieu-of a 3-foot grass area between the sidewalk and the curb & gutter.	\$388,000	\$186,000	\$202,000	N/A	\$202,000

## **STUDY IDENTIFICATION**

## Study Identification

<b>Project:</b> Johnson Ferry Road and Glenridge Drive Connector Improvements	<b>Date:</b> September 12 – 15, 2011
<b>Location:</b> City of Sandy Springs, Fulton County, Georgia	

### VE Team Members

Name:	Title:	Organization:	Telephone:
George Obaranec, PE, CVS	Highway Design	AMEC	770-421-3346
Steven Gaines, PE, AVS	Highway Construction	Wolverton & Associates	770-447-8999
Keith Borkenhagen, PE, CVS	VE Team Facilitator	AMEC	623-556-1875

### Project Description

This project is part of a larger project to upgrade a 2.2-mile section of Johnson Ferry Road through the City of Sandy Springs. This project involves improving approximately 1,500 feet of Roswell Road, 700 feet of Mount Vernon Highway, and 1,500 feet of Johnson Ferry Road. It will widen Johnson Ferry Road between Sandy Springs Circle and Roswell Road, eliminate the one-way pair alignment on Johnson Ferry Road / Mount Vernon Highway east of Roswell Road, and upgrade Roswell Road from Sandy Springs Circle to south of Mount Vernon Highway. This project will also construct two roundabouts on the east end of the project to access Boylston Drive and connect to Mount Vernon Highway and Johnson Ferry Drive on the east end of the project. Major contract work items include roadway widening, asphalt pavement, signal modification, sidewalk construction, and drainage modification. This project has an estimated construction cost of \$2.865 million and an estimated right-of-way (R/W) cost of \$14.4 million.

### Project Conditions and Constraints

The VE team was presented with several conditions / constraints to consider when developing their recommendations. The constraints were:

- to maintain two-lane roadways through the residential areas on the east and west ends of the project,
- to maintain the dual roundabout concept on the east end of the project, and
- to maintain the proposed design for the Sandy Springs Circle / Johnson Ferry Road intersection (separate project).

## **Project Briefing**

The VE team received a project briefing by Mr. Albert Shelby, PE, Project Manager and Mr. Edward Culican Jr., PE, from Jacobs, project design consultant. The following comments were presented:

- This project is sponsored and being developed by the City of Sandy Springs. The project will reconstruct Johnson Ferry Road through the city. It will eliminate the one-way pair on Johnson Ferry Road / Mount Vernon Highway east of Roswell Road.
- The reconstruction of the Johnson Ferry Road / Sandy Springs Circle intersection is in a separate contract. The alignment / reconstruction of this intersection should be considered as fixed.
- The various alignment alternatives (1A, 1B, 2A, and 2B) have been presented to the city and the public. The preferred alignment is a modified alternative 2B containing a dual roundabout on the east end with a three-lane Johnson Ferry Road and a three-lane Mount Vernon Highway entering / exiting the west roundabout.
- This project has Federal funds set-a-side to acquire R/W. The city will acquire the R/W for this project. R/W cost exceeds \$14,000,000.
- The preferred alternative has a dual roundabout on the east side, and is subject to a peer review by another GDOT consultant. The peer review is expected to be performed within 2 to 3 months.
- A VISSIM analysis has been made of the dual roundabout alignment and the results indicate it will operate effectively with a level of service (LOS) of A.
- The City of Sandy Springs has proposed to install 9-foot sidewalks with 3-foot grass areas through-out the project. These larger sidewalks will be constructed on Johnson Ferry Drive and Roswell Road. Sidewalks on the east side of Roswell Road will be six feet wide.
- This project does not have any bike lanes. The travel lanes have been reduced to 11-foot lanes throughout the project to minimize the project footprint.
- The project concept is acceptable with SHPO. The city / design consult is working with the FHWA to get approval to prepare a Categorical Exclusion Report for this project.
- The City has acquired the old Target Shopping area and is also considering acquiring the remaining properties in that block area to construct its City Hall.

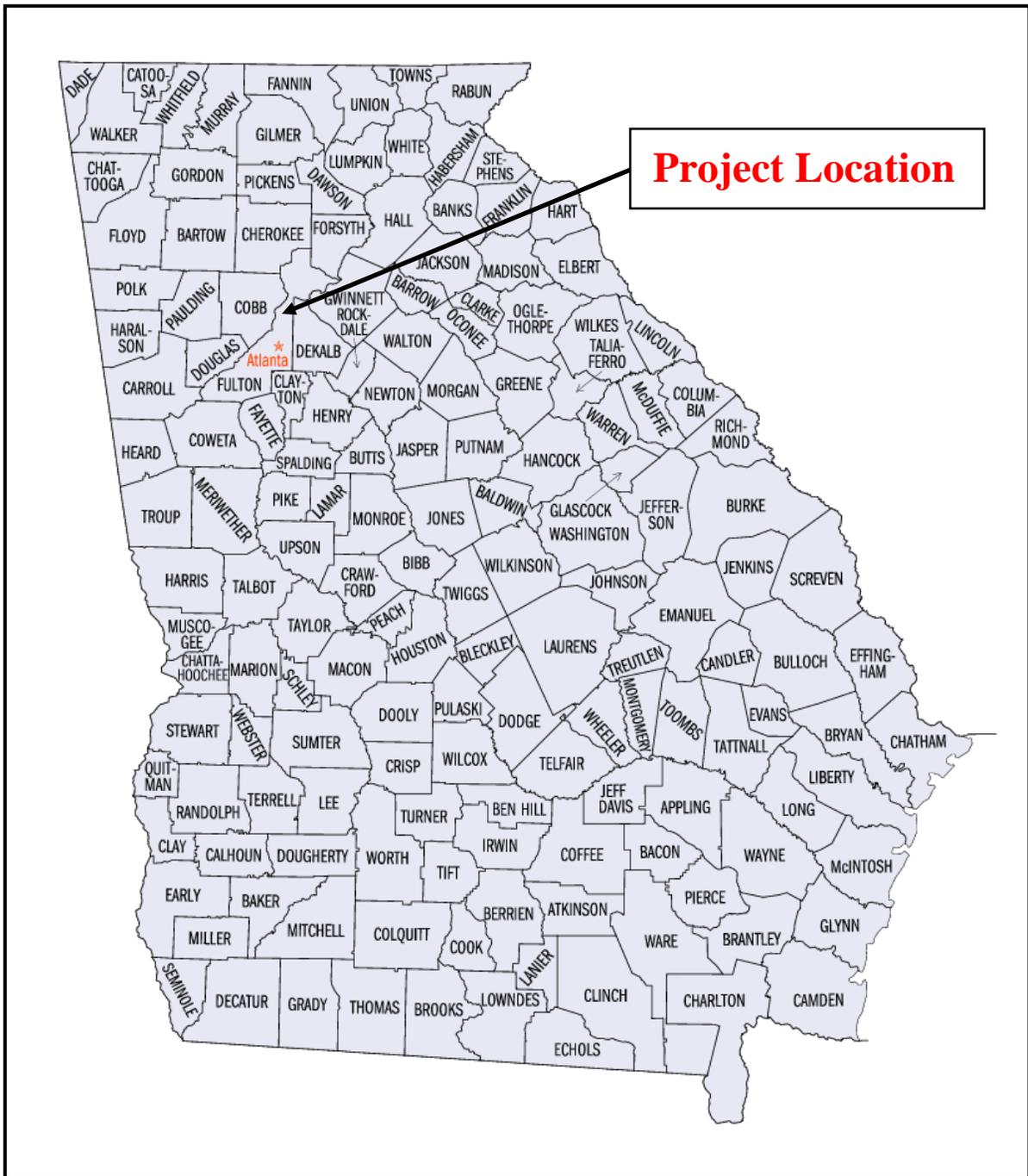
## **Project Site Visit**

Prior to beginning the study, the VE team visited the project site. The following items were observed and discussed:

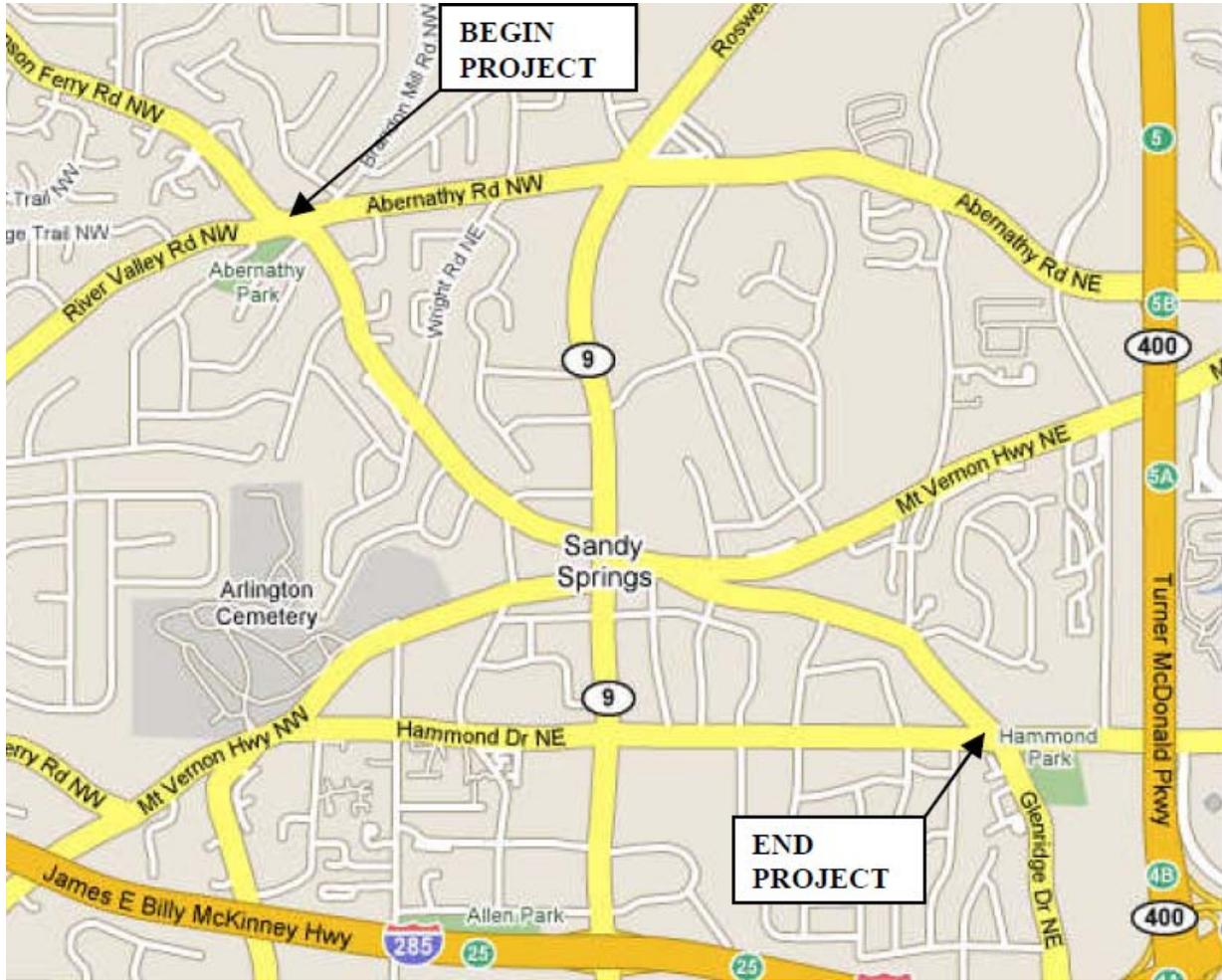
- The existing lane widths on Roswell Road, Mount Vernon Highway, and Johnson Ferry Road are narrow, in some areas less than 11 feet.
- Johnson Ferry Road on the west side of the project has been upgraded recently. It is a new two-lane road with 24-inch curb and gutter and sidewalks on both sides. Johnson Ferry Road on the east side is a narrow two-lane road with granite curbs and a sidewalk on one side.

