

# VALUE ENGINEERING STUDY

Project # CSSTP-0007-00(319) PI No. 0007319

SR 347/Lanier Islands Parkway from  
Lake Lanier to McEver Rd  
Hall County, Georgia

Prepared for:



One Georgia Center  
600 West Peachtree NW  
Atlanta, Georgia 30308

09 May 2013



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9 May 2013

Mr. Matt Sanders, AVS  
Value Engineering Specialist  
GDOT - Engineering Services  
One Georgia Center - 5th Floor  
600 W. Peachtree Street NW  
Atlanta, GA 30308

Re: V.E. Workshop – SR 347 from Lake Lanier to McEver Road, Hall County, GA  
Project #: CSSTP-0007-00(319) - PI#: 0007319

Dear Mr. Sanders:

U.S. Cost, Inc. is pleased to submit two (2) hard copies and one (1) CD of the Value Engineering Study Report on the above referenced project. We appreciate the assistance and participation of the GDOT management personnel as well as the GDOT design team.

This Workshop resulted in the development of thirteen (13) value-enhancing proposals. We hope that incorporation of some of these value improvement alternatives provided herein results in an enhanced project in relation to cost, constructability and long-term performance of the project features.

Please feel free to contact me to discuss any information within this report. We look forward to the next opportunity to be of service to the Georgia Department of Transportation.

Sincerely,

**U.S. COST INCORPORATED**



Tom Orr, P.E., CVS  
V.E. Team Leader

CC: L. Myers, GDOT

# VALUE ENGINEERING TEAM STUDY

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## VALUE ENGINEERING STUDY

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### PROJECT DESCRIPTION

This SR 347 from Lake Lanier to McEver Road project involves widening of SR 347/ Lanier Islands Parkway in Hall County, Georgia. The project will widen the existing two-lane roadway to a 2-lane with 2-way left turn lane.

The proposed project involves work along a 2.3- mile section of SR 347 beginning just East of the entrance into Lake Lanier Islands (at Holiday Marina) and ending just West of the intersection with McEver Road. The new roadway consists of a two-lane roadway (one lane in each direction) with 12' travel lanes, a 14' wide 2-way left turn lane, a 10' wide multi-use trail on the North side of the roadway and a 5' wide sidewalk on the South side. The right-of-way width varies as needed for earthwork tie-ins throughout the corridor.

There is a roundabout proposed in the current design; at the intersection of SR 347 with Big Creek Road/New Bethany Road.

Project components include:

- New 2-lane (12' travel lanes) roadway with 14' wide 2-way left turn lane
- A 10' multi-use trail on North and a 5' sidewalk on the South
- 1 intersection with a Roundabout

# VALUE ENGINEERING STUDY

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## KEY INFORMATION/NOTES

### Introduction

U.S. Cost conducted the Value Engineering Team Study on SR 347 from Lake Lanier to McEver Road. The V.E. study was conducted for three and ½ days, 6 - 9 May 2013, at the Georgia Department of Transportation 5<sup>th</sup> floor Conference Room in Atlanta, GA. The study team was furnished with a concept report and preliminary construction plans for use in conducting the VE workshop. The following individuals were members of the V.E. team:

<b>Name</b>	<b>Firm</b>	<b>Discipline</b>
Tom Orr, P.E., CVS	U.S. Cost, Inc.	VE Team Leader (VETL)
Jerry Brooks, P.E.	Kimley-Horn	Roadway Engineer
Lenor Bromberg, P.E., AVS	KEA Group	Construction
Lane Gortemoller, P.E.	KEA Group	Construction

### Value Engineering Study Process

The Value Engineering Study followed the Value Engineering Job Plan as certified by SAVE International as follows:

- Information Phase (Monday)
- Function Analysis Phase (Monday)
- Creative Phase (Monday)
- Evaluation Phase (Monday)
- Development Phase (Tuesday - Wednesday)
- Presentation Phase (Thursday AM)

### Information Phase

The V.E. team was first briefed on the project design by Georgia DOT project management and design team representatives in a Design Presentation the morning of the first day of the V.E. Study. The briefing included a review of the design requirements and rationale for the selection and arrangement of the major project features. Discussions regarding alternatives considered, adjacent properties/facilities, and project criteria and constraints were included in the design presentation.

## VALUE ENGINEERING STUDY

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### KEY INFORMATION/NOTES

#### Project Design Criteria

During the meeting, project design criteria were identified. The following listing identifies the design criteria with which the project must comply:

- AASHTO Design Policies
- FHWA Design Policies
- Other Environmental Restrictions (EA Requirements TBD)

#### Project Constraints

During the presentation by the design team on the project overview, the VE Team was alerted to the stakeholder's constraints on this project which include:

- Vertical profile will tie to Phase I project at Eastern end.
- Minimize impacts to Corps of Engineer property and maintain pool elevation of 1071
- Avoid impacts to Historical Haney House and Pecan Tree at Sta 10080+00 to 10081+00 Right
- Avoid or minimize impacts to cemetery at Sta 10051+00 to 10056+00 Right

#### Function Analysis

As a basic part of the V.E. process, the team conducted a Function Analysis session on the SR 347 from Lake Lanier to McEver Road project to identify the needs and goals of the project and facilitate the creative idea session, by addressing functions as opposed to the specific design elements.

The Basic Function of the project is to "*Improve Operations*". A detailed project function analysis of the characteristics of the project and the project features is presented in the Appendix.

## VALUE ENGINEERING STUDY

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### KEY INFORMATION/NOTES

#### Risk Analysis

The group identified the following project risk elements, which may impact the SR 347 from Lake Lanier to McEver Road project. This exercise served as a catalyst for the Creative Phase of the study when several ideas were suggested which would mitigate these project risks.

#### Risk Elements/Concerns

- Impacts to Property Owners
- Proper Design for Design Vehicle (Towing Large Boats)
- Environmental Impacts
- Traffic Issues During Holiday Events
- Impacts from Retention Ponds (MS-4)
- Construction Restrictions for Peak Holiday Times
- Roundabout of Sufficient Size for Towing Large Boats
- Balancing of Earthwork Unknown
- Impacts to Travelling Public

## VALUE ENGINEERING STUDY

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### KEY INFORMATION/NOTES

#### Creative Phase

The Creative Phase of the V.E. study was initiated the afternoon of the first day of the study. A total of twenty-one (21) creative ideas were generated for further investigation by the team. The creative ideas focused on areas of the project which the VE Team felt had the most opportunity for value improvement, including:

- Revising Approach to Project for New Location of SR 347
- Revising Approach to Multi-use Trails
- Consideration of Alternatives to Roundabout
- Reducing Right-of-way acquisition required
- Reducing Horizontal and Vertical Curves to Minimums Appropriate for Design Speed
- Elimination of Project Elements not Improving Operations of SR 347

Additional ideas were generated reflecting alternative project components based on an understanding of local construction products and materials and the relative costs of installing them.

A listing of all creative ideas on this project is included in the Appendix.

#### Alternative Idea Evaluation Criteria

The session participants identified the characteristics for evaluating the V.E. ideas for which alternatives would be the most acceptable for incorporation in the project. The highest ranked ideas would satisfy several of these criteria. The evaluation criteria for V.E. ideas are as follows:

#### V.E. Idea Evaluation Criteria

- Improves Operations
- Reduces Construction Time
- Meets Project Need and Purpose
- Reduces Impacts
  - Property
  - Business
  - Environmental
- Reduces Costs

# VALUE ENGINEERING STUDY

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## KEY INFORMATION/NOTES

### Evaluation Phase

The ideas generated during the Creative Phase were reviewed and evaluated by the VE session participants during an Analysis/Judgment Phase session at the end of the first study day. The intent of the meeting was to allow the participants an opportunity to discuss and evaluate the ideas. A few of the V.E. ideas were dropped at that time as being conceptually unacceptable.

The ranking session consisted of the VE team members assigning a ranking for each idea. The Acceptability ranking was based on how each idea improves the value of the project when considered against the evaluation criteria listed previously. All ideas were given a designation of 1-5 on acceptability, with a 5 being those ideas that brought the most added value to the project. This is a time management tool to identify those proposals that have the greatest potential. Approximately thirteen (13) out of the original twenty-one (21) creative ideas were deemed promising for further investigation and analysis by the V.E. team.

The time management ranking system used by the VE team is as follows:

#### ACCEPTABILITY OF IDEA

- 5 points - Excellent Idea
- 4 points – Very Good Idea
- 3 points - Good Idea
- 2 points - Fair Idea
- 1 point - Do Not Develop

The rankings assigned by the VE Team to each idea are noted in the “Brainstorming or Speculation Ideas” list included in the Appendix.

## VALUE ENGINEERING STUDY

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### KEY INFORMATION/NOTES

#### **Development Phase**

The specific proposals found in the body of this report represent the positive results of investigations by the V.E. team on the SR 347 from Lake Lanier to McEver Road project. Each proposal represents a quality enhancing or cost saving alternative, which is documented by words, drawings and numbers. The proposal format presents the idea, describes the original design element proposed for change and the proposed change, lists the perceived advantages and disadvantages of the proposed change and supports the idea with a detailed cost estimate for the original and proposed design. Where necessary for clarity, the proposal also includes thumbnail design drawings and supporting engineering calculations.

#### **Presentation Phase**

A presentation to the GDOT representatives was conducted on 9 May 2013 at 9 AM.

#### **Basis of V.E. Cost Savings**

The cost information for proposals in this report are based on the cost data prepared by the design team, GDOT Item Mean Summary (Jan. 9, 2012), VE Team member experience, and discussions with vendors/Contractors. Overhead and profit are included in the project cost estimate and the GDOT Item Mean. Therefore, no additional markups are applied. The savings presented in the proposals is a general order of magnitude (estimate of the potential savings) if the idea were to be accepted. These figures are solely intended to identify the most attractive design solution, and are not prepared to represent a net deduction to the overall project budget. The costs are in 2013 dollars.

#### **Evaluation of Alternatives**

When reviewing the value engineering proposals, consider each part of an alternative on its own merit. There may be a tendency to disregard an entire alternative because of a concern about one aspect of it. We encourage partial acceptance of ideas; thus, each aspect of an alternative should be considered for incorporation into the design, even if the entire alternative is not implemented. Variations of these proposed alternatives are encouraged.

Several of these alternatives are either “mutually exclusive” or have overlapping cost savings with other alternatives. These are indicated in the Proposal Summary Table. Items indicated as mutually exclusive indicates that acceptance of one alternative, precludes acceptance of the related proposal. Decision-makers are encouraged to evaluate these alternatives carefully in order to select the combination of alternatives that provides the greatest benefits to the project.

## VALUE ENGINEERING STUDY

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### VALUE ENGINEERING RESULTS

The VE Team generated 21 creative ideas and developed 13 proposals for consideration by GDOT. Brief outlines of the developed VE proposals are as follows:

#### Proposal Highlights

**R-1.0 – Eliminate Roundabout and Make Big Creek Road and New Bethany Road Intersection Stop Controlled.** The current project design has a single lane roundabout at the intersection of Big Creek Road / New Bethany Road and relocated SR 347. In Proposal R-1.0, it is proposed to eliminate the roundabout and develop a four leg intersection to be a two-way stop controlled intersection with a stop condition on the minor roadways as discussed as Alternate 1 in the project Concept Report. This alternative will save approximately \$1,700,000 in project costs while also achieving the goals for the project.

**R-2.0 – Reduce Design and Posted Speed from 45 to 35 MPH West of McEver Road (Entire Project).** Currently SR 347 is posted at 45 MPH and the current design is proposed to meet a 45 MPH speed design. In Proposal R-2.0, it is proposed to reduce the posted speed limit on SR 347 to 35 MPH and design the proposed widening project using the 35 MPH design criteria. This section of roadway would appear to benefit from a reduced speed limit due to there being more than 50 driveways or side roads which have access to SR 347 in this 2.4-mile section. This proposal allows greater use of the existing pavement locations, and results in a savings of \$1,773,000.

**R-3.0 - Reduce Horizontal Curves from Sta 10015+00 to 10025+00.** In the existing roadway between Sta 10015+00 and Sta 10025+00, two horizontal curves have radii of 2,083 feet and 322 feet. The current design proposes realignment between these stations, which consists of a single curve with a radius of 1,146 feet, which exceeds the required minimum criteria. In R-3.0, it is proposed to maintain the existing 2,083-foot radius curve and replace the existing 322-foot radius curve with radius of 720 feet. This is just slightly greater than the required minimum of 711 feet for the design speed of 45 mph. This alternative would reduce right-of-way impacts and save approximately \$137,000.

**R-4.0 - Reduce Horizontal Curves from Sta 10030+00 to 10041+00.** In the existing roadway between Sta 10030+00 and Sta 10041+00, the horizontal curve has a radius of 770 feet, which currently meets AASHTO and GDOT criteria for a design speed of 45 mph. The current design proposes an alignment between these stations that consists of a single curve with a radius of 1042 feet, which exceeds the required minimum radius. In R-4.0, it is proposed to utilize a horizontal curve with a radius of 900 feet which exceeds the required minimum of 711 feet. This alternative results in reduced right-of-way and stream impacts, and provides a project cost savings of \$310,000.

## VALUE ENGINEERING STUDY

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### VALUE ENGINEERING RESULTS

**R-6.0 - From Rowe Drive to New Waterworks Road Create 1-Way Road East on Existing SR 347 and 1-Way Road West on New Location of SR 347.** The current design relocates SR 347 onto new location between Rowe Drive and North Waterworks Drive providing a three-lane section with curb and gutter throughout. In R-6.0, it is proposed that the existing two-lanes of SR 347 be converted into a one-way Eastbound roadway from Rowe Drive to North Waterworks Road. A new two-lane one-way Westbound roadway would be constructed along the new location alignment within these same limits. Two-way, two-lane cross connections would be provided at Lee Circle/Merritts Drive (realigned roadway), Big Creek Road/New Bethany Road (existing roadway), and Whidby Road (existing roadway). This proposal minimizes business impacts, while saving an estimated \$455,000 in construction costs.

**R-7.0 - Reduce Shoulder on Sidewalk Side from 16' to 12' Wide.** In the current design, the typical section for the shoulder with a 5'0" sidewalk is 16'0" from the edge of pavement to the shoulder break point. There is a 6'0" grass strip between the back of the curb and the sidewalk. The proposed change is to reduce the width of the shoulder on the sidewalk side from 16'0" to 12'0"; the grass strip between the back of the curb and the sidewalk will be reduced to 2'0". This revision meets GDOT design policy and reduces project costs by approximately \$142,000.

**R-8.0 - Use Asphalt in lieu of Concrete for 10' Wide Multi-use Trail.** The current design includes a 10-foot multi-use trail constructed of 4-inch concrete sidewalk on the northern side of the roadway. It is proposed to utilize an asphalt concrete pavement section for the 10-foot multi-use trail. The proposed section is a 6" graded aggregate base, and a 2" asphalt surface course. GDOT allows these as asphalt surfaces and the "softer" asphalt section is preferred by runners and cyclists. This proposal results in a cost savings of approximately \$265,000.

**R-9.0 - Eliminate Realignment of New Bethany Road at Existing SR 347.** In the current design, a re-alignment is shown for New Bethany Road which currently intersects SR 347 approximately 60 feet West of the intersection of SR 347 and Big Creek Road. The current design shifts New Bethany Road East to form a 4-legged intersection. In R-9.0, it is proposed to eliminate all construction at this intersection and leave the alignments separated by 60 feet as they currently exist. The work at this intersection does not appear to benefit SR 347 operations and elimination would result in a savings of approximately \$167,000.

## VALUE ENGINEERING STUDY

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### VALUE ENGINEERING RESULTS

**R-10.0 - Eliminate Relocation of Lee Circle Between New and Existing SR 347.** The current design shows a 130 LF connection as an extension of Lee Circle South of relocated SR 347 which ties to the old alignment. In R-10.0, it is proposed to eliminate the 130 LF extension of Lee Circle South of relocated SR 347. The work at this location is not required to meet the project intention of improving operations of SR 347 and elimination would save approximately \$21,000.

**R-11.0 - Move Eastern Cul-de-sac on Existing SR 347 to East Approximately 425' and Eliminate Extension of 3 Driveways to New SR 347.** In the current design, modifications of the existing section of SR 347 include locating a new cul-de-sac at approximately the location where Whidby Road currently intersects with the existing SR 347. This requires extending the 3 driveways on existing SR 347 located East of the new cul-de-sac to the proposed realigned section of SR 347. In R-11.0, it is proposed to locate the new cul-de-sac further to the East such that the 3 driveways can remain tied in to Existing SR 347 and eliminate the driveway extensions. This alternative provides a project cost savings of \$16,000.

**R-12.0 - Eliminate Short Acceleration Lanes at Holiday Road and Joy Drive.** In the current design, the intersection of Holiday Road has an acceleration lane approximately 100' long and 100' taper. Also, the intersection of Joy Drive has an acceleration lane approximately 50' long and 100' taper. In R-12.0, it is proposed to eliminate the short acceleration lanes and develop the approaches in accordance with the GDOT Regulations for Driveway and Encroachment Control. This proposal eliminates construction of features that do not meet GDOT standards, while saving an estimated \$12,000 in construction costs.

**R-13.0 - Reduce Length of Right-Turn Lane into Holiday Marina.** An existing 600' right turn lane (550' lane with a 50' taper) is located at the entrance to the Holiday Marina property. The current design includes providing a 675' turn lane (600' lane with a 75' taper) at this location. In R-13.0, it is proposed to reduce the right turn lane to 175' with a 100' taper for a total of 275', which is the minimum required right turn lane length according to GDOT criteria for a posted speed of 45 mph. This meets GDOT policies and reduces project costs by approximately \$155,000.

**R-16.0 - Use 12' Travel Lanes and Reduce Turn Lane Width from 14' to 12'.** The current design of the SR 347 typical roadway section includes two 12' travel lanes in each direction with a 14' wide turn lane. In R-16.0, it is proposed to reduce the turn lane from 14' to 12', with the travel lanes remaining at 12'. This alternative provides a savings of approximately \$217,000.

**SUMMARY OF VALUE ENGINEERING PROPOSALS**

**Project # CSSTP-0007-00(319) PI No. 0007319  
SR 347/Lanier Islands Parkway from Lake Lanier to McEver Road  
HALL COUNTY, GEORGIA**

<b>IDEA NO.</b>	<b>PROPOSAL DESCRIPTION</b>	<b>CONSTRUCTION SAVINGS</b>	<b>RELATED PROPOSALS</b>
	<b>Note: Brackets mean additional cost</b>		
	<b>ROADWAY (R)</b>		
1.0	Eliminate Roundabout and Make Big Creek Road and New Bethany Road Intersection Stop Controlled	1,699,455	Mutually exclusive with 6.0
2.0	Reduce Design and Posted Speed from 45 to 35 MPH West of McEver Road (Entire Project)	1,773,859	Mutually exclusive with 3.0 & 4.0
3.0	Reduce Horizontal Curves from Sta 10015+00 to 10025+00	136,909	Mutually exclusive with 2.0
4.0	Reduce Horizontal Curves from Sta 10030+00 to 10041+00	310,222	Mutually exclusive with 2.0
6.0	From Rowe Drive to North Waterworks Road Create One-way Road East on Existing SR 347 and One-way West on New Location	455,784	Mutually exclusive with 1.0, 9.0, 10.0 & 11.0
7.0	Reduce Shoulder on Sidewalk Side from 16' to 12' Wide	141,840	Some Cost Savings Overlap with 6.0
8.0	Use Asphalt in lieu of Concrete for 10' Wide Multi-use Trail	265,080	
9.0	Eliminate Realignment of New Bethany Road at Existing SR 347	166,840	Mutually exclusive with 6.0
10.0	Eliminate Relocation of Lee Circle Between Relocated and Existing SR 347	21,247	Mutually exclusive with 6.0
11.0	Move Eastern Cul-de-sac on Existing SR 347 to East Approximately 425' and Eliminate Extension of 3 Driveways to Relocated SR 347	16,009	Mutually exclusive with 6.0
12.0	Eliminate Short Acceleration Lanes at Holiday Road and Joy Drive	12,246	
13.0	Reduce Length of Right-Turn Lane into Holiday Marina	155,406	
16.0	Use 12' Travel Lanes and Reduce Turn Lane Width from 14' to 12'	217,464	Cost Savings Overlap with 6.0

## VALUE ENGINEERING PROPOSAL

<b>PROPOSAL NUMBER:</b> R-1.0	<b>PAGE NUMBER:</b> 1 of 4
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<b>PROJECT #/PI #:</b>	<b>CSSTP-0007-00(319) / 0007319</b>
<b>PROJECT TITLE:</b>	<b>SR 347 from Lake Lanier to McEver Road Hall County</b>

<b>PROPOSAL DESCRIPTION:</b>	<b>ELIMINATE ROUNDABOUT AND MAKE BIG CREEK ROAD AND NEW BETHANY ROAD INTERSECTION STOP CONTROLLED.</b>
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**ORIGINAL DESIGN:** The current project design has a single lane roundabout at the intersection of Big Creek Road / New Bethany Road and relocated SR 347.

**PROPOSED CHANGE:** It is proposed to eliminate the roundabout and develop a four leg intersection to be a two-way stop controlled intersection with a stop condition on the minor roadways as discussed as Alternate 1 in the project Concept Report.

**JUSTIFICATION:** The design of a four leg intersection is Alternate 1 in the Concept Report. The rationale included in the Concept report states the alternate satisfies the goals outlined in the Project Justification Statement. The report states this alternate will provide an efficient means to reduce time as well as reduce cost to property, right-of-way, total cost and construction time in the short term.

**ADVANTAGES:**

- Reduces construction time by 6 months (as per the project Concept Report)
- Reduces construction cost
- Reduces impacts to adjacent property
- Eliminates concerns regarding the ability to tow large boats through the roundabout

**DISADVANTAGES:**

- Constructing a roundabout in the future at this location would result in added traffic control and may increase right-of-way and total cost (as per the project Concept Report)

	INITIAL COST	OPERATING COST	TOTAL LIFE-CYCLE COST
<b>ORIGINAL DESIGN:</b>	\$ 15,803,871		\$ 15,803,871
<b>PROPOSED CHANGE:</b>	\$ 14,104,416		\$ 14,104,416
<b>SAVINGS:</b>	\$ 1,699,455		\$ 1,699,455

## COST ESTIMATING WORKSHEET

<b>PROPOSAL NUMBER:</b>	R-1.0	<b>PAGE NUMBER:</b>	2 of 4
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<b>PROJECT #/PI #:</b>	CSSTP-0007-00(319) / 0007319
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### ORIGINAL DESIGN

ITEM	SOURCE CODE	U/M	QTY	UNIT COST	TOTAL COST
Preferred Alternate from Concept Report	1	LS	LS	\$15,803,871	\$15,803,871
SUBTOTAL – COST TO PRIME					\$15,803,871
MARKUP					Incl.
TOTAL CONTRACT COST					\$15,803,871

### PROPOSED CHANGE

ITEM	SOURCE CODE	U/M	QTY	UNIT COST	TOTAL COST
Alternate 1 from Concept Report	1	LS	LS	\$14,104,416	\$14,104,416
SUBTOTAL – COST TO PRIME					\$14,104,416
MARKUP					Incl.
TOTAL CONTRACT COST					\$14,104,416

Difference [Original-Proposed]            \$1,699,455

### SOURCES

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>1. Project Cost Estimate</li> <li>2. USC Estimate Database</li> <li>3. GDOT Item Mean Summary</li> <li>4. Means Estimating Manual</li> </ul> | <ul style="list-style-type: none"> <li>5. Richardson's Estimating Manual</li> <li>6. Vendor (Specify)</li> <li>7. Other (Specify)</li> </ul> |
|---|--|

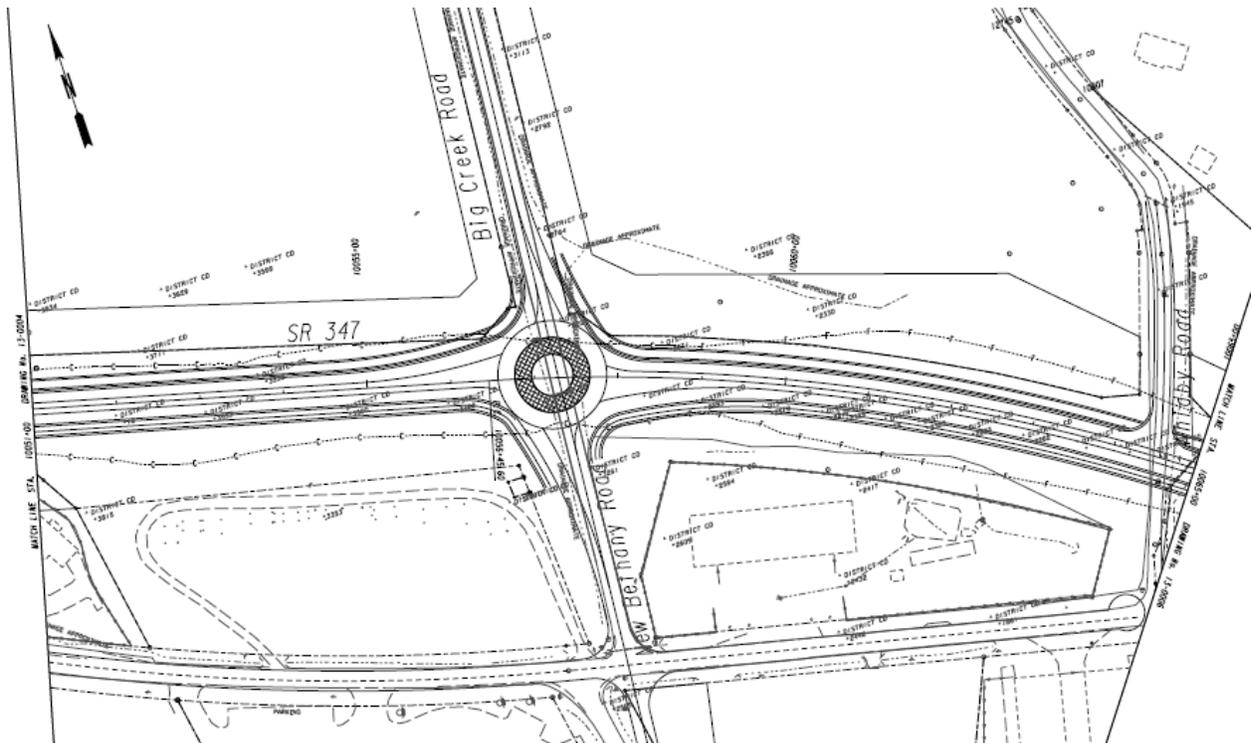
# ORIGINAL DESIGN SKETCH/DETAIL

PROPOSAL NUMBER: R-1.0

PAGE NUMBER: 3 of 4

PROJECT #/PI #: CSSTP-0007-00(319) / 0007319

Proposed Change: Change Intersection at Big Creek Rd/New Bethany Rd from Roundabout to Stop Controlled



## CALCULATIONS

**PROPOSAL NUMBER:** R-1.0

**PAGE NUMBER:** 4 of 4

**PROJECT #/PI #:** CSSTP-0007-00(319) / 0007319

Cost calculations were taken from the project Concept Report Alternatives Discussion comparing the Preferred alternate to Alternate 1.

Preferred Alternate – with Roundabout:	\$15,803,871
Alternate 1 – Stop Controlled Intersection:	\$14,104,416

## VALUE ENGINEERING PROPOSAL

<b>PROPOSAL NUMBER:</b> R-2.0	<b>PAGE NUMBER:</b> 1 of 3
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<b>PROJECT #/PI #:</b>	<b>CSSTP-0007-00(319) / 0007319</b>
<b>PROJECT TITLE:</b>	<b>SR 347 from Lake Lanier to McEver Road Hall County</b>

<b>PROPOSAL DESCRIPTION:</b> REDUCE THE DESIGN AND POSTED SPEED LIMITS FROM 45 MPH TO 35 MPH ON SR 347 WEST OF MCEVER ROAD.
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**ORIGINAL DESIGN:** Currently SR 347 is posted at 45 MPH and the current design is proposed to meet a 45 MPH speed design.

**PROPOSED CHANGE:** It is proposed to reduce the posted speed limit on this section of SR 347 to 35 MPH and design the proposed widening project using the 35 MPH design criteria. The existing horizontal and vertical alignments will be maintained except for curves that do not currently meet 35 MPH. The only apparent substandard horizontal curve is located on SR 347 at the intersection of Holiday Point and Lazy Day Marina having a radius of approximate 322' (371' radius required for 35 MPH). This change allows greater use of the existing pavement locations and allows widening and overlay in all areas except the relocation portion and the realignment portions.

**JUSTIFICATION:** SR 347 West of McEver Road is classified as an "Urban Minor Arterial Street". GDOT Design Policy Manual does not address a 3-lane Urban Arterial Roadway in Table 6.6. AASHTO (2011 in Chapter 2 Design Speed) states "Urban arterial streets should be designed and control devices regulated to permit running speeds of 20 to 45 mph". There are more than 50 driveways or side roads which have access to SR 347 in this 2.4 mile section which would benefit from a reduced speed limit. SR 347 ends just West of Holiday Marina (at the beginning of this project) and ties to Holiday Road which is a winding 2-lane divided roadway.