- Two large electrical power lines run alongside the existing Roswell Road northbound curb line. Any widening and reconstruction work on Roswell Road requiring new R/W on the east side will impact these power lines and require them to be relocated. The widening of Roswell Road to six lanes between Mount Vernon Highway and Johnson Ferry Road will likely require these power lines to be relocated.
- The city has constructed 6-foot sidewalks with a 2-foot brick edge alongside the curb and gutter on many of the roads south of this project. This concept appears to be the sidewalk of choice on Roswell Road south of the project.
- Access to and from the existing business (auto repair) in the triangular area between Johnson Ferry Road and Mount Vernon Highway leading into the western roundabout is likely to have an adverse impact on traffic entering and exiting the roundabout. This business also has significant on-street parking which will have to be reviewed and adjusted to provide proper access / egress through the roundabout.

# Project Sketch Map



## Project Location Map



## **VE RECOMMENDATIONS**

## DEVELOPMENT AND RECOMMENDATION PHASE

### Project: Johnson Ferry Road and Glenridge Drive Connector Improvements

<b>IDEA No.:</b> A-2	<b>Sheet No.:</b> 1 of 4	<b>CREATIVE IDEA:</b> Combine the dual roundabouts into a single large oval roundabout and shift the eastern roundabout approximately 75 feet to the west.
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Comp By: G.A.O. Date: 9/13/2011 Checked By: K.B. Date: 9/24/2011

**Original Concept:**

The original design would construct two roundabouts on the eastern end of the project. One would be located at Boylston Drive and the second one at the Johnson Ferry Road / Mount Vernon Highway split. The northeastern quadrant of the eastern roundabout encroaches on the parking area (requiring up to 5 spaces) of an adjacent business. It also requires R/W from the Library and the relocation of a Historic Marker.

**Proposed Change:**

This recommendation would consolidate the two roundabouts by closing the two inner circular turning movements and shifting (to the west) the eastern roundabout approximately 75 closer to the other roundabout.

**Justification:**

Consolidating the roundabouts will eliminate the damages to the existing commercial parking area. It will also shift the driveway from this business further away from the Mount Vernon Highway entrance into the roundabout. Shifting the roundabout to the west will provide more space at the library quadrant, potentially saving the historic marker and creating a pocket park to better display it. The marker will still have to be protected and / or temporarily relocated during construction.

Consolidating the roundabouts will keep the same general alignments of the eastern approaches of Johnson Ferry Road and Mount Vernon Hwy as the original design.

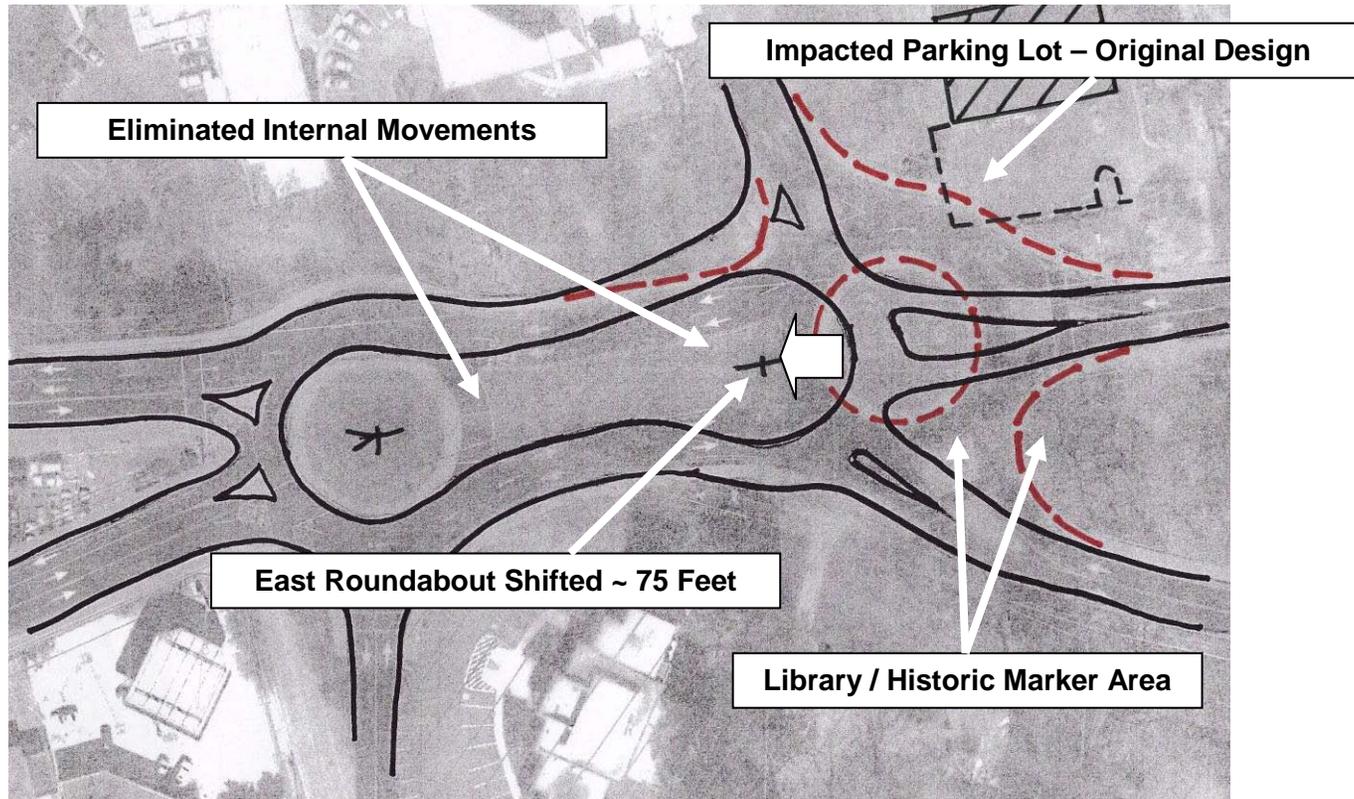
COST SUMMARY	INITIAL COST	FUTURE COST	TOTAL L. C. COST SAVINGS
<b>Original</b>	\$136,000		
<b>Proposed</b>	\$0		
<b>Savings</b>	\$136,000		\$136,000
<b>FUTURE COST: – Savings</b>		N/A	N/A
<b>TOTAL PRESENT WORTH SAVINGS</b>			<b>\$136,000</b>

## SKETCH

**Project:** Johnson Ferry Road and Glenridge Drive Connector Improvements

Idea No.: A-2

Client: City of Sandy Springs, GDOT  
Sheet 2 of 4





## CALCULATIONS

**Project:** Johnson Ferry Road and Glenridge Drive  
Connector Improvements

Idea No.: A-2  
Client: City of Sandy Springs, GDOT  
Sheet 4 of 4

**Assumptions:**

Shifting the roundabout to the west will reduce the amount of R/W required from the commercial parking lot area. However, additional open area R/W will be required from the Vernon Towers senior home.

**Assumed reduced damages to commercial property parking area:**

5 parking spaces at \$10,000 per space.

$$5 \times \$10,000 = \$50,000$$

R/W acquisition factor:  $1.55 \times 1.6 = 2.48$

$$\$50,000 \times 2.48 = \$124,000 \quad \text{USE } \$124,000$$

**Road Pavement Costs:** 12.5 inches Asphalt on 12 inches GAB

$$(12.5 / 12 \text{ ft}) (150 \# / \text{CF}) (1 \text{ ton} / 2000 \#) = 0.078125 \text{ ton} / \text{SF}$$

$$(12 / 12 \text{ ft}) (135 \# / \text{CF}) (1 \text{ ton} / 2000 \#) = 0.0675 \text{ ton} / \text{SF}$$

Cost per SY:

$$(0.078125 \text{ ton} / \text{SF} \times 9 \text{ SF} / \text{SY} \times \$70 / \text{ton}) + (0.0675 \text{ ton} / \text{SF} \times 9 \text{ SF} / \text{SY} \times \$25.00 / \text{ton}) = \\ \$49.22 + \$15.19 = \$64.41 / \text{SY} \quad \text{Use: } \$65 \text{ per SY}$$

**Internal Loop Pavement:**

$$2 \times 50 \text{ ft} \times 16 \text{ ft} = 1,600 \text{ SF} / 9 = 178 \text{ SY}$$

## DEVELOPMENT AND RECOMMENDATION PHASE

**Project: Johnson Ferry Road and Glenridge Drive Connector Improvements**

<b>IDEA No.:</b> A-4	<b>Sheet No.:</b> 1 of 4	<b>CREATIVE IDEA:</b> Shift Johnson Ferry Road alignment south to avoid taking R/W from the Strip Mall on the north side.
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Comp By: S.G. Date: 9/15/2011 Checked By: K.B. Date: 9/15/2011

**Original Concept:**

The original concept proposes an alignment on Johnson Ferry Road that impacts parcels on the north and south side of the road in the vicinity of the Target shopping center. Much of this shopping center has been acquired by the City of Sandy Springs with the remaining parcels to be acquired in the future. The City will construct a new City Hall on this property.

**Proposed Change:**

The revised concept recommends shifting the Johnson Ferry Road alignment to the south so only parcels on the south side of the road are impacted.

**Justification:**

The function of improvements to Johnson Ferry Road is to reduce congestion and provide improved pedestrian facilities on both sides of the road. The original alignment requires the acquisition of R/W from both sides of the road. The City of Sandy Springs has recently purchased the Target shopping center for development as a new city hall.

Shifting the Johnson Ferry Road alignment to the south eliminates property impacts to the business on the north side. Not acquiring R/W from the north side will also eliminate the need to remove the large trees along the road.

Acquiring all the necessary R/W from the south side (an estimated 5-8 feet of additional R/W) of the roadway should not significantly impact the City's site plan for this area. The revised concept will result in R/W cost savings since the City is acquiring the R/W for this project and City owned property will not have to be acquired.