**ADVANTAGES:**

- Reduces construction cost
- Reduces property impacts
- Creates opportunity to reduce right-of-way and easement area and cost by following existing alignment

**DISADVANTAGES:**

- Requires a speed study evaluation

	INITIAL COST	OPERATING COST	TOTAL LIFE-CYCLE COST
<b>ORIGINAL DESIGN:</b>	\$ 5,682,429		\$ 5,682,429
<b>PROPOSED CHANGE:</b>	\$ 3,908,570		\$ 3,908,570
<b>SAVINGS:</b>	\$ 1,773,859		\$ 1,773,859

## COST ESTIMATING WORKSHEET

<b>PROPOSAL NUMBER:</b>	R-2.0	<b>PAGE NUMBER:</b>	2 of 3
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<b>PROJECT #/PI #:</b>	<b>CSSTP-0007-00(319) / 0007319</b>
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### ORIGINAL DESIGN

ITEM	SOURCE CODE	U/M	QTY	UNIT COST	TOTAL COST
Full Depth Asphalt and GAB	1/7	SY	51975	\$61.23	\$3,182,429
Grading Complete	1	LS	LS	\$2,500,000	\$2,500,000
SUBTOTAL – COST TO PRIME					\$5,682,429
MARKUP					Incl.
<b>TOTAL CONTRACT COST</b>					<b>\$5,682,429</b>

### PROPOSED CHANGE

ITEM	SOURCE CODE	U/M	QTY	UNIT COST	TOTAL COST
Full Depth Asphalt and GAB	1/7	SY	18578	\$61.23	\$1,137,531
Full Depth Asphalt and GAB	1/7	SY	12304	\$61.23	\$753,374
Overlay	1/7	SY	20867	\$6.85	\$142,665
Grading Complete	7	LS	LS	\$1,875,000	\$1,875,000
SUBTOTAL – COST TO PRIME					\$3,908,570
MARKUP					Incl.
<b>TOTAL CONTRACT COST</b>					<b>\$3,908,570</b>

Difference [Original-Proposed]      **\$1,773,859**

### SOURCES

- |   |   |
|---|---|
| <ol style="list-style-type: none"> <li>1. Project Cost Estimate</li> <li>2. USC Estimate Database</li> <li>3. GDOT Item Mean Summary</li> <li>4. Means Estimating Manual</li> </ol> | <ol style="list-style-type: none"> <li>5. Richardson's Estimating Manual</li> <li>6. Vendor (Specify)</li> <li>7. VE Calculation sheet</li> </ol> |
|---|---|

## CALCULATIONS

**PROPOSAL NUMBER:** R-2.0

**PAGE NUMBER:** 3 of 3

**PROJECT #/PI #:** CSSTP-0007-00(319) / 0007319

### Current Design Pavement Cost Calculations:

310-1101: 12" GAB = 0.68 tons/SY x \$19.50/ton = \$13.26/SY

402-3121: 7" Asph 25MM = (7")(110#sy-in/2000#)(\$83.07/T) = \$31.98/SY

402-3190: 2" Asph 19MM = (2")(110#sy-in/2000#)(\$83.07/T) = \$9.14/SY

402-3113: 1.5" Asph 12.5MM = (1.5")(110#sy-in/2000#)(\$83.07/T) = \$6.85/SY

Total pavement cost = **\$61.23/SY**

### Assumptions

Assume full depth relocation section Sta 10040+00 to Sta 10075+00 = 3500 LF

Assume full depth realignment section Sta 10015+00 to Sta 10024+00 = 900 LF

Total project = 12,310 LF

Therefore full depth portion = 3,500+900 = 4,400 LF

Widening and overlay portion = 12,310-4,400 = 7,910 LF

### Current Design Calculations

12,310 LF x 38' = 467,780 SF / 9 = 51,975 SY @ \$61.23/SY = **\$3,182,429 full depth entire section**

### Proposed Change Calculations

4,400 LF x 38 feet wide = 167,000 SF / 9 = 18578 SY @ \$61.23/SY = \$1,137,531 full depth

Widening from 24' to 38' = 14' full depth x 7910 LF = 110740 SF / 9 = 12304 SY @ 61.23 = \$753,374

Overlay 24' x 7,810 LF = 187,440 SF / 9 = 20,827 SY (12.5 MM) @ \$6.85/SY = \$142,665

\$753,374 + \$142,665 = \$896,039 widening and overlay

**\$1,137,531 + \$896,039 = \$2,033,570 total, full depth asphalt and widening & overlay**

Estimate Grading Complete could be reduced by 25%

\$2,500,000 x 25% = \$625,000 reduction in Grading Complete

\$2,500,000 - \$625,000 = \$1,875,000

## VALUE ENGINEERING PROPOSAL

<b>PROPOSAL NUMBER:</b> R-3.0	<b>PAGE NUMBER:</b> 1 of 5
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<b>PROJECT #/PI #:</b>	<b>CSSTP-0007-00(319) / 0007319</b>
<b>PROJECT TITLE:</b>	<b>SR 347 from Lake Lanier to McEver Road Hall County</b>

<b>PROPOSAL DESCRIPTION:</b>	<b>REDUCE HORIZONTAL CURVES FROM STA 10015+00 TO STA 10025+00.</b>
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**ORIGINAL DESIGN:** Between Sta 10015+00 and Sta 10025+00 along the existing roadway alignment, two horizontal curves have radii of 2,083 feet and 322 feet. The second curve radius does not meet AASHTO and GDOT criteria for a design speed of 45 mph. The original design proposes realignment between these stations, which consists of a single curve with a radius of 1,146 feet, which exceeds the required minimum criteria.

**PROPOSED CHANGE:** The proposed change would maintain the existing 2,083-foot radius curve and replace the existing 322-foot radius curve with radius of 720 feet. This is just slightly greater than the required minimum of 711 feet for the design speed of 45 mph.

**JUSTIFICATION:** Reducing the proposed curve radius to 720 feet would decrease the amount of impacts, while exceeding AASHTO and GDOT criteria.

**ADVANTAGES:**

- Reduces right-of-way impacts
- Reduces construction costs
- Potential to reduce construction time

**DISADVANTAGES:**

- None apparent

	INITIAL COST	OPERATING COST	TOTAL LIFE-CYCLE COST
<b>ORIGINAL DESIGN:</b>	\$ 1,184,780		\$ 1,184,780
<b>PROPOSED CHANGE:</b>	\$ 1,047,871		\$ 1,047,871
<b>SAVINGS:</b>	\$ 136,909		\$ 136,909

## COST ESTIMATING WORKSHEET

<b>PROPOSAL NUMBER:</b>	R-3.0	<b>PAGE NUMBER:</b>	2 of 5
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<b>PROJECT #/PI #:</b>	CSSTP-0007-00(319) / 0007319
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### ORIGINAL DESIGN

ITEM	SOURCE CODE	U/M	QTY	UNIT COST	TOTAL COST
Full Depth Pavement	1	SY	3373.56	\$61.23	\$206,563
Right-of-way, residential	1	SF	70458.00	\$9.26	\$652,441
Grading complete	1	SF	153668.00	\$2.12	\$325,776
SUBTOTAL – COST TO PRIME					\$1,184,780
MARKUP					Incl.
<b>TOTAL CONTRACT COST</b>					<b>\$1,184,780</b>

### PROPOSED CHANGE

ITEM	SOURCE CODE	U/M	QTY	UNIT COST	TOTAL COST
Full Depth Pavement	1	SY	3732.44	\$61.23	\$228,538
Right-of-way, residential	1	SF	58925.00	\$9.26	\$545,645
Grading complete	1	SF	129098.00	\$2.12	\$273,688
SUBTOTAL – COST TO PRIME					\$1,047,871
MARKUP					Incl.
<b>TOTAL CONTRACT COST</b>					<b>\$1,047,871</b>

Difference [Original-Proposed]      **\$136,909**

### SOURCES

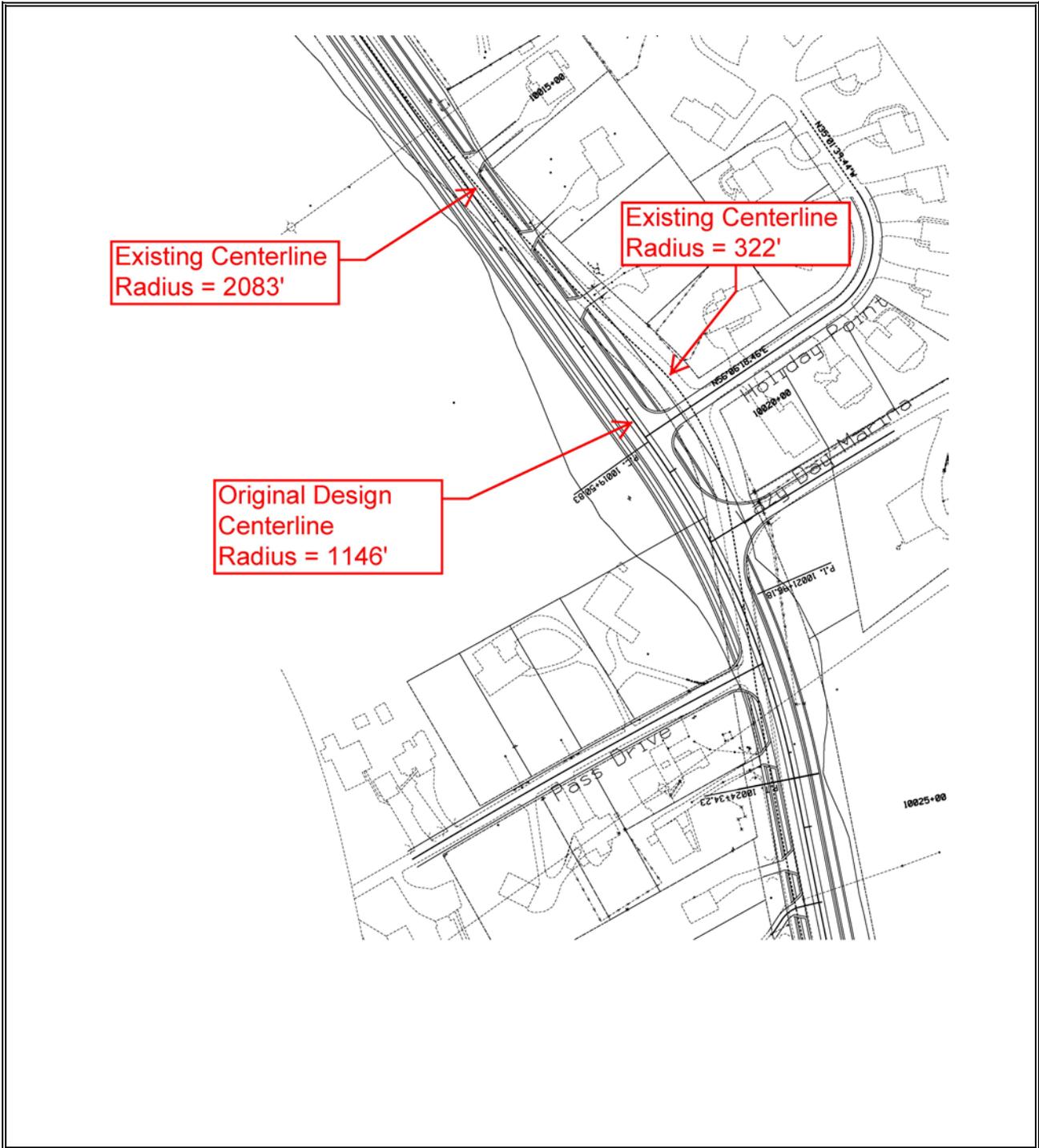
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| <ol style="list-style-type: none"> <li>1. Project Cost Estimate</li> <li>2. USC Estimate Database</li> <li>3. GDOT Item Mean Summary</li> <li>4. Means Estimating Manual</li> </ol> | <ol style="list-style-type: none"> <li>5. Richardson's Estimating Manual</li> <li>6. Vendor (Specify)</li> <li>7. Other (Specify)</li> </ol> |
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# ORIGINAL DESIGN SKETCH/DETAIL

PROPOSAL NUMBER: R-3.0

PAGE NUMBER: 3 of 5

PROJECT #/PI #: CSSTP-0007-00(319) / 0007319

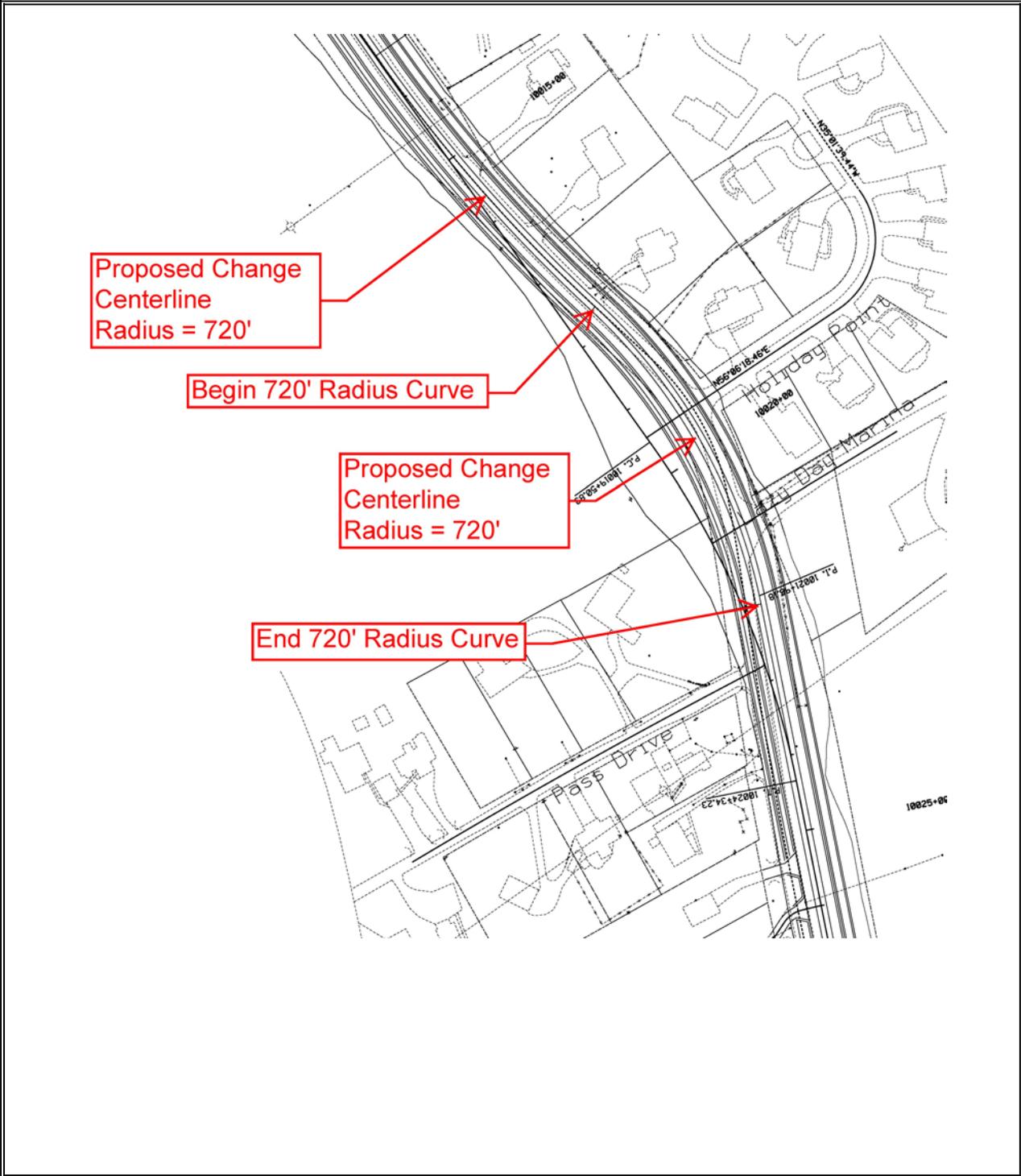


**PROPOSED CHANGE SKETCH/DETAIL**

**PROPOSAL NUMBER:** R-3.0

**PAGE NUMBER:** 4 of 5

**PROJECT #/PI #:** CSSTP-0007-00(319) / 0007319



## CALCULATIONS

**PROPOSAL NUMBER:** R-3.0

**PAGE NUMBER:** 5 of 5

**PROJECT #/PI #:** CSSTP-0007-00(319) / 0007319

### ORIGINAL DESIGN:

#### Full Depth Pavement Cost Calculations:

310-1101: 12" GAB = 0.68 tons/SY x \$19.50/ton = \$13.26/SY

402-3121: 7" Asph 25MM = (7")(110#sy-in/2000#)(\$83.07/T) = \$31.98/SY

402-3190: 2" Asph 19MM = (2")(110#sy-in/2000#)(\$83.07/T) = \$9.14/SY

402-3113: 1.5" Asph 12.5MM = (1.5")(110#sy-in/2000#)(\$83.07/T) = \$6.85/SY

Pavement Unit Cost = \$61.23/SY

Total Pavement Cost = (\$61.23/SY)(38' x 799')/(9 SF/SY) = **\$206,563**

#### Right-of-way Cost Calculations:

Residential (to 10' outside LOC):

R/W Unit Cost = (\$508,250/ 1.89 AC)(1 AC/43,560 SF)(1.5) = \$9.26/SF

Total R/W Cost = (\$9.26/SF)(70,458.00 SF) = **\$652,441**

#### Grading Complete Cost Calculations:

Grading Complete Unit Cost = (\$2,500,000/ 1,181,734 SF) = \$2.12/SF

Total Grading Complete Cost = (\$2.12/SF)(153,668.00 SF) = **\$325,776**

**ORIGINAL DESIGN COST = \$1,184,780**

### PROPOSED CHANGE:

#### Proposed Change Full Depth Pavement Cost Calculations:

Total Pavement Cost = (\$61.23/SY)(38' x 884')/(9 SF/SY) = **\$228,538**

#### Proposed Change Right-of-way Cost Calculations:

Residential (to 10' outside LOC):

Total R/W Cost = (\$9.26/ SF)(58,925.00 SF) = **\$545,645**

#### Proposed Change Grading Complete Cost Calculations:

Total Grading Complete Cost = (\$2.12/SF)(129,098.00 SF) = **\$273,688**

**PROPOSED CHANGE COST = \$1,047,871**

**TOTAL COST SAVINGS = \$136,909**

## VALUE ENGINEERING PROPOSAL

<b>PROPOSAL NUMBER:</b> R-4.0	<b>PAGE NUMBER:</b> 1 of 5
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<b>PROJECT #/PI #:</b>	<b>CSSTP-0007-00(319) / 0007319</b>
<b>PROJECT TITLE:</b>	<b>SR 347 from Lake Lanier to McEver Road Hall County</b>

<b>PROPOSAL DESCRIPTION:</b>	<b>REDUCE HORIZONTAL CURVE FROM STA 10030+00 TO STA 10041+00.</b>
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**ORIGINAL DESIGN:** Between Sta 10030+00 and Sta 10041+00 along the existing roadway alignment the horizontal curve has a radius of 770 feet, which currently meets AASHTO and GDOT criteria for a design speed of 45 mph. The current design proposes an alignment between these stations that consists of a single curve with a radius of 1,042 feet, which exceeds the required minimum radius.

**PROPOSED CHANGE:** The proposed change is to utilize a horizontal curve with a radius of 900 feet. This is more than the required minimum of 711 feet for the design speed of 45 mph; however it allows the improvements to occur within the existing right-of-way.

**JUSTIFICATION:** Reducing the proposed curve radius to 900 feet would decrease the amount of impacts, while meeting AASHTO and GDOT criteria.

**ADVANTAGES:**

- Reduces right-of-way impacts
- Reduces construction costs
- Potential to reduce construction time
- Avoids stream buffer impacts

**DISADVANTAGES:**

- None apparent

	INITIAL COST	OPERATING COST	TOTAL LIFE-CYCLE COST
<b>ORIGINAL DESIGN:</b>	\$ 615,671		\$ 615,671
<b>PROPOSED CHANGE:</b>	\$ 305,449		\$ 305,449
<b>SAVINGS:</b>	\$ 310,222		\$ 310,222

## COST ESTIMATING WORKSHEET

<b>PROPOSAL NUMBER:</b>	R-4.0	<b>PAGE NUMBER:</b>	2 of 5
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<b>PROJECT #/PI #:</b>	CSSTP-0007-00(319) / 0007319
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### ORIGINAL DESIGN

ITEM	SOURCE CODE	U/M	QTY	UNIT COST	TOTAL COST
Full Depth Pavement	1	SY	4909.22	\$61.23	\$300,592
Right-of-way, residential	1	SF	27932.60	\$9.26	\$258,656
Grading Complete	1	SF	26614.80	\$2.12	\$56,423
SUBTOTAL – COST TO PRIME					\$615,671
MARKUP					Incl.
<b>TOTAL CONTRACT COST</b>					<b>\$615,671</b>

### PROPOSED CHANGE

ITEM	SOURCE CODE	U/M	QTY	UNIT COST	TOTAL COST
Full Depth Pavement	1	SY	4988.56	\$61.23	\$305,449
Right-of-way, residential	1	SF	0.00	\$9.26	\$0
Grading Complete	1	SF	0.00	\$2.12	\$0
SUBTOTAL – COST TO PRIME					\$305,449
MARKUP					--
<b>TOTAL CONTRACT COST</b>					<b>\$305,449</b>

Difference [Original-Proposed]      **\$310,222**

### SOURCES

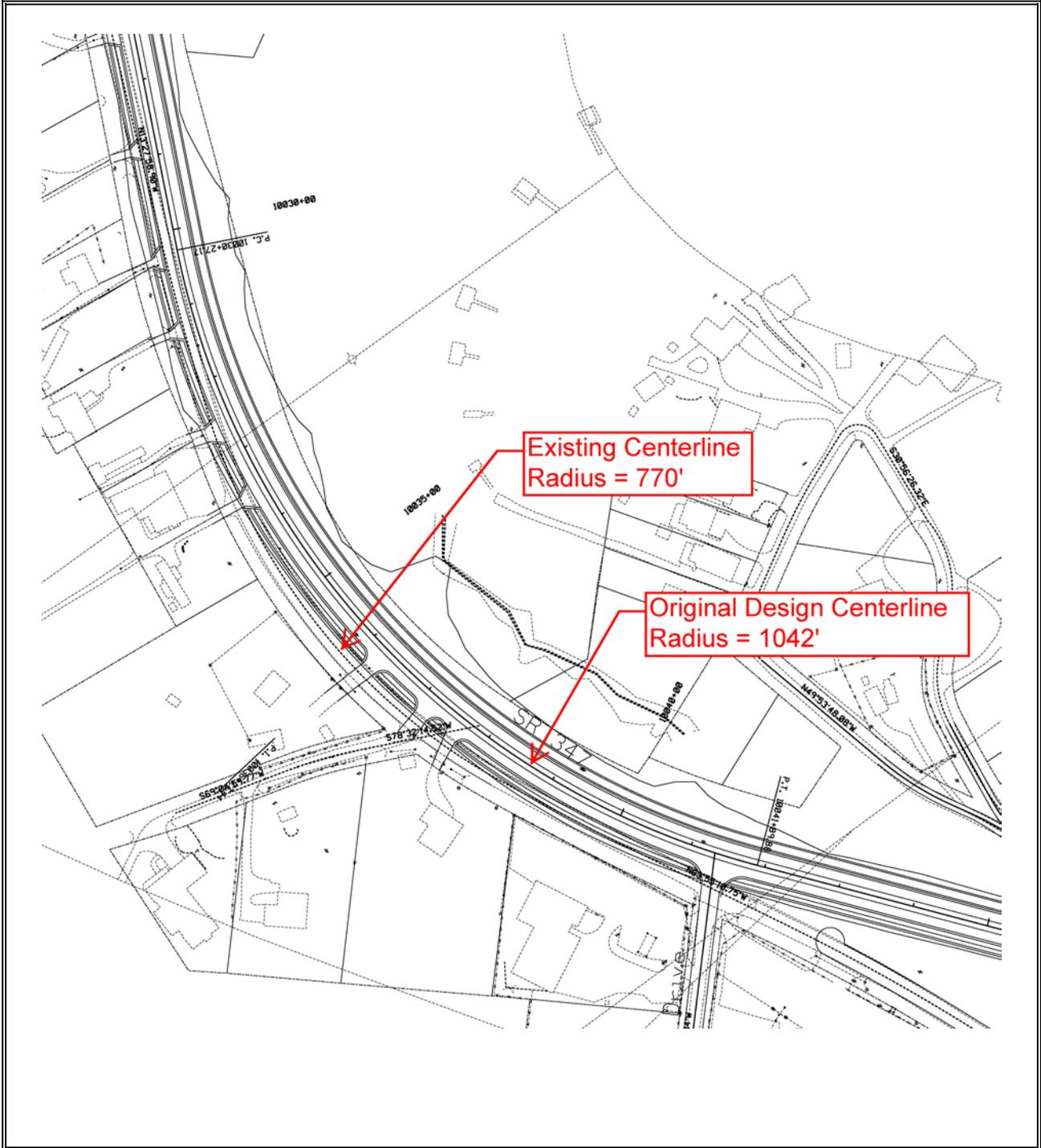
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|---|--|
| <ol style="list-style-type: none"> <li>1. Project Cost Estimate</li> <li>2. USC Estimate Database</li> <li>3. GDOT Item Mean Summary</li> <li>4. Means Estimating Manual</li> </ol> | <ol style="list-style-type: none"> <li>5. Richardson's Estimating Manual</li> <li>6. Vendor (Specify)</li> <li>7. Other (Specify)</li> </ol> |
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# ORIGINAL DESIGN SKETCH/DETAIL

PROPOSAL NUMBER: R-4.0

PAGE NUMBER: 3 of 5

PROJECT #/PI #: CSSTP-0007-00(319) / 0007319

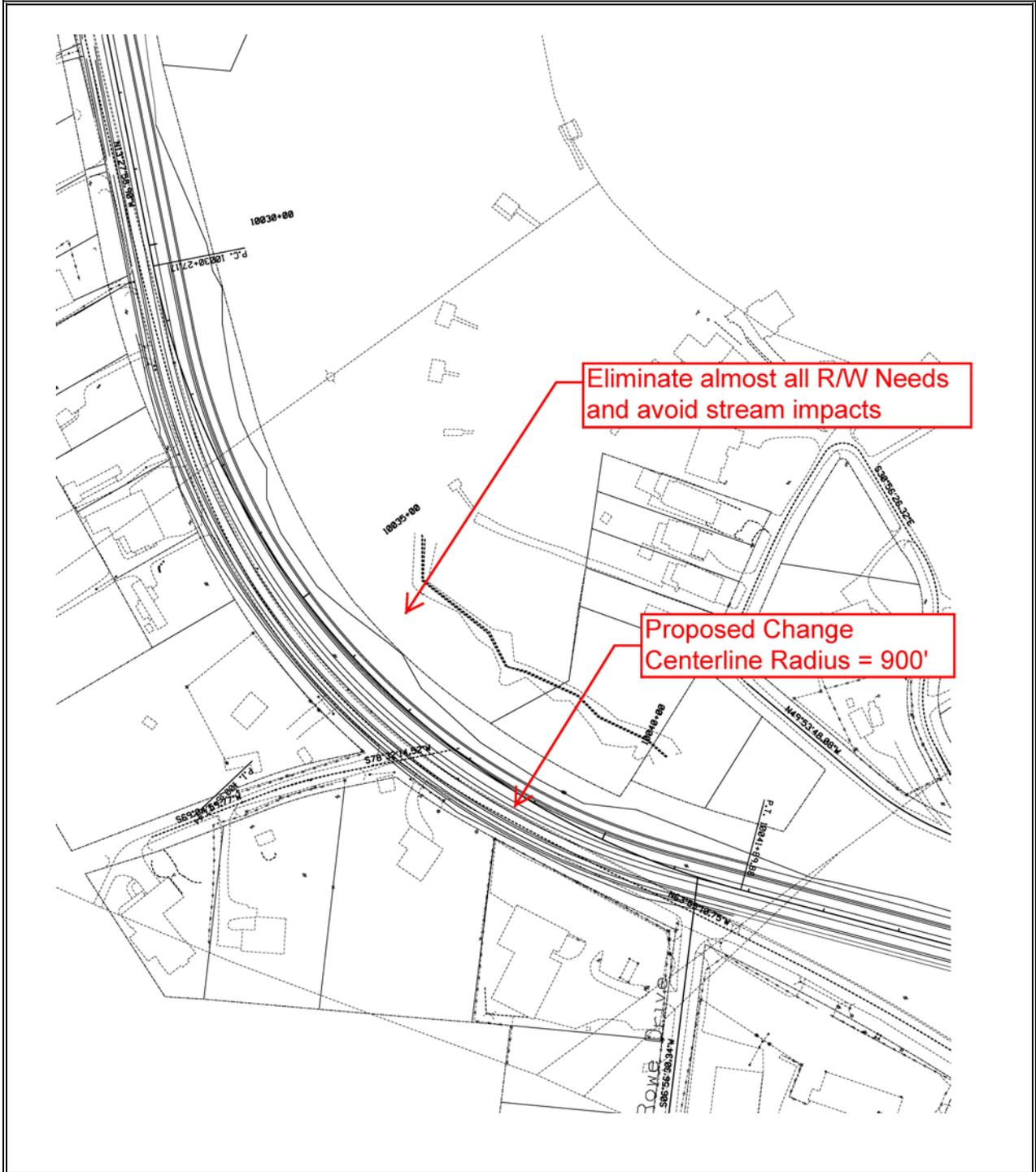


# PROPOSED CHANGE SKETCH/DETAIL

PROPOSAL NUMBER: R-4.0

PAGE NUMBER: 4 of 5

PROJECT #/PI #: CSSTP-0007-00(319) / 0007319



## CALCULATIONS

**PROPOSAL NUMBER:** R-4.0

**PAGE NUMBER:** 5 of 5

**PROJECT #/PI #:** CSSTP-0007-00(319) / 0007319

### **ORIGINAL DESIGN:**

#### **Full Depth Pavement Cost Calculations:**

310-1101: 12" GAB = 0.68 tons/SY x \$19.50/ton = \$13.26/SY

402-3121: 7" Asph 25MM = (7")(110#sy-in/2000#)(\$83.07/T) = \$31.98/SY

402-3190: 2" Asph 19MM = (2")(110#sy-in/2000#)(\$83.07/T) = \$9.14/SY

402-3113: 1.5" Asph 12.5MM = (1.5")(110#sy-in/2000#)(\$83.07/T) = \$6.85/SY

Pavement Unit Cost = \$61.23/SY

Total Pavement Cost = (\$61.23/SY)(38' x 1162.71')/(9 SF/SY) = **\$300,592**

#### **Right-of-way Cost Calculations:**

Residential (to 10' outside LOC):

R/W Unit Cost = (\$508,250/ 1.89 AC)(1 AC/ 43,560 SF)(1.5) = \$9.26/SF

Total R/W Cost = (\$9.26/SF)(27,932.60 SF) = **\$258,656**

#### **Grading Complete Cost Calculations:**

Grading Complete Unit Cost = (\$2,500,000.00/ 1,181,734 SF) = \$2.12/SF

Total Grading Complete Cost = (\$2.12/SF)(26,614.80\* SF) = **\$56,423**

\* *Grading Complete quantity is area outside the area required for the proposed change.*

**ORIGINAL DESIGN COST = \$615,671**

### **PROPOSED CHANGE:**

#### **Proposed Change Full Depth Pavement Cost Calculations:**

Total Pavement Cost = (\$61.23/SY)(38' x 1181.5')/(9 SF/SY) = **\$305,449**

#### **Proposed Change Right-of-way Cost Calculations:**

Residential (to 10' outside LOC):

Total R/W Cost = (\$9.26/ SF)(0.00 SF) = **\$0.00**

#### **Proposed Change Grading Complete Cost Calculations:**

Total Grading Complete Cost = (\$2.12/SF)(0.00\* SF) = **\$0.00**

\* *Grading Complete quantity was calculated in the Original Design above as area outside the area required for the proposed change; therefore the quantity is zero.*

**PROPOSED CHANGE COST = \$305,449**

**TOTAL COST SAVINGS = \$310,222**

## VALUE ENGINEERING PROPOSAL

<b>PROPOSAL NUMBER:</b>	R-6.0	<b>PAGE NUMBER:</b>	1 of 11
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<b>PROJECT #/PI #:</b>	CSSTP-0007-00(319) / 0007319
<b>PROJECT TITLE:</b>	SR 347 from Lake Lanier to McEver Road Hall County

<b>PROPOSAL DESCRIPTION:</b>	FROM ROWE DRIVE TO NORTH WATERWORKS ROAD CREATE ONE-WAY ROAD EAST ON EXISTING SR 347 AND ONE-WAY WEST ON NEW LOCATION.
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**ORIGINAL DESIGN:** The original design relocates SR 347 onto new location between Rowe Drive and North Waterworks Drive providing a three-lane section with curb and gutter throughout. A roundabout is provided at the intersection of the realigned SR 347 at Big Creek Road. A 10-foot multi-use trail is provided along the north side of the new roadway section and a 5-foot sidewalk is provided along the south side. The existing section of SR 347 to remain would be accessed via cross connections at Lee Circle/Merritts Drive and at Big Creek Road/New Bethany Road. Cul-de-sacs are provided to terminate the existing SR 347 just east of Rowe Drive and just west of Whidby Road.