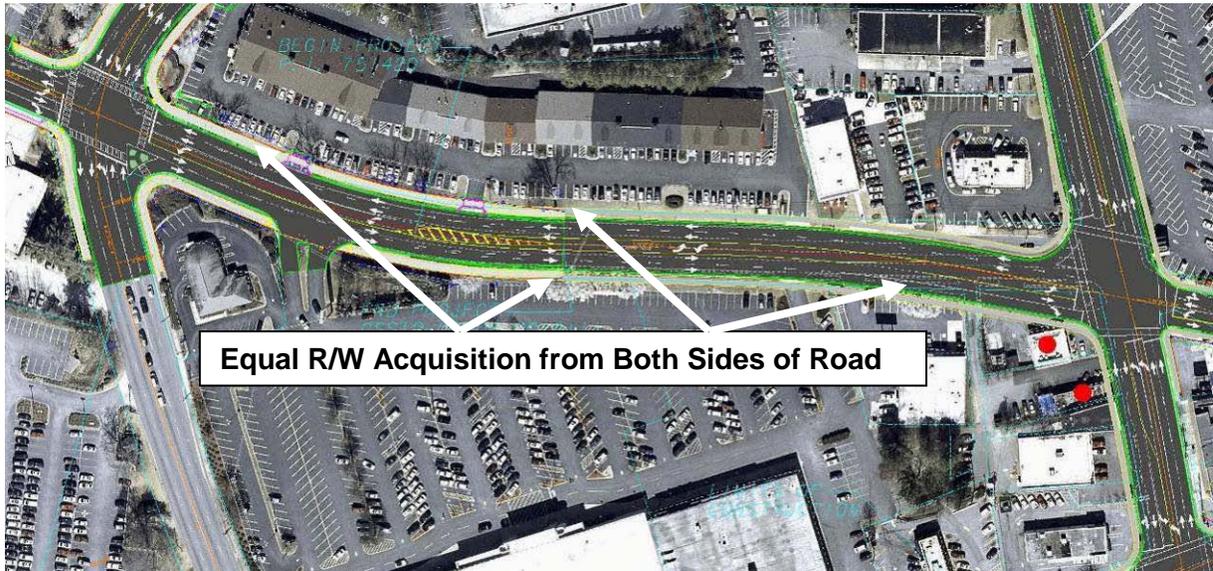
COST SUMMARY	INITIAL COST	FUTURE COST	TOTAL L. C. COST SAVINGS
<b>Original</b>	\$351,000		
<b>Proposed</b>	\$0		
<b>Savings</b>	\$351,000		\$351,000
<b>FUTURE COST: – Savings</b>		N/A	N/A
<b>TOTAL PRESENT WORTH SAVINGS</b>			<b>\$351,000</b>

# SKETCH

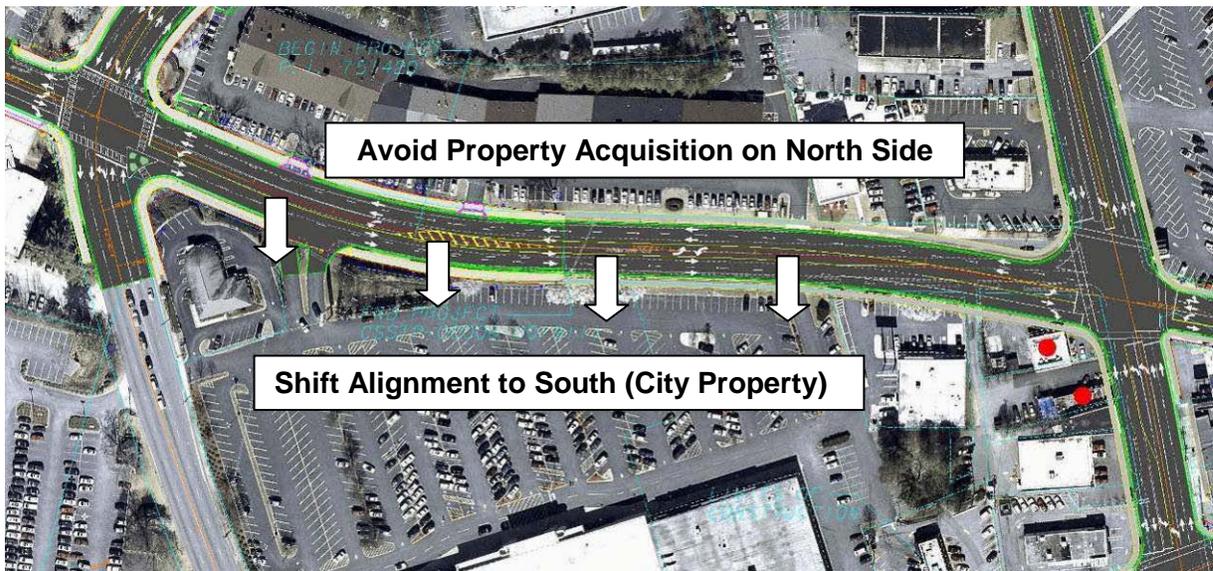
**Project:** Johnson Ferry Road and Glenridge Drive Connector Improvements

Idea No.: A-4  
Client: City of Sandy Springs, GDOT  
Sheet 2 of 4

## Original Concept



## Revised Concept





## CALCULATIONS

**Project:** Johnson Ferry Road and Glenridge Drive  
Connector Improvements

Idea No.: A-4  
Client: City of Sandy Springs, GDOT  
Sheet 4 of 4

### Assumptions

Average R/W Savings = 8 feet

Length of Johnson Ferry Rd Turn Lane - PI 751420 = 450 LF

Length of Johnson Ferry Rd Turn Lane - CSSTP-00006-00(911) = 250 LF

**RW Unit Cost** =  $(\$25.25 / \text{SF}) (1.55) (1.60) = \mathbf{\$62.62 / \text{SF}}$

### Original Concept

Additional R/W Area (751420) =  $(450 \text{ ft}) (8 \text{ ft}) = 3,600 \text{ SF}$

Additional R/W Area (600911) =  $(250 \text{ ft}) (8 \text{ ft}) = 2,000 \text{ SF}$

### Revised Concept

Additional R/W Area (751420) = 0 SF

Additional R/W Area (600911) = 0 SF

## DEVELOPMENT AND RECOMMENDATION PHASE

**Project: Johnson Ferry Road and Glenridge Drive Connector Improvements**

<b>IDEA No.:</b> A-8	<b>Sheet No.:</b> 1 of 4	<b>CREATIVE IDEA:</b> Construct a 12-foot center turn lane in-lieu-of a 14-foot center turn lane on Johnson Ferry Road to match the width of other center turn lanes.
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Comp By: S.G. Date: 9/15/2011 Checked By: K.B. Date: 9/15/2011

**Original Concept:**

The original concept proposes to install a 14-foot-wide center turn lane on Johnson Ferry Road between Sandy Springs Circle and Roswell Road. All other center and left turn lanes throughout the project area are less than 14 feet wide.

**Proposed Change:**

This recommendation would revise the center lane concept and install a 12-foot-wide center turn lane on Johnson Ferry Road between Sandy Springs Circle and Roswell Road.

**Justification:**

The original concept proposes a left turn lane width of 12 feet from Johnson Ferry Road WB to Roswell Road SB on the east side of Roswell Road. The originally proposed left turn lane from Johnson Ferry Road WB to Sandy Springs Circle SB included in the adjoining project also has a width of 12 feet. The reduction in width from 14 feet to 12 feet for the short section of Johnson Ferry Road from Sandy Springs Circle to Roswell Road is consistent with the adjoining sections and will result in R/W savings.

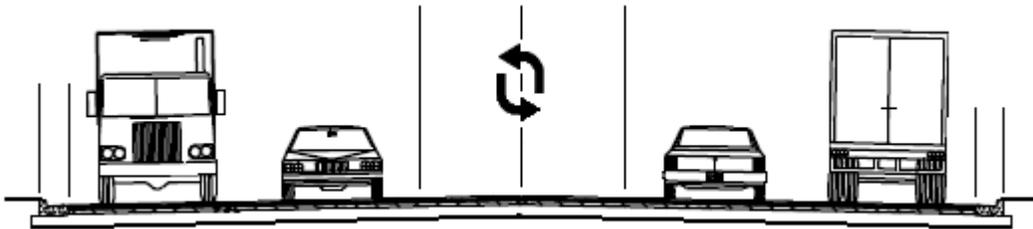
COST SUMMARY	INITIAL COST	FUTURE COST	TOTAL L. C. COST SAVINGS
<b>Original</b>	\$156,000		
<b>Proposed</b>	\$0		
<b>Savings</b>	\$156,000		\$156,000
<b>FUTURE COST: – Savings</b>		N/A	N/A
<b>TOTAL PRESENT WORTH SAVINGS</b>			<b>\$156,000</b>

# SKETCH

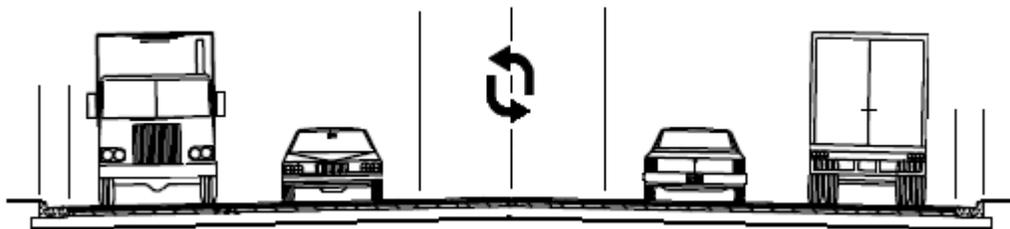
**Project:** Johnson Ferry Road and Glenridge Drive Connector Improvements

Idea No.: A-8  
Client: City of Sandy Springs, GDOT  
Sheet 2 of 4

## Original Concept Four 11-Foot Lanes & 14-Foot Center Turn Lane



## VE Concept Four 11-Foot Lanes & 12-Foot Center Turn Lane





## CALCULATIONS

**Project:** Johnson Ferry Road and Glenridge Drive  
Connector Improvements

Idea No.: A-8  
Client: City of Sandy Springs, GDOT  
Sheet 4 of 4

### Assumptions

Length of Johnson Ferry Rd Turn Lane - PI 751420 = 780 LF  
Length of Johnson Ferry Rd Turn Lane - CSSTP-00006-00(911) = 340 LF  
Pavement Cost = \$65 / SY  
RW Unit Cost = (\$25.25 / SF) (1.55) (1.60) = \$62.62 / SF

### Original Concept

Additional R/W Area (751420) = (780 ft) (2 ft) = 1,560 SF  
Additional R/W Area (600911) = (340 ft) (2 ft) = 680 SF  
Additional Pavement Area (751420) = (780 ft) (2 ft) = 1,560 SF / 9 = 173 SY  
Additional Pavement Area (600911) = (340 ft) (2 ft) = 680 SF / 9 = 76 SY

### Revised Concept

Additional R/W Area (751420) = 0 SF  
Additional R/W Area (600911) = 0 SF  
  
Additional Pavement Area (751420) = 0 SY  
Additional Pavement Area (600911) = 0 SY

## DEVELOPMENT AND RECOMMENDATION PHASE

**Project: Johnson Ferry Road and Glenridge Drive Connector Improvements**

<b>IDEA No.:</b> A-10	<b>Sheet No.:</b> 1 of 4	<b>CREATIVE IDEA:</b> Eliminate the Roswell Road NB outside lane north of Johnson Ferry Road.
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Comp By: G.A.O. Date: 9/13/2011 Checked By: K.B. Date: 9/24/2011

**Original Concept:**

The original design includes three NB lanes on Roswell Road north of Johnson Ferry Road with the outside lane ending in a right turn at the strip mall shopping area across from the Sandy Springs Circle intersection. Adding the additional outside NB lane requires the acquisition of additional R/W on the east side of Roswell Road where two large electrical utilities are located. This concept requires the relocation of these utilities.

**Proposed Change:**

This recommendation would eliminate the outside Roswell Road NB lane between Johnson Ferry Road and Sandy Springs Circle.

**Justification:**

This short outside lane does not continue past the Sandy Springs Circle intersection and therefore, is unlikely to improve the LOS on Roswell Road. This lane would primarily serve the east side shopping center. Constructing the outside NB lane on Roswell Road would require the relocation of a large electrical high voltage power line (Steel Poles) and electrical power line (Wood Poles) as seen in the photo below. The relocation of these facilities would increase the cost of the project and could delay the project while the utilities are being relocated. Adding this NB lane would also require additional R/W for its construction.

COST SUMMARY	INITIAL COST	FUTURE COST	TOTAL L. C. COST SAVINGS
<b>Original</b>	\$1,000,000		
<b>Proposed</b>	\$0		
<b>Savings</b>	\$1,000,000		\$1,000,000
<b>FUTURE COST: – Savings</b>		N/A	N/A
<b>TOTAL PRESENT WORTH SAVINGS</b>			<b>\$1,000,000</b>

## SKETCH

**Project:** Johnson Ferry Road and Glenridge Drive  
Connector Improvements

Idea No.: A-10  
Client: City of Sandy Springs, GDOT  
Sheet 2 of 4



## COST WORKSHEET

**Project:** Johnson Ferry Road and Glenridge Drive Connector Improvements

Idea No.: A-10  
Sheet 3 of 4

CONSTRUCTION ELEMENT		ORIGINAL ESTIMATE			NEW ESTIMATE		
Item	Unit	No. Units	Cost/Unit	Total Cost	No. Units	Cost/Unit	Total Cost
<b>Original Design:</b>							
Asphalt Pavement & GAB	SY	733.3	\$65.00	\$47,665			
Unclassified Excavation	CY	1,800	\$5.50	\$9,900			
Sidewalk	SY	600	\$46.00	\$27,600			
R/W	SF	7,800	\$62.62	\$488,436			
Sod	SY	200	\$5.75	\$1,150			
Relocate HV Steel Power Line	each	3	\$125,000	\$375,000			
Relocate Wood Power Line	LS	1	\$50,000	\$50,000			
<b>VE Design:</b>							
Asphalt Pavement & GAB	SY				0		\$0
Unclassified Excavation	CY				0		\$0
Sidewalk	SY				0		\$0
R/W	SF				0		\$0
<b>SUBTOTAL</b>				<b>\$999,751</b>			<b>\$0</b>
<b>TOTAL ROUNDED</b>				<b>\$1,000,000</b>			<b>\$0</b>

## CALCULATIONS

**Project:** Johnson Ferry Road and Glenridge Drive  
Connector Improvements

Idea No.: A-10  
Client: City of Sandy Springs, GDOT  
Sheet 4 of 4

**Assumptions:**

- 9-foot sidewalk on 16-foot shoulder
- 6-foot sidewalk on 14-foot shoulder
- 2-foot Brick Edging next to sidewalk @ \$15 / SF (per State estimating section)

**Current Design:**

Outside NB Lane on Roswell Road

- NB Lane =  $600 \text{ ft} \times 11 \text{ ft} = 6,600 \text{ SF} / 9 = 733.3 \text{ SY}$  Roadway
- Sidewalk =  $600 \text{ ft} \times 9 \text{ ft} = 5,400 \text{ SF} / 9 = 600 \text{ SY}$  Sidewalk
- R/W =  $600 \text{ ft} \times (11 \text{ ft} + (16 \text{ ft} - 14 \text{ ft})) = 7,800 \text{ SF}$
- Grass Area =  $600 \text{ ft} \times 3 \text{ ft} = 1,800 \text{ SF} / 9 = 200 \text{ SY}$
- Unclassified Excavation =  $(11 \text{ ft} + 16 \text{ ft}) \times 600 \text{ ft} \times 3 \text{ ft} = 48,600 \text{ CF} / 27 = 1,800 \text{ CY}$
- Relocate large steel high voltage power poles = Assume \$125,000 ea x 3 = \$375,000
- Relocate wood power poles = Assume \$50,000

**VE Design:**

- Roadway = 0 SF
- Sidewalk = 0 SY
- R/W = Use Existing

**Widening Road Pavement Costs:** 12.5 inches Asphalt on 12 inches GAB

$$(12.5 / 12 \text{ ft}) (150 \# / \text{CF}) (1 \text{ ton} / 2000 \#) = 0.078125 \text{ ton} / \text{SF}$$

$$(12 / 12 \text{ ft}) (135 \# / \text{CF}) (1 \text{ ton} / 2000 \#) = 0.0675 \text{ ton} / \text{SF}$$

Cost per SY:

$$(0.078125 \text{ ton} / \text{SF} \times 9 \text{ SF} / \text{SY} \times \$70 / \text{ton}) + (0.0675 \text{ ton} / \text{SF} \times 9 \text{ SF} / \text{SY} \times \$25.00 / \text{ton}) =$$
$$\$49.22 + \$15.19 = \$64.41 / \text{SY} \quad \text{Use: } \mathbf{\$65 \text{ per SY}}$$

## DEVELOPMENT AND RECOMMENDATION PHASE

### Project: Johnson Ferry Road and Glenridge Drive Connector Improvements

<b>IDEA No.:</b> A-11	<b>Sheet No.:</b> 1 of 5	<b>CREATIVE IDEA:</b> Acquire all the R/W for the proposed six-lane Roswell Road section & the intersection approach sections from the west side of the existing roadway.
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Comp By: G.A.O. Date: 9/13/2011 Checked By: K.B. Date: 9/24/2011

#### Original Concept:

The original design widens Roswell Road from five lanes to six lanes between Johnson Ferry Road and Mount Vernon Highway. It also widens the NB and SB approaches to the new six-lane section. The 100 scale layout concept shows that equal amounts of R/W would be acquired from both sides of Roswell Road to add the additional lane. This concept also requires the acquisition / relocation of two parcels on the west side and one acquisition / relocation on the east side.

#### Proposed Change:

This recommendation would acquire all required R/W for widening Roswell Road to six-lanes including the NB and SB intersection approach widening sections from only the west side of Roswell Road. This concept holds the existing east side curb and gutter line.

#### Justification:

Two electrical utility lines are located immediately adjacent to the existing east Roswell Road curb and gutter. One line uses large steel poles and the second line uses wood poles. Three steel poles are located north of Johnson Ferry Road, one steel pole is in the NE corner of the Roswell Road / Mount Vernon Highway intersection, and one steel pole is south of Mount Vernon Highway.

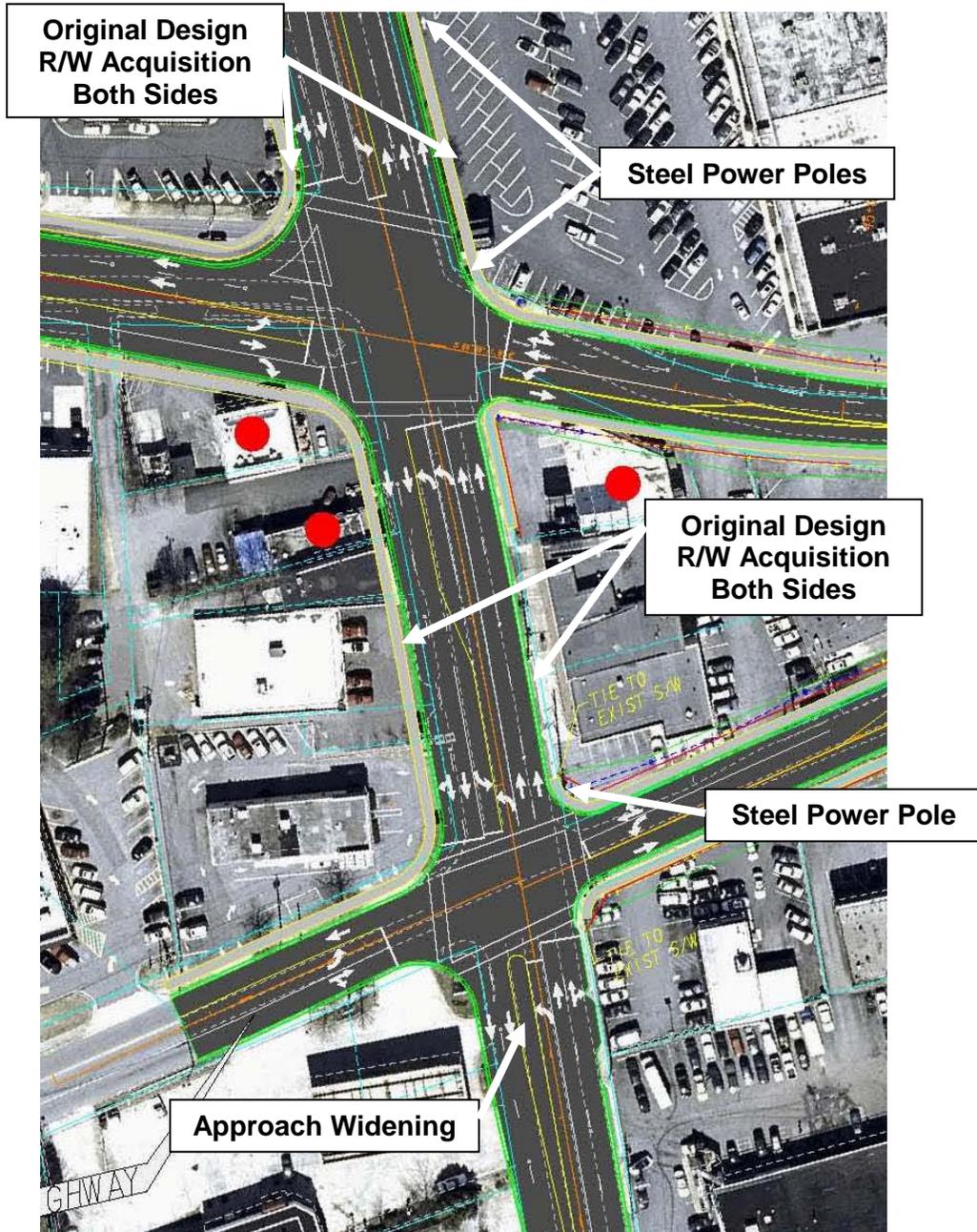
Eliminating any Roswell Road widening on the east side will allow the two electrical utility lines to remain in-place. This recommendation would allow sidewalk construction and widening around the existing poles. Eliminating the need to relocate these utilities will reduce the project cost and reduce project development / construction time.