**PROPOSED CHANGE:** The existing two-lanes of SR 347 would be converted into a one-way eastbound rural roadway from Rowe Drive to North Waterworks Road (no change proposed to roadway typical section). A new two-lane one-way westbound roadway would be constructed along the new location alignment within these same limits. Two-way, two-lane cross connections would be provided at Lee Circle/Merritts Drive (realigned roadway), Big Creek Road/New Bethany Road (existing roadway), and Whidby Road (existing roadway). All intersections would be side road stop condition. A 10-foot multi-use trail would be provided along the north side of the new alignment roadway section (one-way westbound lanes); a 5-foot sidewalk offset from the edge of pavement would be provided along the south side of the existing rural SR 347 roadway (one-way eastbound lanes); and 5-foot sidewalk cross connections would be provided along each roadway cross connection: Lee Circle/Merritts Drive, Big Creek Road/New Bethany Road, and Whidby Road.

	INITIAL COST	OPERATING COST	TOTAL LIFE-CYCLE COST
<b>ORIGINAL DESIGN:</b>	\$ 2,355,490		\$ 2,355,490
<b>PROPOSED CHANGE:</b>	\$ 1,899,706		\$ 1,899,706
<b>SAVINGS:</b>	\$ 455,784		\$ 455,784

## VALUE ENGINEERING PROPOSAL

**PROPOSAL NUMBER:** R-6.0

**PAGE NUMBER:** 2 of 11

<b>PROJECT #/PI #:</b>	<b>CSSTP-0007-00(319) / 0007319</b>
<b>PROJECT TITLE:</b>	<b>SR 347 from Lake Lanier to McEver Road Hall County</b>

**JUSTIFICATION:** The primary reason for not widening the existing SR 347 to a three-lane section was to avoid impacts to an existing cemetery and church located at the intersection with Big Creek Road/New Bethany Road. This proposal allows the capacity and operations improvements to occur within the area without impacting the resources in a negative manner and minimizes business impact concerns expressed by local business owners in the May 5, 2013 article published in the Gainesville Times (“Plans for Ga. 347 Include Roundabout”, Jeff Gill, Management Edition). In addition, this proposal provides flexibility to allow two-lane outbound traffic following major events at Lake Lanier Islands.

**ADVANTAGES:**

- Improves operations
- Utilizes existing right-of-way to accommodate MS4
- Minimizes business impacts
- Maintains business access and frontage
- Allows flexibility for event exit

**DISADVANTAGES:**

- Pedestrian crossings at each roadway intersection for cross connection
- Changes business driveways to right-in-right-out access.

## COST ESTIMATING WORKSHEET

<b>PROPOSAL NUMBER:</b>	R-6.0	<b>PAGE NUMBER:</b>	3 of 11
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<b>PROJECT #/PI #:</b>	<b>CSSTP-0007-00(319) / 0007319</b>
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### ORIGINAL DESIGN

ITEM	SOURCE CODE	U/M	QTY	UNIT COST	TOTAL COST
Full Depth Pavement	1	SY	18,012.33	\$61.23	\$1,102,895
Conc Curb & Gutter, 6" x 30" TP2	1	LF	6,400	\$11.66	\$74,624
Conc Sidewalk, 4 in	1	SY	5,333	\$35.15	\$187,467
Driveway Concrete, 4 in	1	SY	416.67	\$15.91	\$6,629
Grading complete	1	SF	464,092	\$2.12	\$983,875
SUBTOTAL – COST TO PRIME					\$2,355,490
MARKUP					Incl.
<b>TOTAL CONTRACT COST</b>					<b>\$2,355,490</b>

### PROPOSED CHANGE

ITEM	SOURCE CODE	U/M	QTY	UNIT COST	TOTAL COST
Full Depth Pavement	1	SY	11,224	\$61.23	\$687,246
Conc Curb & Gutter, 6" x 30" TP2	1	LF	7,900	\$11.66	\$91,114
Conc Sidewalk, 4 in	1	SY	5,686.11	\$35.15	\$199,867
Grading complete	1	SF	434,660	\$2.12	\$921,479
SUBTOTAL – COST TO PRIME					\$1,899,706
MARKUP					Incl.
<b>TOTAL CONTRACT COST</b>					<b>\$1,899,706</b>

Difference [Original-Proposed]      **\$455,784**

### SOURCES

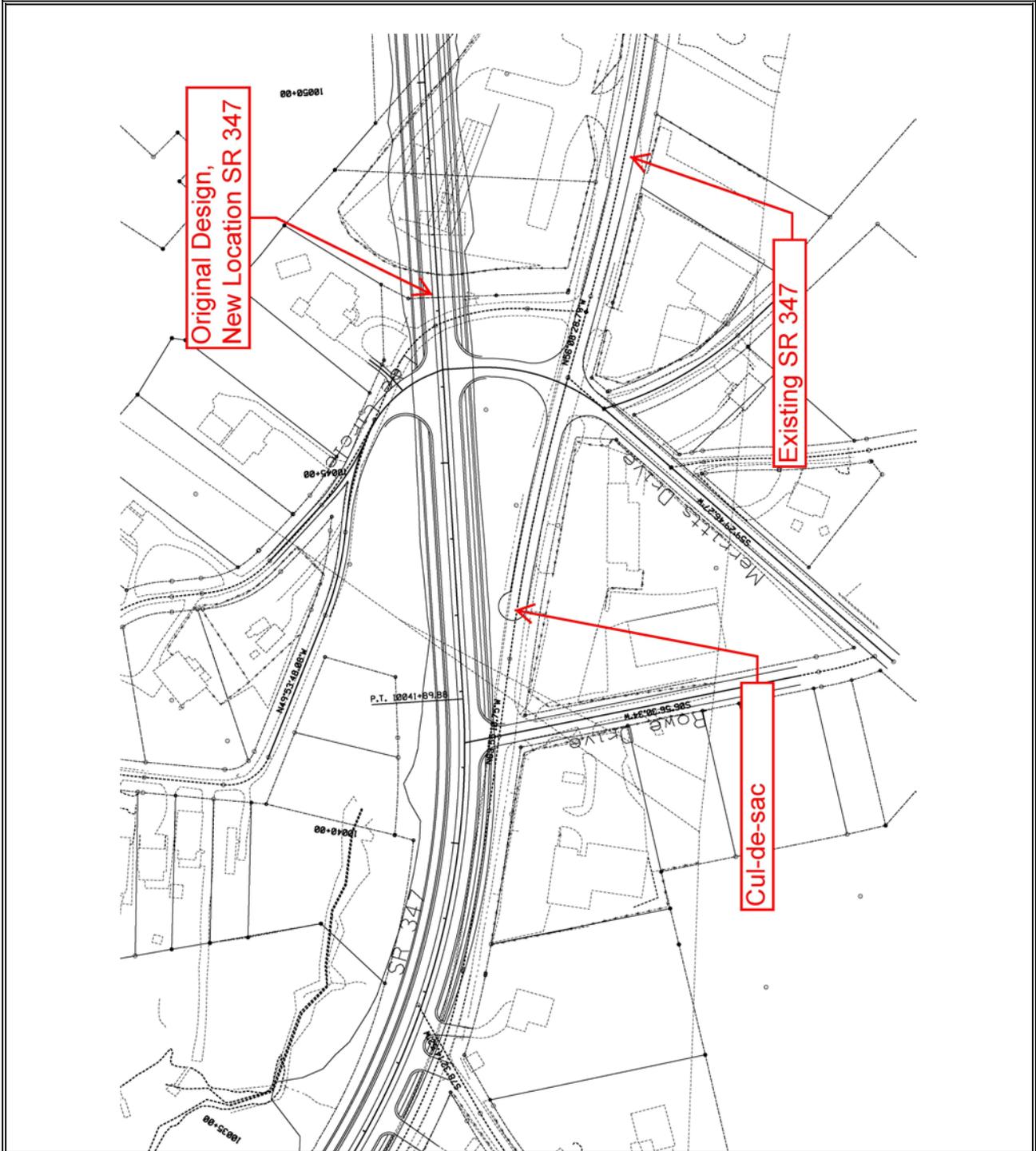
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| <ol style="list-style-type: none"> <li>1. Project Cost Estimate</li> <li>2. USC Estimate Database</li> <li>3. GDOT Item Mean Summary</li> <li>4. Means Estimating Manual</li> </ol> | <ol style="list-style-type: none"> <li>5. Richardson's Estimating Manual</li> <li>6. Vendor (Specify)</li> <li>7. Other (Specify)</li> </ol> |
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# ORIGINAL DESIGN SKETCH/DETAIL