COST SUMMARY	INITIAL COST	FUTURE COST	TOTAL L. C. COST SAVINGS
<b>Original</b>	\$1,138,000		
<b>Proposed</b>	\$413,000		
<b>Savings</b>	\$725,000		\$725,000
<b>FUTURE COST: – Savings</b>		N/A	N/A
<b>TOTAL PRESENT WORTH SAVINGS</b>			<b>\$725,000</b>

# SKETCH

**Project:** Johnson Ferry Road and Glenridge Drive Connector Improvements

Idea No.: A-11  
Client: City of Sandy Springs, GDOT  
Sheet 2 of 5



## SKETCH

**Project:** Johnson Ferry Road and Glenridge Drive Connector Improvements

Idea No.: A-11  
Client: City of Sandy Springs, GDOT  
Sheet 3 of 5

### Steel power pole at east pavement edge in Roswell Road / Mount Vernon Intersection



### Steel power poles at east pavement edge north of Johnson Ferry Road





## CALCULATIONS

**Project:** Johnson Ferry Road and Glenridge Drive  
Connector Improvements

Idea No.: A-11  
Client: City of Sandy Springs, GDOT  
Sheet 5 of 5

**Assumptions:**

- 9-foot sidewalk on 16-foot shoulder
- 6-foot sidewalk on 14-foot shoulder
- 2-foot Brick Edging next to sidewalk @ \$15 / SF (per State estimating section)

**RW Unit Cost** =  $(\$25.25 / \text{SF}) (1.55) (1.60) = \mathbf{\$62.62 / \text{SF}}$

**Current Design:**

Add Additional 12-foot Turn Lane Between Johnson Ferry Road and Mount Vernon Highway

- East R/W =  $(250 \text{ ft} \times 6 \text{ ft}) + (300 \text{ ft} \times 6 \text{ ft} \times \frac{1}{2}) \times 2 = 1,500 \text{ SF} + 1,800 \text{ SF} = 3,300 \text{ SF}$
- West R/R =  $(250 \text{ ft} \times 6 \text{ ft}) + (300 \text{ ft} \times 6 \text{ ft} \times \frac{1}{2}) \times 2 = 1,500 \text{ SF} + 1,800 \text{ SF} = 3,300 \text{ SF}$
- Relocate steel power poles north of Johnson = Assume \$125,000 ea x 3 = \$375,000
- Relocate steel power pole at Johnson / Mount Vernon intersection = \$125,000
- Relocate steel power pole south of Mount Vernon = \$125,000
- Relocate wood power poles = Assume \$50,000 north of Johnson & \$50,000 south Johnson

**VE Design:**

West R/W =  $(250 \text{ ft} \times 12 \text{ ft}) + (300 \text{ ft} \times 12 \text{ ft} \times \frac{1}{2}) \times 2 = 3,000 \text{ SF} + 3,600 \text{ SF} = 6,600 \text{ SF}$

## DEVELOPMENT AND RECOMMENDATION PHASE

### Project: Johnson Ferry Road and Glenridge Drive Connector Improvements

<b>IDEA No.:</b> B-1	<b>Sheet No.:</b> 1 of 2	<b>CREATIVE IDEA:</b> Eliminate the SB Roswell Road left turn at Mount Vernon Highway and use the lane for additional NB left turn lane storage at Johnson Ferry Road.
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Comp By: G.A.O. Date: 9/13/2011 Checked By: K.B. Date: 9/24/2011

**Original Concept:** The original design widens Roswell Road from five lanes to six lanes between Johnson Ferry Road and Mount Vernon Highway. Half of the new lane would function as a SB Roswell Road left turn lane at Mount Vernon Highway and the second half would function as a second NB Roswell Road left turn lane at Johnson Ferry Road.

**Proposed Change:** This recommendation eliminates the SB Roswell Road left turn lane to Mount Vernon Highway portion and uses the space to expand storage at the second NB Roswell Road left turn lane at Johnson Ferry Road.

**Justification:** This concept provides approximately 150 feet of additional left turn lane storage at Johnson Ferry Road. Eliminating the one-way pair alignment on Johnson Ferry Road and Mount Vernon Highway east of Roswell Road and converting these streets to 2-way traffic should essentially eliminate the SB Roswell Road left turn volume to EB Mount Vernon Highway. The traffic flow diagram allocates 100 VPH in the 2034 AM peak hour for this movement, but realistically, few if any vehicles will use this movement since SB Roswell Road traffic will turn left at Johnson Ferry Road and EB Johnson Ferry Road traffic will continue EB on the newly converted 2-way roadway. This left turn movement appears to be a hold-over from the current traffic pattern which was dictated by the one-way alignment.

Since the area will be used for additional NB Roswell Road left turn storage, this concept does not yield any cost benefits however it does provide additional storage capacity and eliminates the SB left turn phase. Both of these factors help improve overall traffic operations and intersection LOS.

NOTE: This recommendation does not address the issue of acquiring R/W on the east side of Roswell Road and its impact on the large utility poles next to the existing curb and gutter line. This issue is discussed in Recommendation A-11.

COST SUMMARY	INITIAL COST	FUTURE COST	TOTAL L. C. COST SAVINGS
<b>Original</b>	\$0		
<b>Proposed</b>	\$0		
<b>Savings</b>	\$0		\$0
<b>FUTURE COST: – Savings</b>		N/A	N/A
<b>TOTAL PRESENT WORTH SAVINGS</b>			<b>\$0</b>

# SKETCH

**Project:** Johnson Ferry Road and Glenridge Drive Connector Improvements

Idea No.: B-1  
Client: City of Sandy Springs, GDOT  
Sheet 2 of 2



## DEVELOPMENT AND RECOMMENDATION PHASE

**Project: Johnson Ferry Road and Glenridge Drive Connector Improvements**

<b>IDEA No.:</b> B-2	<b>Sheet No.:</b> 1 of 5	<b>CREATIVE IDEA:</b> Eliminate the SB Roswell Road left turn lane at Mount Vernon Highway and make Roswell Road 5-lanes wide with a single NB left turn lane at Johnson Ferry Road.
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Comp By: G.A.O. Date: 9/13/2011 Checked By: K.B. Date: 9/24/2011

**Original Concept:**

The original design widens Roswell Road from five lanes to six lanes between Johnson Ferry Road and Mount Vernon Highway. Half of the new lane would function as a SB Roswell Road left turn lane at Mount Vernon Highway and the second half would function as a second (provides about 150 feet of storage) NB Roswell Road left turn lane at Johnson Ferry Road.

**Proposed Change:**

This recommendation eliminates the SB Roswell Road left turn lane to EB Mount Vernon Highway and reduces the width of reconstructed Roswell Road to five lanes. This concept eliminates the NB double left turn lane at Johnson Ferry Road. It also holds the existing east side curb and gutter line.

**Justification:**

Eliminating the existing one-way pair alignment on Johnson Ferry Road and Mount Vernon Highway east of Roswell Road and converting these streets to two-way traffic essentially eliminates the SB Roswell Road left turn volume to EB Mount Vernon Highway. The traffic flow diagram allocates 100 VPH in the 2034 AM peak hour for this movement, but realistically, few if any vehicles will use this movement since SB Roswell Road traffic will turn left at Johnson Ferry Road and EB Johnson Ferry Road traffic will continue EB on the newly converted 2-way roadway. This left turn movement appears to be a hold-over from the current traffic pattern which was dictated by the one-way alignment.

COST SUMMARY	INITIAL COST	FUTURE COST	TOTAL L. C. COST SAVINGS
<b>Original</b>	\$1,196,000		
<b>Proposed</b>	0		
<b>Savings</b>	\$1,196,000		\$1,196,000
<b>FUTURE COST: – Savings</b>		N/A	N/A
<b>TOTAL PRESENT WORTH SAVINGS</b>			<b>\$1,196,000</b>

## CONTINUATION

**Project:** Johnson Ferry Road and Glenridge Drive  
Connector Improvements

Idea No.: B-2  
Client: City of Sandy Springs, GDOT  
Sheet 2 of 5

The elimination of this additional turn lane requires prohibiting SB left turns at Mount Vernon Highway so the entire center turn lane can function as a NB left turn lane at Johnson Ferry road. Eliminating this 250-foot Roswell Road six-lane section and its required lane shift approaches to the north and south will reduce the roadway footprint and its associated R/W impacts.

NOTE: This recommendation does not address the issue of acquiring R/W on the east side of Roswell Road and its impact on the large utility poles next to the existing curb and gutter line. This issue is discussed in Recommendation A-11.

# SKETCH

**Project:** Johnson Ferry Road and Glenridge Drive Connector Improvements

Idea No.: B-2  
Client: City of Sandy Springs, GDOT  
Sheet 3 of 5





## CALCULATIONS

**Project:** Johnson Ferry Road and Glenridge Drive  
Connector Improvements

Idea No.: B-2  
Client: City of Sandy Springs, GDOT  
Sheet 5 of 5

Total asphalt area reduction: 11 feet wide; approx. 800 feet in length  
 $11 \text{ ft} \times 800 \text{ ft} = 8,800 \text{ SF} / 9 = 978 \text{ SY}$

**Full depth pavement cost:**

**Widening Road Pavement Costs:** 12.5 inches Asphalt on 12 inches GAB

$(12.5 / 12 \text{ ft}) (150 \# / \text{CF}) (1 \text{ ton} / 2000 \#) = 0.078125 \text{ ton} / \text{SF}$

$(12 / 12 \text{ ft}) (135 \# / \text{CF}) (1 \text{ ton} / 2000 \#) = 0.0675 \text{ ton} / \text{SF}$

Cost per SY:

$(0.078125 \text{ ton} / \text{SF} \times 9 \text{ SF} / \text{SY} \times \$70 / \text{ton}) + (0.0675 \text{ ton} / \text{SF} \times 9 \text{ SF} / \text{SY} \times \$25.00 / \text{ton}) =$   
 $\$49.22 + \$15.19 = \$64.41 / \text{SY}$     **Use: \$65 per SY**

**R/W Costs:**

R/W acquisition factor:  $1.55 \times 1.6 = 2.48$

Cost / SF =  $\$25.25 \times 2.48 = \$62.62$

Reduced R/W area - total frontage: 600 feet

$11 \text{ ft} \times 600 \text{ ft} = 6,600 \text{ SF} \times \$62.62 \text{ per SF} = \$413,292$

Total damages for project is \$1,450,000; assume 20% reduction

$\$1,450,000 \times 0.20 = \$290,000$

Damages =  $\$290,000 \times 2.48 = \$719,200$

Total R/W reduction:  $\$413,292 + \$719,200 = \$1,132,492$

**DEVELOPMENT AND RECOMMENDATION PHASE**

**Project: Johnson Ferry Road and Glenridge Drive Connector Improvements**

<b>IDEA No.:</b> B-2.1	<b>Sheet No.:</b> 1 of 5	<b>CREATIVE IDEA: Alternative to Idea B-2</b> Eliminate the Roswell Road SB and NB left turns at Mount Vernon Highway and make Roswell Road 5-lanes wide with an extended single NB left turn lane at Johnson Ferry Road.
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Comp By: G.A.O. Date: 9/13/2011 Checked By: K.B. Date: 9/24/2011

**Original Concept:**

The original design widens Roswell Road from five lanes to six lanes between Johnson Ferry Road and Mount Vernon Highway. Half of the new lane would function as a SB Roswell Road left turn lane at Mount Vernon Highway and the second half would function as a second (provides about 150 feet of storage) NB Roswell Road left turn lane at Johnson Ferry Road.