PROPOSAL NUMBER: R-6.0

PAGE NUMBER: 4 of 11

PROJECT #/PI #: CSSTP-0007-00(319) / 0007319

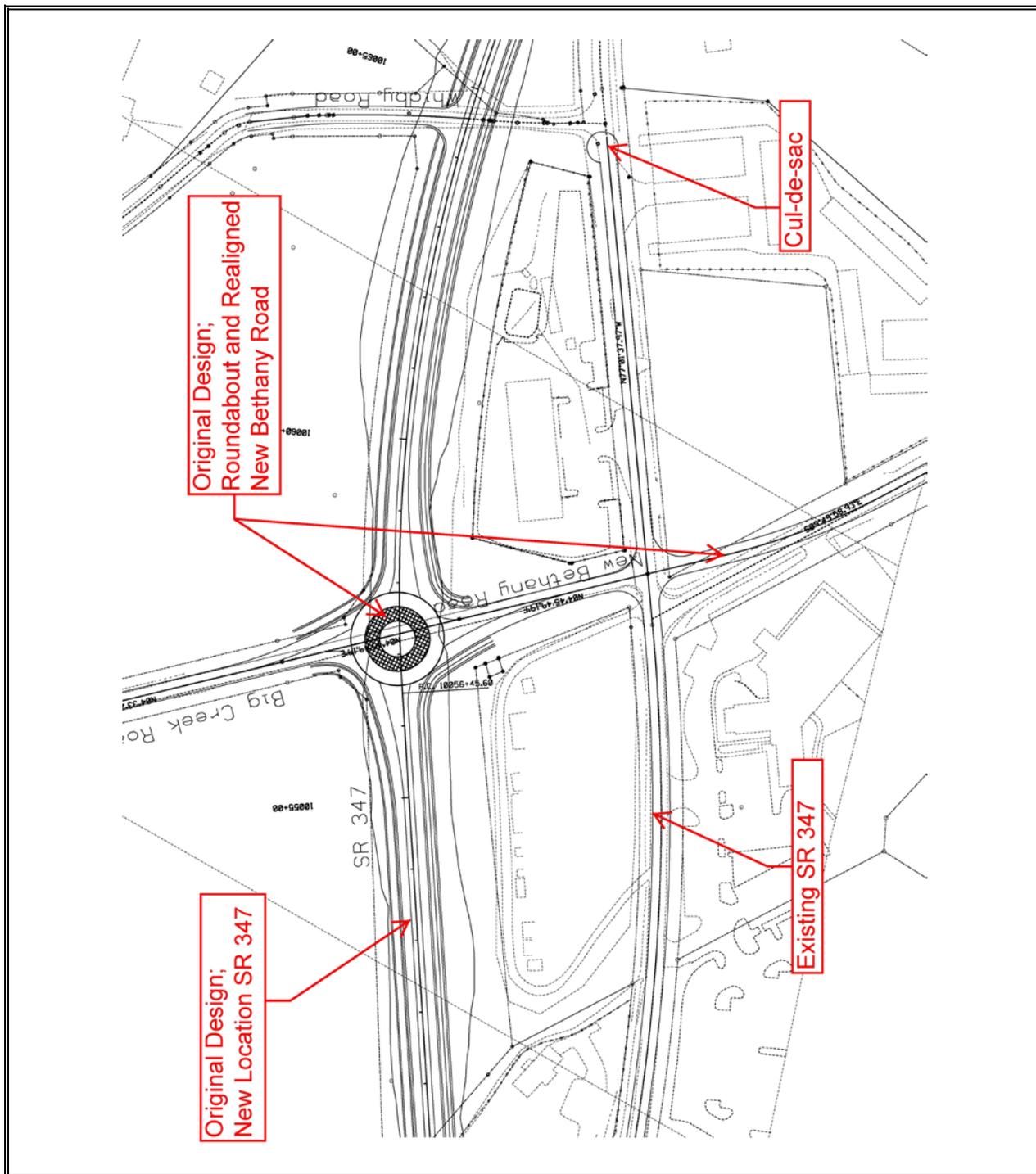


# ORIGINAL DESIGN SKETCH/DETAIL

PROPOSAL NUMBER: R-6.0

PAGE NUMBER: 5 of 11

PROJECT #/PI #: CSSTP-0007-00(319) / 0007319





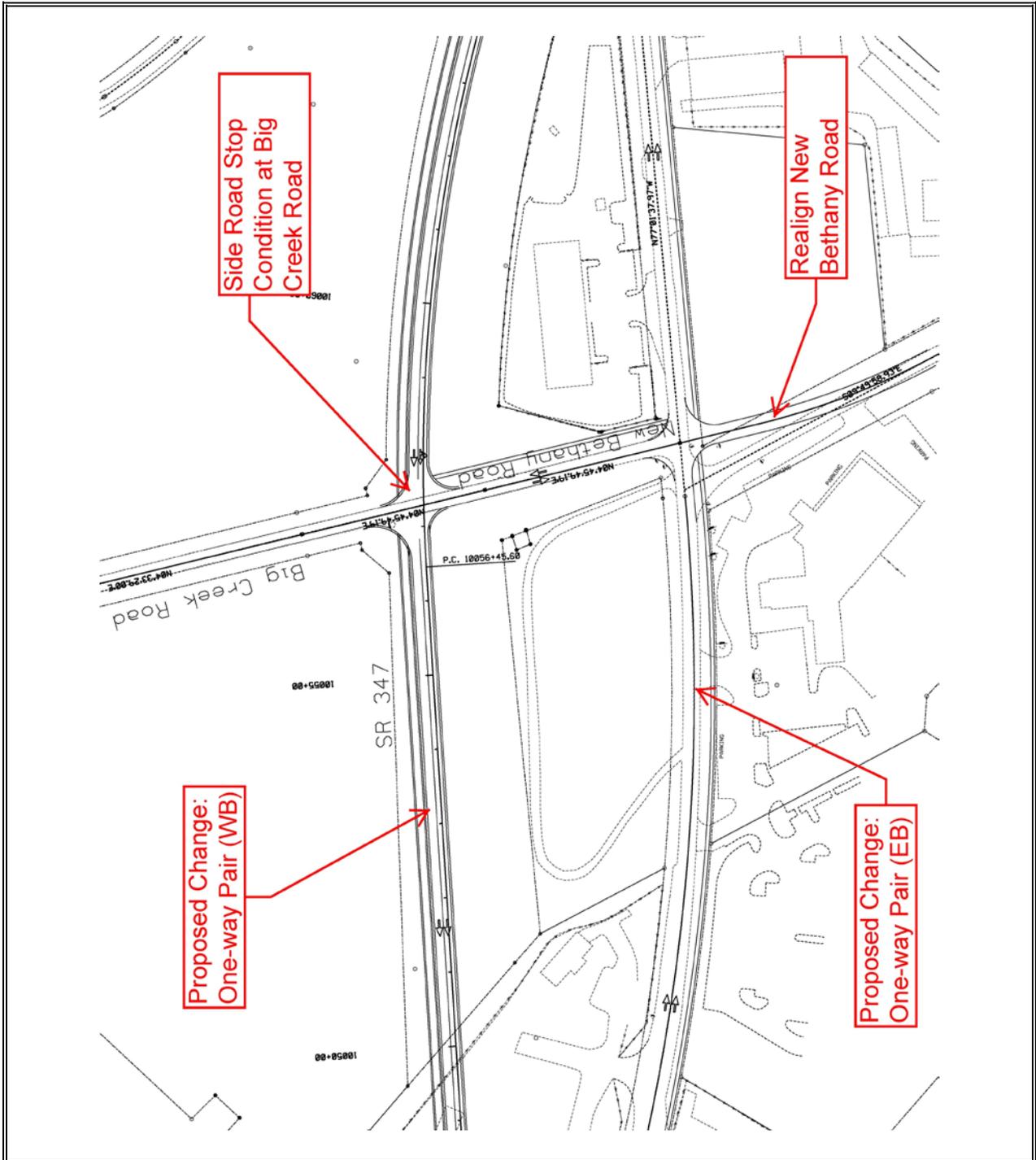


# PROPOSED CHANGE SKETCH/DETAIL

PROPOSAL NUMBER: R-6.0

PAGE NUMBER: 8 of 11

PROJECT #/PI #: CSSTP-0007-00(319) / 0007319

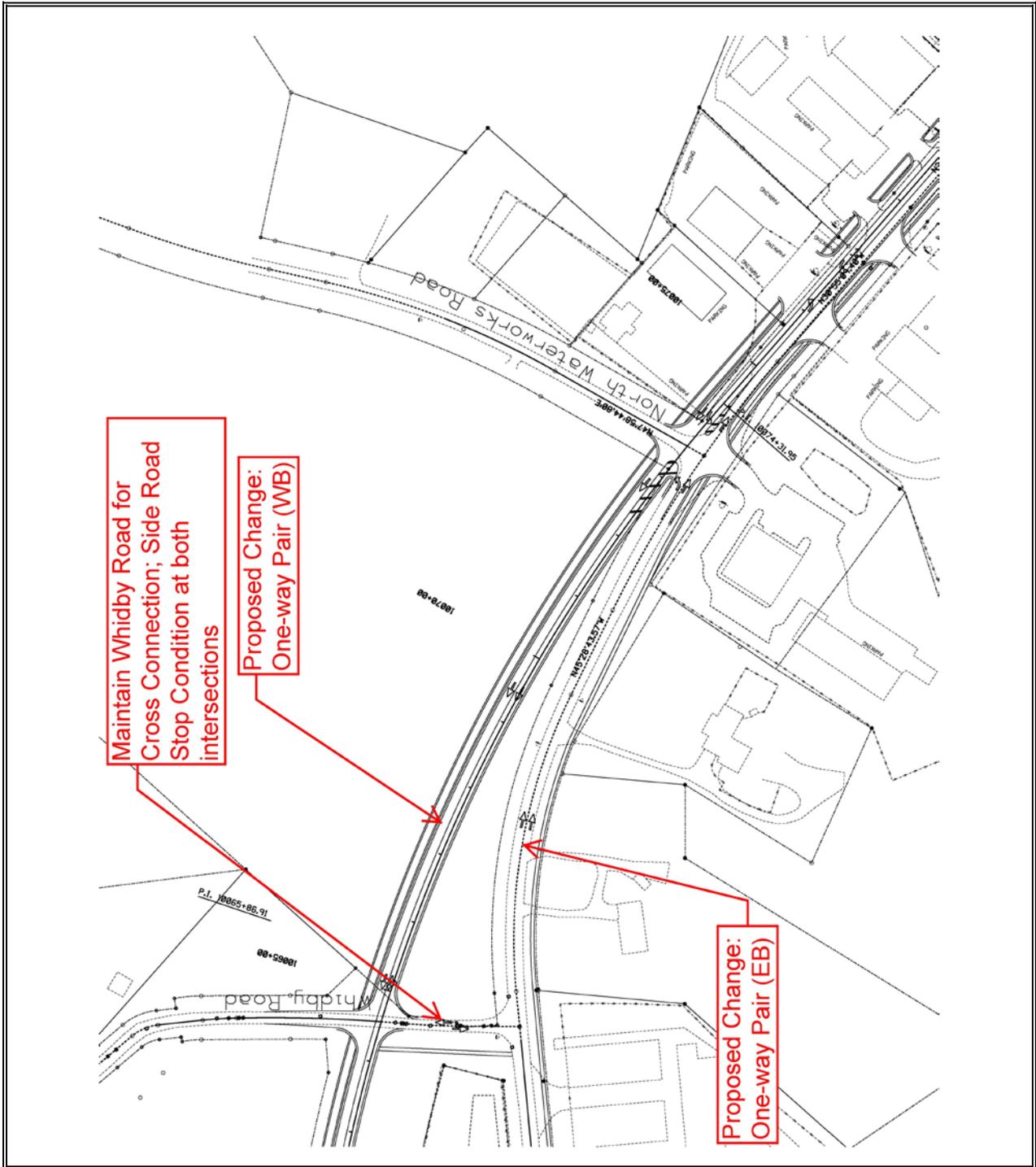


# PROPOSED CHANGE SKETCH/DETAIL

PROPOSAL NUMBER: R-6.0

PAGE NUMBER: 9 of 11

PROJECT #/PI #: CSSTP-0007-00(319) / 0007319



## CALCULATIONS

**PROPOSAL NUMBER:** R-6.0

**PAGE NUMBER:** 10 of 11

**PROJECT #/PI #:** CSSTP-0007-00(319) / 0007319

### **ORIGINAL DESIGN:**

Construct 2-12' lanes and 1-14' lane from Sta 10041+00 to Sta 10073+00 [3,200']  
Extend Rowe Drive [50']  
Realign Lee Circle/Merritts Drive [313']  
Construct Roundabout at Big Creek Road  
Realign New Bethany Road [346']  
Construct two cul-de-sacs [1,057 SF each]  
Eliminate Whidby Road connection  
Construct curb & gutter throughout [3,200']  
Construct 10' trail and 5' sidewalk throughout [3,200' each]  
Extend three concrete driveways [150', 125', 100' = 375']

### **Full Depth Pavement:**

310-1101: 12" GAB = 0.68 tons/SY x \$19.50/ton = \$13.26/SY  
402-3121: 7" Asph 25MM = (7")(110#sy-in/2000#)(\$83.07/T) = \$31.98/SY  
402-3190: 2" Asph 19MM = (2")(110#sy-in/2000#)(\$83.07/T) = \$9.14/SY  
402-3113: 1.5" Asph 12.5MM = (1.5")(110#sy-in/2000#)(\$83.07/T) = \$6.85/SY  
Pavement Unit Cost = \$61.23/SY  
Mainline Pavement Cost = (\$61.23/SY)(38' x 3,200')/(9 SF/SY) = \$827,285.33  
Side road Pavement Cost = (\$61.23/SY)[24' x (50+313+346)]/(9 SF/SY) = \$115,765.52  
Roundabout Pavement Cost = (\$61.23/SY)(21,381 SF)/(9 SF/SY) = \$145,462.07  
Cul-de-sac Pavement Cost = (\$61.23/SY)(2,114 SF)/(9 SF/SY) = \$14,382.25  
Total Pavement Cost = **\$1,102,895**

### **Curb & Gutter:**

3,200' x 2 x \$11.66 LF = **\$74,624**

### **10'Trail/5'Sidewalk:**

(3,200' x 10')+(3,200' x 5')/(9 SF/SY) = 5,333 SY x \$35.15 SY = **\$187,467**

### **Driveway Concrete:**

(375' x 10')/(9 SF/SY) = 416.67 SY x \$15.91 SY = **\$6,629**

### **Grading Complete Cost Calculations:**

Grading Complete Unit Cost = (\$2,500,000.00/ 1,181,734 SF) = \$2.12/SF  
Total Grading Complete Cost = (\$2.12/SF)(464,092 SF) = **\$983,875**

**ORIGINAL DESIGN COST = \$2,355,490**

## CALCULATIONS

**PROPOSAL NUMBER:** R-6.0

**PAGE NUMBER:** 11 of 11

**PROJECT #/PI #:** CSSTP-0007-00(319) / 0007319

### **PROPOSED CHANGE:**

Construct 1-12' WB lane from Sta 10041+00 to Sta 10046+00 [500']  
Construct 2-12' WB lanes from Sta 10046+00 to Sta 10073+00 [2,700']  
Construct 2-12' EB lanes from Sta 10041+00 to Sta 10047+00 [600']  
Realign Lee Circle/Merritts Drive [313']  
Realign New Bethany Road [346']  
Construct curb & gutter both sides of WB lanes Sta 10041+00 to Sta 10073+00 [3,200']  
Construct curb & gutter both sides of EB lanes Sta 10041+00 to Sta 10047+00 [600']  
Construct curb & gutter both sides Lee Circle/Merritts Drive realignment connector [150']  
Construct 10' trail north of WB lanes and 5' sidewalk south of EB lanes [3,200' each]  
Construct 5' sidewalk one-side of each connector road [125', 325', 185' = 635']

### **Full Depth Pavement:**

310-1101: 12" GAB = 0.68 tons/SY x \$19.50/ton = \$13.26/SY  
402-3121: 7" Asph 25MM = (7")(110#sy-in/2000#)(\$83.07/T) = \$31.98/SY  
402-3190: 2" Asph 19MM = (2")(110#sy-in/2000#)(\$83.07/T) = \$9.14/SY  
402-3113: 1.5" Asph 12.5MM = (1.5")(110#sy-in/2000#)(\$83.07/T) = \$6.85/SY  
Pavement Unit Cost = \$61.23/SY  
WB Pavement Cost = (\$61.23/SY)[(12'x500')+(24'x2,700')]/(9 SF/SY) = \$481,676.00  
EB Pavement Cost = (\$61.23/SY)(24'x600')/(9 SF/SY) = \$97,968.00  
Side road Pavement Cost = (\$61.23/SY)[24' x (313+346)]/(9 SF/SY) = \$107,601.52  
Total Pavement Cost = **\$687,246**

### **Curb & Gutter:**

[(3,200' x 2)+(600' x 2)+(150' x 2)] x \$11.66 LF = **\$91,114**

### **10'Trail/5'Sidewalk:**

(3,200' x 10')+[(3,200'+635') x 5']/(9 SF/SY) = 5686.11 SY x \$35.15 SY = **\$199,867**

### **Grading Complete Cost Calculations:**

Grading Complete Unit Cost = (\$2,500,000.00/ 1,181,734 SF) = \$2.12/SF  
Total Grading Complete Cost = (\$2.12/SF)(434,660 SF) = **\$921,479**

**PROPOSED CHANGE COST = \$1,899,706**

## VALUE ENGINEERING PROPOSAL

<b>PROPOSAL NUMBER:</b> R-7.0	<b>PAGE NUMBER:</b> 1 of 5
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<b>PROJECT #/PI #:</b>	<b>CSSTP-0007-00(319) / 0007319</b>
<b>PROJECT TITLE:</b>	<b>SR 347 from Lake Lanier to McEver Road Hall County</b>

**PROPOSAL DESCRIPTION:** REDUCE THE SHOULDER ON THE SIDEWALK SIDE FROM 16'0" TO 12'0".

**ORIGINAL DESIGN:** In the current design, the typical section for the shoulder with a 5'0" sidewalk is 16'0" from the edge of pavement to the shoulder break point. There is a 6'0" grass strip between the back of the curb and the sidewalk.

**PROPOSED CHANGE:** The proposed change is to reduce the width of the shoulder on the sidewalk side from 16'0" to 12'0". The grass strip between the back of the curb and the sidewalk will be reduced to 2'0".

**JUSTIFICATION:** The GDOT Design Policy Manual Section 9.5 Figure 9.7 shows the location of the sidewalk on an urban roadway on either a 16'0" or a 12'0" shoulder. Thus, this change meets GDOT Design Policy while reducing property impacts and providing a construction cost savings.

**ADVANTAGES:**

- Reduces earthwork cost
- Reduces impacts to property owners
- Reduces or avoids impacts to historical property at Sta 10080+00

**DISADVANTAGES:**

- Sidewalk closer to the travelway

	INITIAL COST	OPERATING COST	TOTAL LIFE-CYCLE COST
<b>ORIGINAL DESIGN:</b>	\$ 0		\$ 0
<b>PROPOSED CHANGE:</b>	\$ (141,840)		\$ (141,840)
<b>SAVINGS:</b>	\$ 141,840		\$ 141,840

## COST ESTIMATING WORKSHEET

<b>PROPOSAL NUMBER:</b>	R-7.0	<b>PAGE NUMBER:</b>	2 of 5
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<b>PROJECT #/PI #:</b>	<b>CSSTP-0007-00(319) / 0007319</b>
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### ORIGINAL DESIGN

ITEM	SOURCE CODE	U/M	QTY	UNIT COST	TOTAL COST
SUBTOTAL – COST TO PRIME					0
MARKUP					Incl.
<b>TOTAL CONTRACT COST</b>					<b>\$0</b>

### PROPOSED CHANGE

ITEM	SOURCE CODE	U/M	QTY	UNIT COST	TOTAL COST
210-0100 Grading Complete (Reduction)	1/7	LF	4	(\$35,460)	(\$141,840)
SUBTOTAL – COST TO PRIME					(\$141,840)
MARKUP					Incl.
<b>TOTAL CONTRACT COST</b>					<b>(\$141,840)</b>

Difference [Original-Proposed]      **\$141,840**

### SOURCES

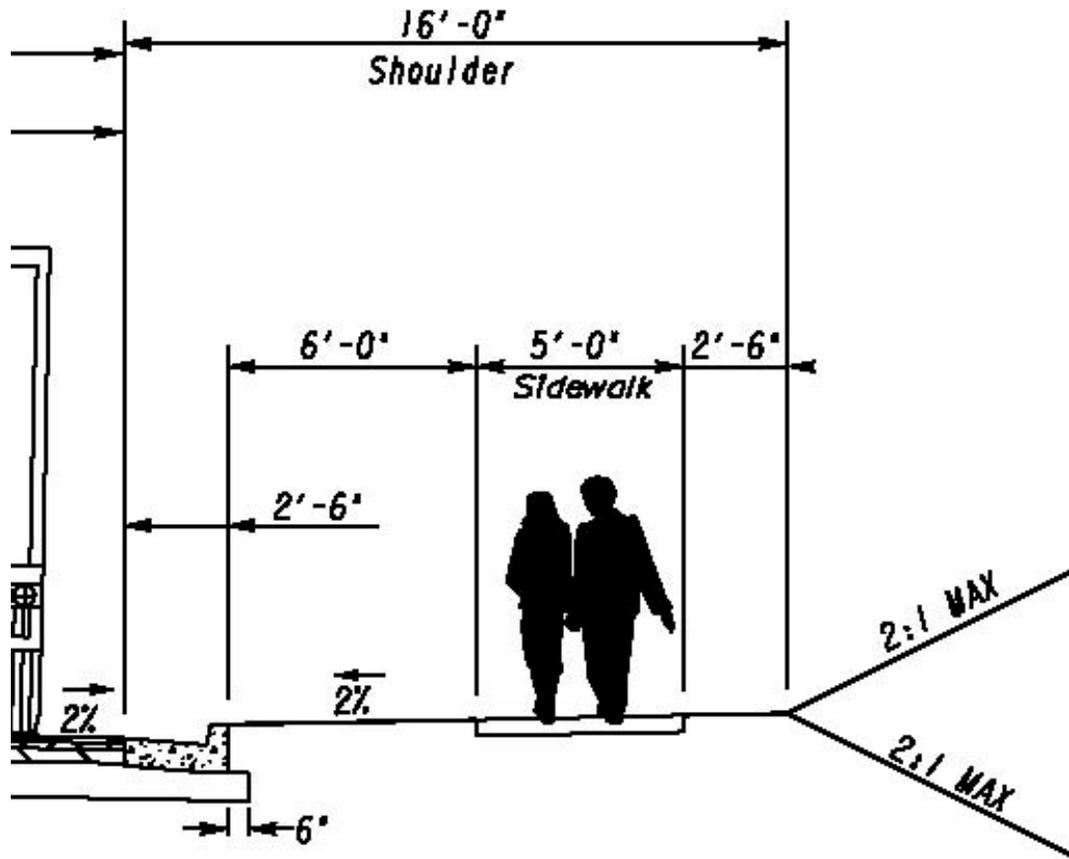
- |   |   |
|---|---|
| <ol style="list-style-type: none"> <li>1. Project Cost Estimate</li> <li>2. USC Estimate Database</li> <li>3. GDOT Item Mean Summary</li> <li>4. Means Estimating Manual</li> </ol> | <ol style="list-style-type: none"> <li>5. Richardson's Estimating Manual</li> <li>6. Vendor (Specify)</li> <li>7. VE Calculation worksheet</li> </ol> |
|---|---|

# ORIGINAL DESIGN SKETCH/DETAIL

PROPOSAL NUMBER: R-7.0

PAGE NUMBER: 3 of 5

PROJECT #/PI #: CSSTP-0007-00(319) / 0007319



## PROPOSED CHANGE SKETCH/DETAIL

PROPOSAL NUMBER: R-7.0

PAGE NUMBER: 4 of 5

PROJECT #/PI #: CSSTP-0007-00(319) / 0007319

Proposed Change: Revise from 16' to 12' shoulder width on sidewalk side of roadway to match sketch below from GDOT Design Policy Manual

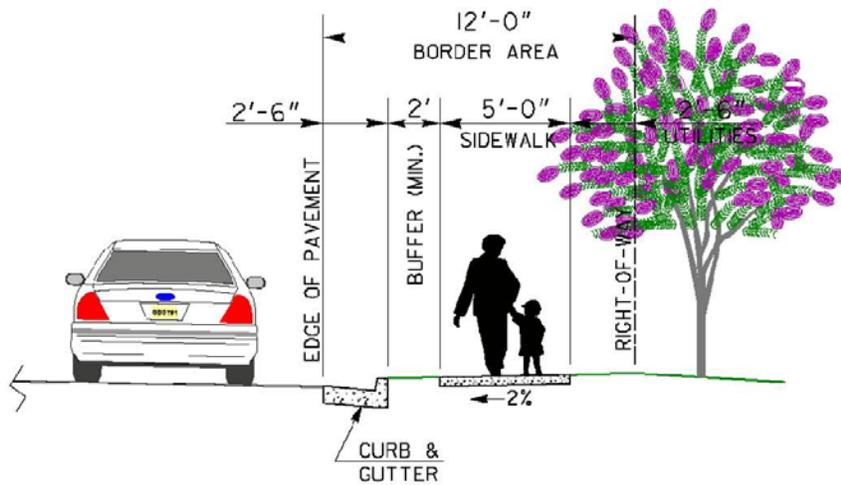


Figure 9.7. Illustrations of Pedestrian Facility Design – Urban Border Area.

## CALCULATIONS

**PROPOSAL NUMBER:** R-7.0

**PAGE NUMBER:** 5 of 5

**PROJECT #/PI #:** CSSTP-0007-00(319) / 0007319

Grading Complete item 210-0100 in project Concept Report cost estimate is \$2,500,000.

Total project width in Concept Report between shoulder break points is

$$16'6''+19'0''+19'0''+16'0''=70'6''$$

Calculated Grading Complete per foot of width =  $\$2,500,000/70'6''=\$35,460$  per foot of width.

Reduce width from 16' to 12' = 4' reduction in width

4' x \$35,460 = \$141,840 reduction in Grading Complete costs.

## VALUE ENGINEERING PROPOSAL

<b>PROPOSAL NUMBER:</b> R-8.0	<b>PAGE NUMBER:</b> 1 of 4
-------------------------------	----------------------------

<b>PROJECT #/PI #:</b>	<b>CSSTP-0007-00(319) / 0007319</b>
<b>PROJECT TITLE:</b>	<b>SR 347 from Lake Lanier to McEver Road Hall County</b>

<b>PROPOSAL DESCRIPTION:</b> USE ASPHALT IN LIEU OF CONCRETE FOR 10' WIDE MULTI-USE TRAIL.
--

**ORIGINAL DESIGN:** The current design includes a 10-foot multi-use trail constructed of 4-inch concrete sidewalk on the northern side of the roadway.

**PROPOSED CHANGE:** It is proposed to utilize an asphalt concrete pavement section for the 10-foot multi-use trail. The proposed section is a 6" graded aggregate base, and a 2" asphalt surface course.

**JUSTIFICATION:** The use of asphalt for multi-use trails is a common practice in Georgia as well as other parts of the country. It is an acceptable surface treatment per the guidelines provided by AASHTO and FHWA. The smooth riding surface due to lack of joints that are required for the concrete pavement section, as well as the "give" of asphalt as compared to concrete are generally more appealing to trail users.

**ADVANTAGES:**

- Reduces cost
- Without joints in concrete, asphalt is smoother surface for running/biking

**DISADVANTAGES:**

- Will not match adjacent project.

	INITIAL COST	OPERATING COST	TOTAL LIFE-CYCLE COST
<b>ORIGINAL DESIGN:</b>	\$ 480,782		\$ 480,782
<b>PROPOSED CHANGE:</b>	\$ 215,702		\$ 215,702
<b>SAVINGS:</b>	\$ 265,080		\$ 265,080

## COST ESTIMATING WORKSHEET

<b>PROPOSAL NUMBER:</b>	R-8.0	<b>PAGE NUMBER:</b>	2 of 4
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<b>PROJECT #/PI #:</b>	CSSTP-0007-00(319) / 0007319
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### ORIGINAL DESIGN

ITEM	SOURCE CODE	U/M	QTY	UNIT COST	TOTAL COST
CONC SIDEWALK, 4 IN	1	SY	13,678	35.15	480,782
SUBTOTAL – COST TO PRIME					480,782
MARKUP					Incl.
<b>TOTAL CONTRACT COST</b>					<b>\$480,782</b>

### PROPOSED CHANGE

ITEM	SOURCE CODE	U/M	QTY	UNIT COST	TOTAL COST
ASPHALT TRAIL PAVEMENT	1/7	SY	13,678	15.77	215,702
SUBTOTAL – COST TO PRIME					215,702
MARKUP					Incl.
<b>TOTAL CONTRACT COST</b>					<b>\$215,702</b>

Difference [Original-Proposed]      **\$265,080**

### SOURCES

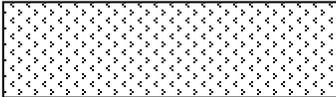
- |   |   |
|---|---|
| <ol style="list-style-type: none"> <li>1. Project Cost Estimate</li> <li>2. USC Estimate Database</li> <li>3. GDOT Item Mean Summary</li> <li>4. Means Estimating Manual</li> </ol> | <ol style="list-style-type: none"> <li>5. Richardson's Estimating Manual</li> <li>6. Vendor (Specify)</li> <li>7. Other (See Calc Sheet)</li> </ol> |
|---|---|

**PROPOSED CHANGE SKETCH/DETAIL**

<b>PROPOSAL NUMBER:</b> R-8.0	<b>PAGE NUMBER:</b> 3 of 4
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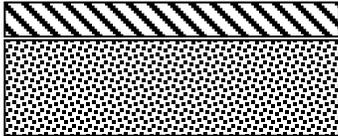
<b>PROJECT #/PI #:</b> CSSTP-0007-00(319) / 0007319
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**Current Design of Multi-use Trail**



4" PCC (sidewalk)

**Proposed Change for Multi-use Trail**



2" Asphalt Surface

6" GAB

## CALCULATIONS

**PROPOSAL NUMBER:** R-8.0

**PAGE NUMBER:** 4 of 4

**PROJECT #/PI #:** CSSTP-0007-00(319) / 0007319

**Proposed Design Pavement Cost Calculations:**

310-1101: 6" GAB = 0.34 tons/SY x \$19.50/ton = \$6.63/SY

402-3190: 2" Asph 19MM = (2")(110#sy-in/2000#)(\$83.07/T) = \$9.14/SY

Total pavement cost = \$15.77/SY

**Multi-use Trail:**

Original (per unit cost provided by design estimate):

10 FT width x 12,310 FT roadway = 123,100 SF = 13,678 SY, at \$35.15/SY = \$480,782

Proposed:

10 FT width x 12,310 FT roadway = 123,100 SF = 13,678 SY, at \$15.77/SY = \$215,702

## VALUE ENGINEERING PROPOSAL

<b>PROPOSAL NUMBER:</b> R-9.0	<b>PAGE NUMBER:</b> 1 of 4
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<b>PROJECT #/PI #:</b>	<b>CSSTP-0007-00(319) / 0007319</b>
<b>PROJECT TITLE:</b>	<b>SR 347 from Lake Lanier to McEver Road Hall County</b>

<b>PROPOSAL DESCRIPTION:</b>	<b>ELIMINATE REALIGNMENT OF NEW BETHANY ROAD AT EXISTING SR 347.</b>
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**ORIGINAL DESIGN:** In the current design, a re-alignment is shown for New Bethany Road which currently intersects existing SR 347 approximately 60 feet West of the intersection of SR 347 and Big Creek Road. The current design shifts New Bethany Road East to form a 4-legged intersection.

**PROPOSED CHANGE:** It is proposed to eliminate all construction at this intersection and leave the alignments separated by 60 feet as currently exists.

**JUSTIFICATION:** When SR 347 is shifted North to the new location, the traffic volumes at this location on the existing roadway will be reduced significantly. The design office indicated that there was a possible utility located within the proposed alignment. It is believed that work at this intersection does not benefit SR 347 operations and is therefore beyond the scope of the project's Need and Purpose.

**ADVANTAGES:**

- Reduces construction cost
- Reduces right-of-way cost
- Eliminates possible utility conflict

**DISADVANTAGES:**

- Roadway remains offset by 60' on the old 2-lane alignment

	INITIAL COST	OPERATING COST	TOTAL LIFE-CYCLE COST
<b>ORIGINAL DESIGN:</b>	\$ 166,840		\$ 166,840
<b>PROPOSED CHANGE:</b>	\$ 0		\$ 0
<b>SAVINGS:</b>	\$ 166,840		\$ 166,840

## COST ESTIMATING WORKSHEET

<b>PROPOSAL NUMBER:</b>	R-9.0	<b>PAGE NUMBER:</b>	2 of 4
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<b>PROJECT #/PI #:</b>	<b>CSSTP-0007-00(319) / 0007319</b>
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### ORIGINAL DESIGN

ITEM	SOURCE CODE	U/M	QTY	UNIT COST	TOTAL COST
Asphalt and GAB	1/7	SY	667	\$61.23	\$40,840
Right of way parcel	1/7	LS	1	\$126,000	\$126,000
SUBTOTAL – COST TO PRIME					\$166,840
MARKUP					Incl.
<b>TOTAL CONTRACT COST</b>					<b>\$166,840</b>

### PROPOSED CHANGE

ITEM	SOURCE CODE	U/M	QTY	UNIT COST	TOTAL COST
SUBTOTAL – COST TO PRIME					0.00
MARKUP					Incl.
<b>TOTAL CONTRACT COST</b>					<b>0.00</b>