**Proposed Change:**

This recommendation eliminates the SB Roswell Road left turn lane, prohibits NB left turns at Mount Vernon Highway, and reduces the width of reconstructed Roswell Road to five lanes. It also extends the single NB left turn lane and holds the existing east side curb and gutter line.

**Justification:**

Eliminating the existing one-way pair alignment on Johnson Ferry Road and Mount Vernon Highway east of Roswell Road and converting these streets to two-way traffic essentially eliminates the SB Roswell Road left turn volume to EB Mount Vernon Highway. The traffic flow diagram allocates 100 VPH in the 2034 AM peak hour for this movement, but realistically, few if any vehicles will use this movement since SB Roswell Road traffic will turn left at Johnson Ferry Road and EB Johnson Ferry Road traffic will continue EB on the newly converted 2-way roadway. This left turn movement appears to be a hold-over from the current traffic pattern which was dictated by the one-way alignment.

<b>COST SUMMARY</b>	<b>INITIAL COST</b>	<b>FUTURE COST</b>	<b>TOTAL L. C. COST SAVINGS</b>
<b>Original</b>	\$1,196,000		
<b>Proposed</b>	\$20,000		
<b>Savings</b>	\$1,176,000		\$1,176,000
<b>FUTURE COST: – Savings</b>		N/A	N/A
<b>TOTAL PRESENT WORTH SAVINGS</b>			<b>\$1,176,000</b>

## CONTINUATION

**Project:** Johnson Ferry Road and Glenridge Drive Connector Improvements

Idea No.: B-2.1  
Client: City of Sandy Springs, GDOT  
Sheet 2 of 5

The elimination of this additional turn lane requires prohibiting SB left turns at Mount Vernon Highway so the entire center turn lane can function as a NB left turn lane at Johnson Ferry road. Eliminating this 250-foot Roswell Road six-lane section and its required lane shift approaches to the north and south will reduce the roadway footprint and its associated R/W impacts and requirements.

This concept also prohibits the NB Roswell Road left turn at Mount Vernon Highway so this area can be used for additional storage for the NB Roswell Road left turn at Johnson Ferry Road. It is assumed that most of the left turning vehicles at Mount Vernon Highway are ultimately destined to use Johnson Ferry road and are turning at Mount Vernon Highway to shortcut the left turn at Johnson Ferry Road.

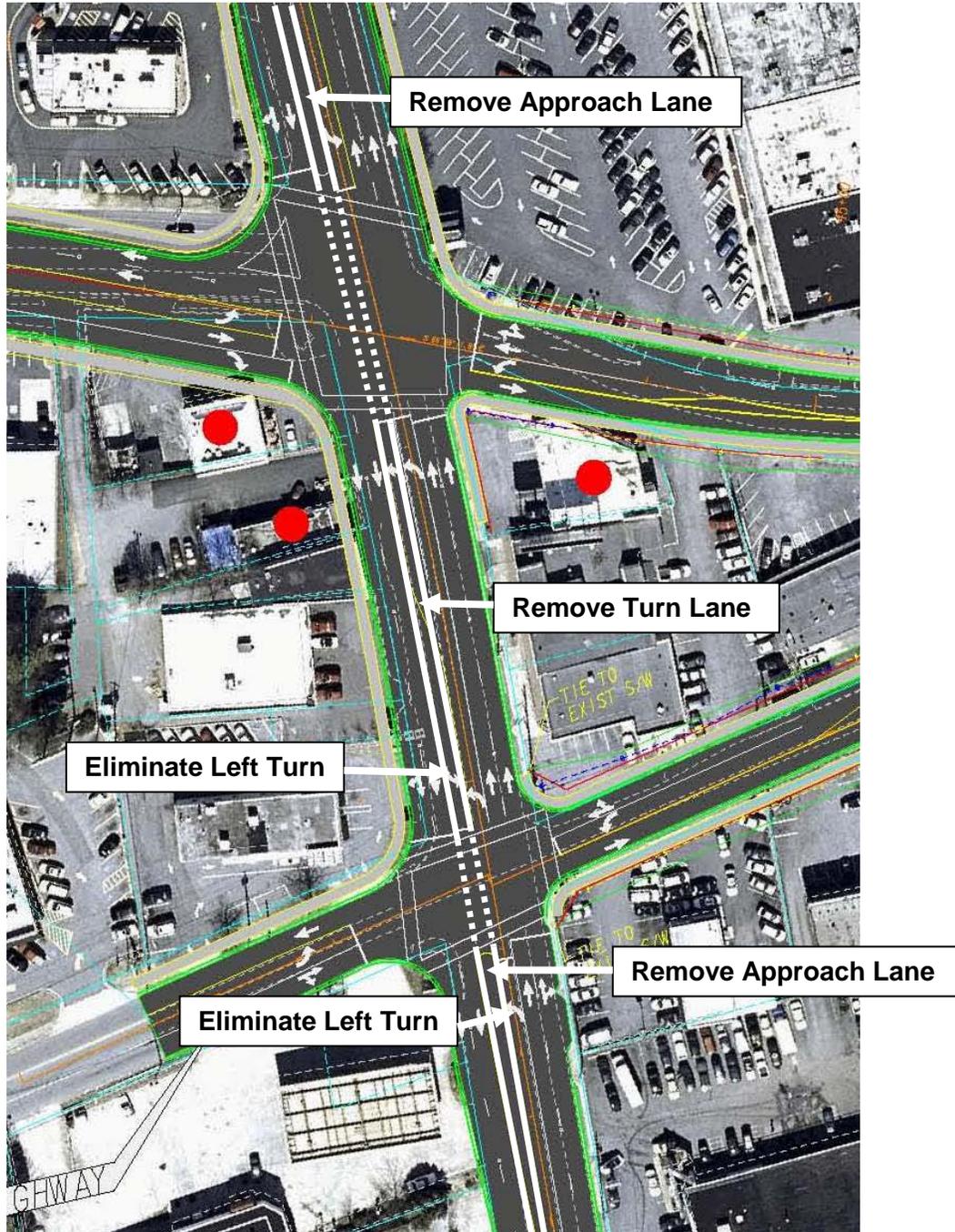
Eliminating left turns in both directions at Mount Vernon Highway may require some additional signage and monitoring, however, it should improve the overall LOS and intersection operations at both locations.

**NOTE:** This recommendation does not address the issue of acquiring R/W on the east side of Roswell Road and its impact on the large utility poles next to the existing curb and gutter line. This issue is discussed in Recommendation A-11.

# SKETCH

**Project:** Johnson Ferry Road and Glenridge Drive Connector Improvements

Idea No.: B-2.1  
Client: City of Sandy Springs, GDOT  
Sheet 3 of 5





## CALCULATIONS

**Project:** Johnson Ferry Road and Glenridge Drive  
Connector Improvements

Idea No.: B-2.1  
Client: City of Sandy Springs, GDOT  
Sheet 5 of 5

Total asphalt area reduction: 11 feet wide; approx. 800 feet in length  
 $11 \text{ ft} \times 800 \text{ ft} = 8,800 \text{ SF} / 9 = 978 \text{ SY}$

**Full depth pavement cost:**

**Widening Road Pavement Costs:** 12.5 inches Asphalt on 12 inches GAB

$(12.5 / 12 \text{ ft}) (150 \# / \text{CF}) (1 \text{ ton} / 2000 \#) = 0.078125 \text{ ton} / \text{SF}$

$(12 / 12 \text{ ft}) (135 \# / \text{CF}) (1 \text{ ton} / 2000 \#) = 0.0675 \text{ ton} / \text{SF}$

Cost per SY:

$(0.078125 \text{ ton} / \text{SF} \times 9 \text{ SF} / \text{SY} \times \$70 / \text{ton}) + (0.0675 \text{ ton} / \text{SF} \times 9 \text{ SF} / \text{SY} \times \$25.00 / \text{ton}) =$   
 $\$49.22 + \$15.19 = \$64.41 / \text{SY}$     **Use: \$65 per SY**

**R/W Costs:**

R/W acquisition factor:  $1.55 \times 1.6 = 2.48$

Cost / SF =  $\$25.25 \times 2.48 = \$62.62$

Reduced R/W area - total frontage: 600 feet

$11 \text{ ft} \times 600 \text{ ft} = 6,600 \text{ SF} \times \$62.62 \text{ per SF} = \$413,292$

Total damages for project is \$1,450,000; assume 20% reduction

$\$1,450,000 \times 0.20 = \$290,000$

Damages =  $\$290,000 \times 2.48 = \$719,200$

Total R/W reduction:  $\$413,292 + \$719,200 = \$1,132,492$

**DEVELOPMENT AND RECOMMENDATION PHASE**

**Project: Johnson Ferry Road and Glenridge Drive Connector Improvements**

<b>IDEA No.:</b> I-6	<b>Sheet No.:</b> 1 of 5	<b>CREATIVE IDEA:</b> Construct a 6-foot sidewalk with a 3-foot grass area in-lieu-of a 9-foot sidewalk with 3-foot grass area.
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Comp By: S.G. Date: 9/15/2011 Checked By: K.B. Date: 9/15/2011

**Original Concept:**

The original concept proposes to install 9-foot-wide sidewalks with a 3-foot-wide grass strip on Roswell Road and Johnson Ferry Road from Sandy Springs Circle to Roswell Road.

**Proposed Change:**

This recommendation would construct 6-foot-wide sidewalks with 3-foot-wide grass strips in-lieu-of 9-foot-wide sidewalks with 3-foot-wide grass strips throughout the project.

**Justification:**

The function of the sidewalks is to provide pedestrian access and connection to existing sidewalk sections adjacent to the project. This function can be accomplished through the installation of 6-foot-wide sidewalks in lieu of 9-foot-wide sidewalks. Implementation of the revised concept will result in significant savings in right-of-way.

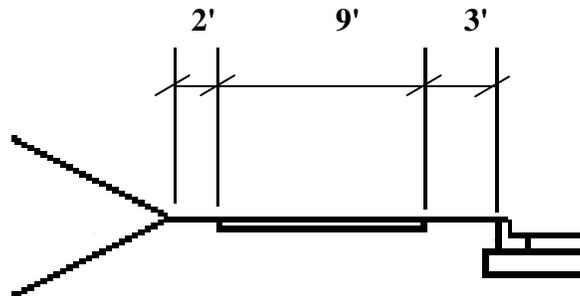
<b>COST SUMMARY</b>	<b>INITIAL COST</b>	<b>FUTURE COST</b>	<b>TOTAL L. C. COST SAVINGS</b>
<b>Original</b>	\$731,000		
<b>Proposed</b>	\$0		
<b>Savings</b>	\$731,000		\$731,000
<b>FUTURE COST: – Savings</b>		N/A	N/A
<b>TOTAL PRESENT WORTH SAVINGS</b>			<b>\$731,000</b>

# SKETCH

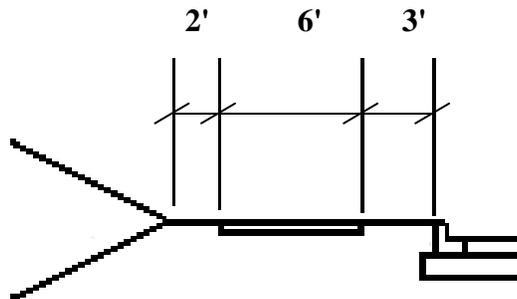
**Project:** Johnson Ferry Road and Glenridge Drive Connector Improvements

Idea No.: I-6  
Client: City of Sandy Springs, GDOT  
Sheet 2 of 5

## Original Sidewalk Concept - 14-Foot Shoulder Curb & Gutter, 3-ft Grass, 9-ft Sidewalk & 2-ft Grass



## VE Sidewalk Concept - 11-Foot Shoulder Curb & Gutter, 3-ft Grass, 6-ft Sidewalk & 2-ft Grass





## CALCULATIONS

**Project:** Johnson Ferry Road and Glenridge Drive  
Connector Improvements

Idea No.: I-6  
Client: City of Sandy Springs, GDOT  
Sheet 4 of 5

**Assumptions:**

Johnson Ferry Road (Sandy Springs Circle to Roswell Road) 9-foot sidewalk  
Roswell Road (north of Mount Vernon Highway) 9-foot sidewalk  
Sidewalk Lengths Scaled off Layout

**Original Design: 9-Foot Sidewalk**

Project (PI 600911)

Johnson Ferry Road Sidewalk = 325 ft + 225 ft = 550 ft

Project (PI 751420)

Johnson Ferry Road Sidewalk = 700 ft + 750ft = 1,450 ft

Roswell Road Sidewalk = 350 ft + 250 ft + 600 ft + 500 ft = 1,600 ft

Additional Sidewalk (PI 600911)

$550 \text{ ft} \times 3 \text{ ft} = 1,650 \text{ SF} / 9 = 183 \text{ SY}$

Additional Sidewalk (PI 751420)

$3,050 \text{ ft} \times 3 \text{ ft} = 9,150 \text{ SF} / 9 = 1,017 \text{ SY}$

Additional R/W (PI 600911)

$550 \text{ ft} \times 3 \text{ ft} = 1,650 \text{ SF}$

Additional R/W (PI 751420)

$3,050 \text{ ft} \times 3 \text{ ft} = 9,150 \text{ SF}$

**Revised Concept: 6-Foot Sidewalk**

R/W Area (PI 751420) = 0 SF

R/W Area (PI 600911) = 0 SF

Pavement Area (PI 751420) = 0 SY

Pavement Area (PI 600911) = 0 SY

## CALCULATIONS

**Project:** Johnson Ferry Road and Glenridge Drive  
Connector Improvements

Idea No.: I-6  
Client: City of Sandy Springs, GDOT  
Sheet 5 of 5

### Project PI 751420 Assumed Sidewalk Area (Scaled off Project Layout)

Description	Length	Size	3-ft Grass	Area
Mount Vernon Hwy (N) – east of Roswell	500 ft	6 ft	No	3,000
Mount Vernon Hwy (S) – east of Roswell	500 ft	6 ft	Yes	3,000
Roundabout (N) – at Vernon Towers	500 ft	6 ft	Yes	3,000
Roundabout (NE)	300 ft	6 ft	Yes	1,800
Roundabout (E) – at library	300 ft	6 ft	Yes	1,800
Roundabout (S) – around bank	300 ft	6 ft	Yes	1,800
Boylston (E) – south of roundabout	350 ft	6 ft	Yes	2,100
Boylston (W) – south of roundabout	350 ft	6 ft	Yes	2,100
Roswell (E) – 6-lane section	250 ft	9 ft	Yes	2,250
Roswell (W) – 6-lane section	250 ft	9 ft	Yes	2,250
Roswell (E) – north of Johnson Ferry Rd	600 ft	9 ft	Yes	5,400
Roswell (W) – north of Johnson Ferry Rd	500 ft	9 ft	Yes	4,500
Johnson Ferry (N) – west of Roswell Rd	700 ft	9 ft	Yes	6,300
Johnson Ferry (S) – west of Roswell Rd	750 ft	9 ft	Yes	6,750
Johnson Ferry (N) – east of Roswell Rd	350 ft	6 ft	No	2,100
Johnson ferry (S) – east of Roswell Rd	500 ft	6 ft	No	3,000
Total Area				51,150 SF
				5,684 SY

### Project PI 6000911

Johnson Ferry (N)	325 ft	9 ft	Yes	2,925
Johnson Ferry (S)	225 ft	9 ft	Yes	2,025

## DEVELOPMENT AND RECOMMENDATION PHASE

**Project: Johnson Ferry Road and Glenridge Drive Connector Improvements**

**IDEA No.:**  
I-7

**Sheet No.:**  
1 of 5

**CREATIVE IDEA:** Construct a 6-foot sidewalk with a 2-foot brick area in-lieu-of a 9-foot and / or 6-foot sidewalk with a 3-foot grass area.

Comp By: S.G. Date: 9/15/2011 Checked By: K.B. Date: 9/15/2011

**Original Concept:**

The original concept proposes to install 6-foot and 9-foot sidewalks with 3-foot grass strips throughout the project.

**Proposed Change:**

The revised concept would install a 2-foot-wide brick strip in-lieu-of the 3-foot-wide grass strip for both 6-foot- and 9-foot-wide sidewalks.

**Justification:**

The function of the 3-foot grass strip adjacent to sidewalks on the project is to provide separation between pedestrians and roadway traffic. The grass strip also improves the aesthetics of the roadway section. Both of these functions can be accomplished through installation of a 2-foot-wide brick strip. Implementation of the revised concept will result in savings in right-of-way and will reduce future maintenance.

The proposed 2-foot brick strip is the same concept that has been constructed on Roswell Road south of this project.

COST SUMMARY	INITIAL COST	FUTURE COST	TOTAL L. C. COST SAVINGS
<b>Original</b>	\$388,000		
<b>Proposed</b>	\$186,000		
<b>Savings</b>	\$202,000		\$202,000
<b>FUTURE COST: – Savings</b>		N/A	N/A
<b>TOTAL PRESENT WORTH SAVINGS</b>			<b>\$202,000</b>

## SKETCH

**Project:** Johnson Ferry Road and Glenridge Drive Connector Improvements

Idea No.: I-7  
Client: City of Sandy Springs, GDOT  
Sheet 2 of 5

### Existing Sidewalk / Brick Separator on Roswell Road





## CALCULATIONS

**Project:** Johnson Ferry Road and Glenridge Drive  
Connector Improvements

Idea No.: I-7  
Client: City of Sandy Springs, GDOT  
Sheet 4 of 5

### Assumptions

Cost of Brick Area = \$15 / SF (State cost estimate)  
Refer to Sidewalk Area Tables for Sidewalk Lengths with 3-foot grass area

### Original Concept

#### Additional R/W Area

Project (PI 600911)

$$\text{Johnson Ferry Road Sidewalk} = (325 + 225) \times (1 \text{ ft}) = 550 \text{ SF}$$

Project (PI 751420)

$$(500+500+300+300+300+350+350+250+250+600+500+700+750) \times (1 \text{ ft}) = 5,650 \text{ SF}$$

Additional Brick Strip Area = 0 SF

### Revised Concept

Additional R/W Area = 0 SF

Additional Brick Strip Area =

Project (PI 600911)

$$550 \text{ ft} \times 2 \text{ ft} = 1,100 \text{ SF}$$

Project (PI 751420)

$$(500+500+300+300+300+350+350+250+250+600+500+700+750) \times (2 \text{ ft}) = 11,300 \text{ SF}$$

## CALCULATIONS

**Project:** Johnson Ferry Road and Glenridge Drive  
Connector Improvements

Idea No.: I-7  
Client: City of Sandy Springs, GDOT  
Sheet 5 of 5

### Assumed Sidewalk Area (Scaled off Plans)

Description	Length	Size	3-ft Grass	Area
Mount Vernon Hwy (N) – east of Roswell	500 ft	6 ft	No	3,000
Mount Vernon Hwy (S) – east of Roswell	500 ft	6 ft	Yes	3,000
Roundabout (N) – at Vernon Towers	500 ft	6 ft	Yes	3,000
Roundabout (NE)	300 ft	6 ft	Yes	1,800
Roundabout (E) – at library	300 ft	6 ft	Yes	1,800
Roundabout (S) – around bank	300 ft	6 ft	Yes	1,800
Boylston (E) – south of roundabout	350 ft	6 ft	Yes	2,100
Boylston (W) – south of roundabout	350 ft	6 ft	Yes	2,100
Roswell (E) – 6-lane section	250 ft	9 ft	Yes	2,250
Roswell (W) – 6-lane section	250 ft	9 ft	Yes	2,250
Roswell (E) – north of Johnson Ferry Rd	600 ft	9 ft	Yes	5,400
Roswell (W) – north of Johnson Ferry Rd	500 ft	9 ft	Yes	4,500
Johnson Ferry (N) – west of Roswell Rd	700 ft	9 ft	Yes	6,300
Johnson Ferry (S) – west of Roswell Rd	750 ft	9 ft	Yes	6,750
Johnson Ferry (N) – east of Roswell Rd	350 ft	6 ft	No	2,100
Johnson ferry (S) – east of Roswell Rd	500 ft	6 ft	No	3,000
<b>Total Area</b>				<b>51,150 SF</b>
				<b>5,684 SY</b>

### Project PI 6000911

Johnson Ferry (N)	325 ft	9 ft	Yes	2,925
Johnson Ferry (S)	225 ft	9 ft	Yes	2,025

# **APPENDIX**



## Sources

### Approving/Authorizing Persons

Name:	Position:	Telephone:
Albert Shelby	Program Delivery – Program Manager	404-631-1758
Ron Wishon	Engineering Services	404-631-1753

### Personal Contacts

Name:	Telephone:	Notes:
Albert Shelby	404-631-1758	Project briefing
Edward Culican Jr., PE	770-287-9865	Project Briefing
Edward Culican Jr., PE	770-287-9865	Get current typical section, Sidewalk locations, & Cost Estimate breakdown for Johnson Road project vs west side project
Edward Culican Jr., PE	770-287-9865	Discuss R/W Breakdown, Cost of City owned R/W, & Roswell Road NB Outside lane status

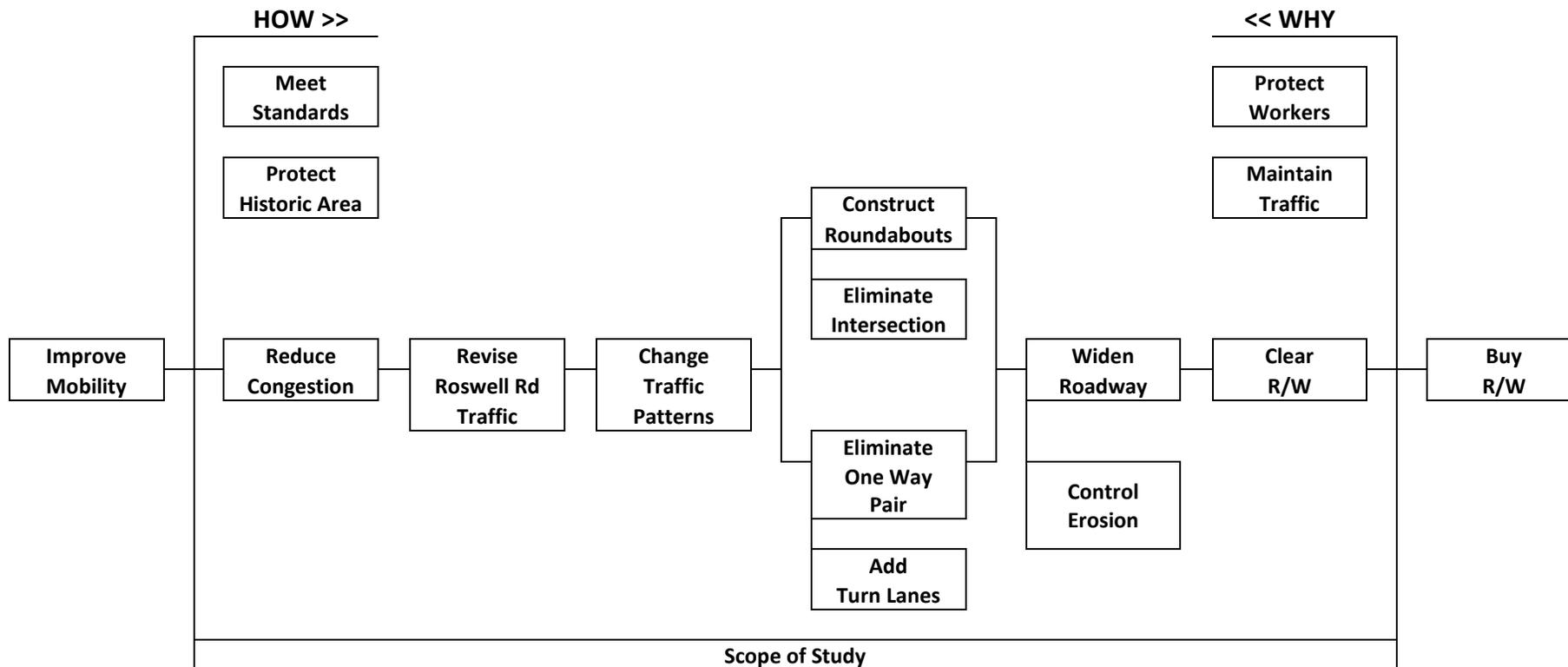
### Documents/Abstracts

Reference:	Reference:
100 Scale Layout – Alternate 1A	Draft Concept Report
100 Scale Layout – Alternate 1B	Traffic Diagrams
100 Scale Layout – Alternate 2A	Environmental Commitment Table
100 Scale Layout – Alternate 2B	Study Constraints & Commitments
100 Scale Layout – Alternate Peer Review	Draft VISSIM Analysis Report



# FAST DIAGRAM

## Johnson Ferry Road



## INFORMATION PHASE – FUNCTION ANALYSIS

**Project:** Johnson Ferry Road and Glenridge Drive Connector Improvements

**Function:** Reduce Congestion

ITEM No.	DESCRIPTION	FUNCTION		INITIAL DOLLARS		
		Verb	Noun	Cost	% of Total	Worth/Save
<b>A</b>	<b>Right of Way</b>	Widen	Roadway	\$14,400,000	83.4%	Yes
		Widen	Sidewalks			
		Add	Sidewalks			
		Accommodate	Roundabouts			
		Improve	Alignment			
		Eliminate	One Way Movement			
		Store	Project			
		Upgrade	Side Roads			
		Avoid	Historic Property			
		Avoid	Residential Property			
		Modify	Access			
		Access	Future City Hall			
		<b>B</b>	<b>Asphalt Pavement &amp; GAB</b>	Widen	Roadway	\$830,000
Add	Turn Lanes					
Eliminate	One Way Movement					
Increase	LOS					
Increase	Capacity					

## INFORMATION PHASE – FUNCTION ANALYSIS

**Project:** Johnson Ferry Road and Glenridge Drive Connector Improvements  
**Function:** Reduce Congestion

ITEM No.	DESCRIPTION	FUNCTION		INITIAL DOLLARS		
		Verb	Noun	Cost	% of Total	Worth/Save
<b>C</b>	<b>Unclassified Excavation</b>	Construct	Roundabouts	\$440,000	2.5%	Yes
		Accommodate	Sidewalks			
		Realign	Roadway			
		Widen	Roadway			
		Accommodate	Profile			
<b>D</b>	<b>Drainage</b>	Remove	Water	\$326,000	1.9%	Yes
		Extend	Existing System			
		Accommodate	Runoff			
		Meet	Standards			
<b>E</b>	<b>Traffic Signal Modifications</b>	Upgrade	Existing Signals	\$300,000	1.7%	Yes
		Accommodate	Turn Lanes			
		Eliminate	Existing Signals			
<b>F</b>	<b>Miscellaneous</b>	Construct	Project	\$283,000	1.6%	No

## INFORMATION PHASE – FUNCTION ANALYSIS

**Project:** Johnson Ferry Road and Glenridge Drive Connector Improvements

**Function:** Reduce Congestion

ITEM No.	DESCRIPTION	FUNCTION		INITIAL DOLLARS		
		Verb	Noun	Cost	% of Total	Worth/Save
<b>G</b>	<b>Traffic Control</b>	Stage	Construction	\$200,000	1.2%	Yes
		Maintain	Traffic			
		Protect	Worker			
<b>H</b>	<b>Asphalt Leveling, Fabric, Milling</b>	Construct	Pavement	\$196,000	1.1%	No
		Stabilize	Seam Interface			
		Prepare	Surface			
<b>I</b>	<b>Sidewalk</b>	Accommodate	Pedestrians	\$184,000	1.1%	Yes
		Comply with	City Standards			
		Acquire	R/W			
<b>J</b>	<b>Erosion Control</b>	Minimize	Sediment	\$106,000	0.6%	No
		Protect	Environment			

<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	Keep the existing dual roundabout configuration and close the two inside turn movements.	See Idea B-2	X
A-2	Combine the dual roundabouts into a larger single oval roundabout.	Improve traffic flow, simplify traffic operation	✓
A-3	Eliminate the eastern roundabout and construct a single roundabout at Boylston Drive	Combine with Idea A-2	X
A-4	Shift the relocated Johnson Ferry Road on to city property and eliminate taking property from the strip mall on the north side of the roadway.	Reduce R/W costs, Reduce impact to north side strip mall, make use of City owned property	✓
A-5	Make a new larger one way pair between Sandy Spring Road and the roundabout using Johnson Ferry Road for westbound traffic and Mount Vernon Hwy for eastbound.	Reduce traffic on Roswell Road	DS
A-6	Eliminate the SB Roswell Road left turn lane at Mount Vernon Hwy and extend the second NB left turn lane.	See Idea B-1	X
A-7	Remove the 3-foot grass strip between the sidewalk and the curb and gutter.	See Idea I-1, I-6, I-6.1	X
✓ = Will be considered further; X = will be dropped; DS = Design suggestion –written for consideration by design team			

<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-8	Reduce the 14-foot center turn lane to 12-feet on Johnson Ferry Road to match the width of other center turn lanes.	Reduce R/W, Reduce impact to north side strip mall, keep same section through area roads	✓
A-9	Construct a retaining wall on the north side of Johnson Ferry Road to reduce the amount of new R/W at the corner of the Strip Mall to allow for vehicular circulation around the mall area.	Allow for circular traffic flow around the strip mall shopping area	DS
A-10	Eliminate the Roswell Road NB outside lane north of Johnson Ferry Road.	Requires relocation of major electrical power poles	✓
A-11	Acquire all R/W for the 6-lane section & intersection approaches from the west side.	Eliminate the need to relocate two large power lines	✓
<b>B</b>	<b>Asphalt Pavement and GAB</b>		
B-1	Eliminate the Roswell Road SB left turn lane at Mount Vernon Highway and use the lane for a second NB left turn lane.	Reduce congestion on Roswell Road, save signal time / phase, not needed, increase NB left turn storage area. Power Pole Impact	✓
B-2	Eliminate the Roswell Road SB left turn lane at Mount Vernon Highway and make Roswell Road 5-lanes wide with a single NB left turn lane.	Reduce congestion on Roswell Road, save signal time / phase, not needed, increase NB left turn storage area.	✓
✓ = Will be considered further; X = will be dropped; DS = Design suggestion –written for consideration by design team			

<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-2.1	Eliminate the Roswell Road SB and NB left turn lanes at Mount Vernon Highway.	Reduce congestion on Roswell Road, eliminate signal phase	✓
B-3	Change the Roswell Road 6-lane section to a 5-lane section and redistribute the left turns to Johnson Ferry Road and Sandy Springs Circle intersections.	Reduce R/W, Redistribute left turn movements	✓
B-4	Restripe Roswell Road north of Johnson Ferry Road to provide more left turn storage at Sandy Springs Circle.	Combine with Idea B-3	X
B-5	Eliminate the inner circles for the dual roundabouts.	Reduce conflicts	✓
<b>I</b>	<b>Sidewalks</b>		
I-1	Eliminate the 3-foot grass area and place the sidewalks next to the curb and gutter.	See Idea I-6, Idea I-6.1	X
I-2	Eliminate the 3-foot grass area and construct a 2-foot paved brick area.	See Idea I	X
I-3	Construct a 6-foot sidewalk with a 2-foot brick area on Roswell Road.	See Idea I	X
I-4	Use header curb in-lieu-of standard curb and gutter on all side roads.	Does not comply with City standard	X
✓ = Will be considered further; X = will be dropped; DS = Design suggestion –written for consideration by design team			

<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>
I-5	Use 24-inch curb and gutter section in-lieu-of 30-inch curb and gutter section.	24" section already included in current design	X
I-6	Use 6-foot sidewalk with 3-foot grass in-lieu-of 9-foot sidewalk and 3-foot grass.	Reduce R/W requirement, Reduce cost	✓
I-7	Use a 2-foot brick area in-lieu-of a 3-foot grass area between the sidewalk and the curb & gutter.	Reduce R/W requirement, Reduce cost	✓
✓ = Will be considered further; X = will be dropped; DS = Design suggestion –written for consideration by design team			

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