Difference [Original-Proposed]      **\$166,840**

### SOURCES

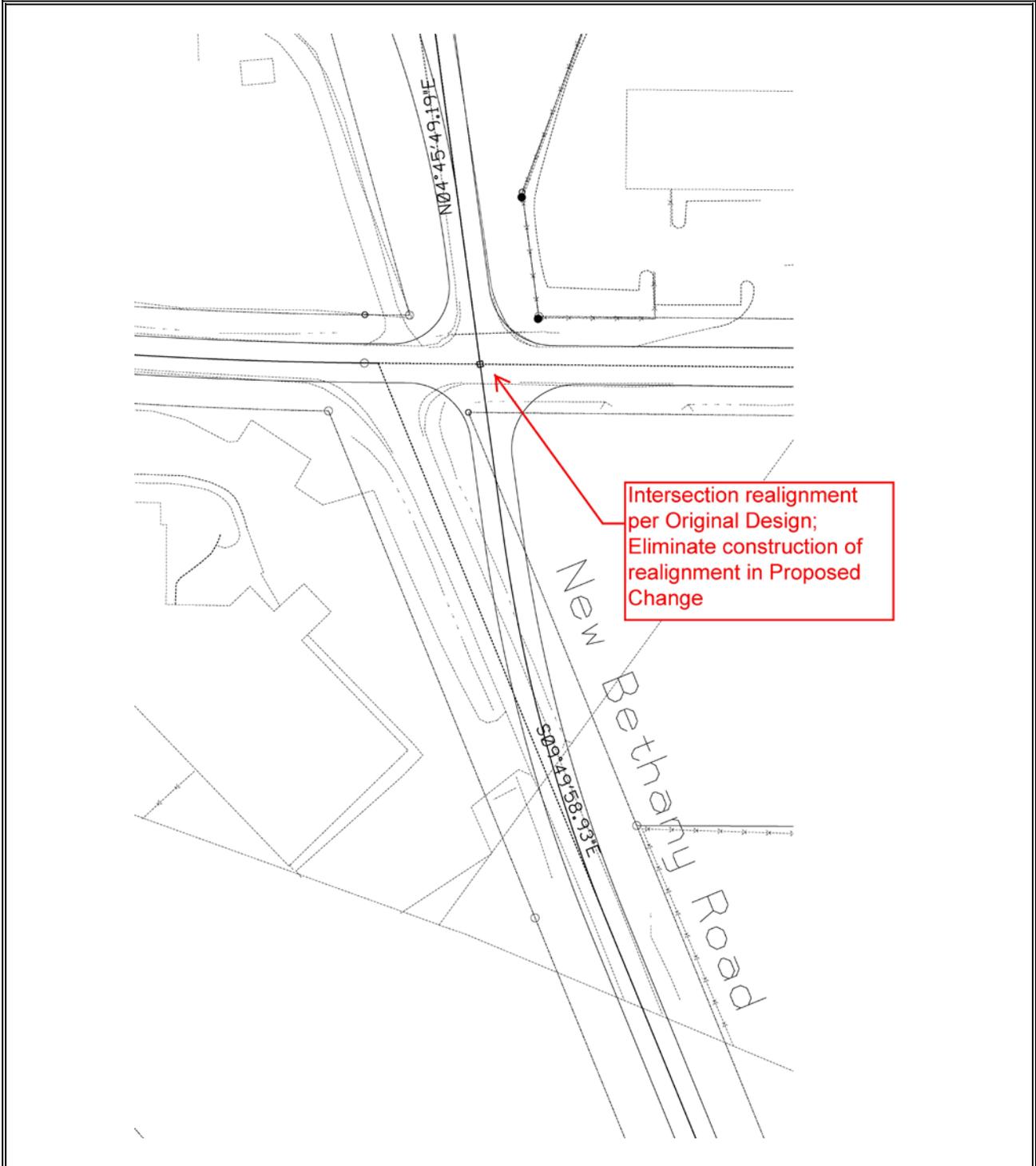
- |   |   |
|---|---|
| <ol style="list-style-type: none"> <li>1. Project Cost Estimate</li> <li>2. USC Estimate Database</li> <li>3. GDOT Item Mean Summary</li> <li>4. Means Estimating Manual</li> </ol> | <ol style="list-style-type: none"> <li>5. Richardson's Estimating Manual</li> <li>6. Vendor (Specify)</li> <li>7. VE Calculation sheet</li> </ol> |
|---|---|

# ORIGINAL DESIGN SKETCH/DETAIL

PROPOSAL NUMBER: R-9.0

PAGE NUMBER: 3 of 4

PROJECT #/PI #: CSSTP-0007-00(319) / 0007319



## CALCULATIONS

**PROPOSAL NUMBER:** R-9.0

**PAGE NUMBER:** 4 of 4

**PROJECT #/PI #:** CSSTP-0007-00(319) / 0007319

### **Current Design Pavement Cost Calculations:**

310-1101: 12" GAB = 0.68 tons/SY x \$19.50/ton = \$13.26/SY

402-3121: 7" Asph 25MM = (7")(110#sy-in/2000#)(\$83.07/T) = \$31.98/SY

402-3190: 2" Asph 19MM = (2")(110#sy-in/2000#)(\$83.07/T) = \$9.14/SY

402-3113: 1.5" Asph 12.5MM = (1.5")(110#sy-in/2000#)(\$83.07/T) = \$6.85/SY

Total pavement cost = **\$61.23/SY**

Approximate 250 LF of New Bethany Road is shown realigned.

250 LF x 24' wide = 6000 SF / 9 = 667 SY of new pavement.

667 SY x \$61.23 = \$40,840 reduction in pavement cost

Eliminate parcel of right of way requiring 0.1312 ac of commercial property.

With added Valuation services/legal services/Administrative fees, use \$126,000 for right of way based on use of GDOT Preliminary R/W Cost Estimate Form using \$350,000/ac

## VALUE ENGINEERING PROPOSAL

<b>PROPOSAL NUMBER:</b> R-10.0	<b>PAGE NUMBER:</b> 1 of 4
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<b>PROJECT #/PI #:</b>	<b>CSSTP-0007-00(319) / 0007319</b>
<b>PROJECT TITLE:</b>	<b>SR 347 from Lake Lanier to McEver Road Hall County</b>

**PROPOSAL DESCRIPTION:** ELIMINATE RELOCATION OF LEE CIRCLE BETWEEN RELOCATED AND EXISTING SR 347.

**ORIGINAL DESIGN:** The current design shows a 130 LF connection as an extension of Lee Circle South of relocated SR 347 which ties to the old alignment and aligns with Merritts Drive south of existing SR 347.

**PROPOSED CHANGE:** The proposed change is to eliminate the 130 LF extension of Lee Circle South of relocated SR 347.

**JUSTIFICATION:** Access for traffic on Lee Circle that desires to travel on roads to the South of SR 347 still have access by turning right on SR 347 and then going 450' and turning left on Rowe Drive. In addition, access for traffic on Merritts Drive that desires to travel West or East on SR 347 would still have access along Rowe Drive to relocated SR 347. This extension of Lee Circle is not required to meet the project intention of improving operations of SR 347.

**ADVANTAGES:**

- Reduces construction cost
- Eliminates one access point on SR 347

**DISADVANTAGES:**

- Slight misdirection for traffic on Lee Circle continuing to the South.

	INITIAL COST	OPERATING COST	TOTAL LIFE-CYCLE COST
<b>ORIGINAL DESIGN:</b>	\$ 21,247		\$ 21,247
<b>PROPOSED CHANGE:</b>	\$ 0		\$ 0
<b>SAVINGS:</b>	\$ 21,247		\$ 21,247

## COST ESTIMATING WORKSHEET

<b>PROPOSAL NUMBER:</b>	R-10.0	<b>PAGE NUMBER:</b>	2 of 4
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<b>PROJECT #/PI #:</b>	CSSTP-0007-00(319) / 0007319
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### ORIGINAL DESIGN

ITEM	SOURCE CODE	U/M	QTY	UNIT COST	TOTAL COST
Asphalt and GAB	1/7	SY	347	\$61.23	\$21,247
SUBTOTAL – COST TO PRIME					\$21,247
MARKUP					Incl.
<b>TOTAL CONTRACT COST</b>					<b>\$21,247</b>

### PROPOSED CHANGE

ITEM	SOURCE CODE	U/M	QTY	UNIT COST	TOTAL COST
SUBTOTAL – COST TO PRIME					0.00
MARKUP					Incl.
<b>TOTAL CONTRACT COST</b>					<b>0.00</b>

Difference [Original-Proposed]                      **\$21,247**

### SOURCES

- |   |   |
|---|---|
| <ol style="list-style-type: none"> <li>1. Project Cost Estimate</li> <li>2. USC Estimate Database</li> <li>3. GDOT Item Mean Summary</li> <li>4. Means Estimating Manual</li> </ol> | <ol style="list-style-type: none"> <li>5. Richardson's Estimating Manual</li> <li>6. Vendor (Specify)</li> <li>7. VE Calculation sheet</li> </ol> |
|---|---|

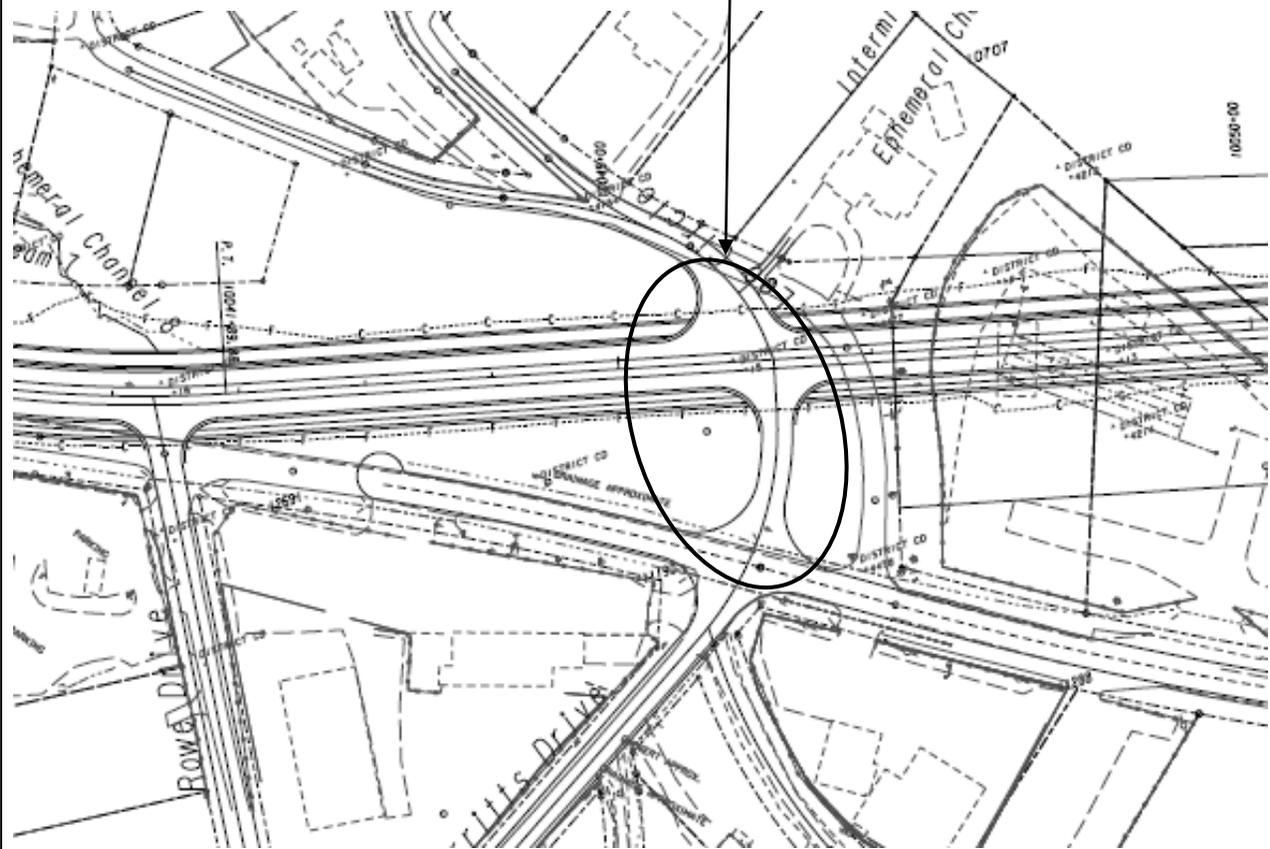
# ORIGINAL DESIGN SKETCH/DETAIL

PROPOSAL NUMBER: R-10.0

PAGE NUMBER: 3 of 4

PROJECT #/PI #: CSSTP-0007-00(319) / 0007319

Proposed Change: Eliminate Relocation of Lee Circle between Relocated and Existing SR 347



## CALCULATIONS

**PROPOSAL NUMBER:** R-10.0

**PAGE NUMBER:** 4 of 4

**PROJECT #/PI #:** CSSTP-0007-00(319) / 0007319

### **Current Design Pavement Cost Calculations:**

310-1101: 12" GAB = 0.68 tons/SY x \$19.50/ton = \$13.26/SY

402-3121: 7" Asph 25MM = (7")(110#sy-in/2000#)(\$83.07/T) = \$31.98/SY

402-3190: 2" Asph 19MM = (2")(110#sy-in/2000#)(\$83.07/T) = \$9.14/SY

402-3113: 1.5" Asph 12.5MM = (1.5")(110#sy-in/2000#)(\$83.07/T) = \$6.85/SY

Total pavement cost = **\$61.23/SY**

### **Pavement Reduction:**

130 lf x 24' wide = 3120 SF / 9 = 347 SY

347 SY x \$61.23/SY = \$21,247 reduction in pavement cost

## VALUE ENGINEERING PROPOSAL

<b>PROPOSAL NUMBER:</b>	R-11.0	<b>PAGE NUMBER:</b>	1 of 5
<b>PROJECT #/PI #:</b>	CSSTP-0007-00(319) / 0007319		
<b>PROJECT TITLE:</b>	SR 347 from Lake Lanier to McEver Road Hall County		

**PROPOSAL DESCRIPTION:** MOVE EASTERN CUL-DE-SAC ON EXISTING SR 347 TO EAST APPROXIMATELY 425 FEET AND ELIMINATE EXTENSION OF 3 DRIVEWAYS TO RELOCATED SR 347.

**ORIGINAL DESIGN:** The current design of the existing section of SR 347 between Whidby Road and North Waterworks Road includes locating a new cul-de-sac at approximately the location where Whidby Road currently intersects with the existing SR 347. This requires extending the 3 driveways on existing SR 347 located East of the new cul-de-sac to the proposed relocated section of SR 347.

**PROPOSED CHANGE:** It is proposed to relocate the new cul-de-sac on the existing SR 347 425 feet to the East, which will then allow the 3 driveways to be connected to the existing SR 347 and eliminate the extension of the driveways.

**JUSTIFICATION:** The proposed change is similar to the approach for the Western end of existing SR 347 where the cul-de-sac is placed at the Westernmost existing driveway. This reduces construction efforts and costs.

**ADVANTAGES:**

- Reduction in construction cost
- Removes 3 access points to SR 347

**DISADVANTAGES:**

- None apparent

	INITIAL COST	OPERATING COST	TOTAL LIFE-CYCLE COST
<b>ORIGINAL DESIGN:</b>	\$ 16,009		\$ 16,009
<b>PROPOSED CHANGE:</b>	\$ 0		\$ 0
<b>SAVINGS:</b>	\$ 16,009		\$ 16,009

## COST ESTIMATING WORKSHEET

<b>PROPOSAL NUMBER:</b>	R-11.0	<b>PAGE NUMBER:</b>	2 of 5
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<b>PROJECT #/PI #:</b>	CSSTP-0007-00(319) / 0007319
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### ORIGINAL DESIGN

ITEM	SOURCE CODE	U/M	QTY	UNIT COST	TOTAL COST
Pavement Demolition (reduction)	4	SY	1,133	\$9.20	\$10,424
Concrete Driveways (reduction)	1	SY	267	\$15.91	\$4,248
Concrete valley gutters (reduction)	1	SY	45	29.71	1,337
SUBTOTAL – COST TO PRIME					\$16,009
MARKUP					Incl.
TOTAL CONTRACT COST					\$16,009

### PROPOSED CHANGE

ITEM	SOURCE CODE	U/M	QTY	UNIT COST	TOTAL COST
SUBTOTAL – COST TO PRIME					\$0
MARKUP					Incl.
TOTAL CONTRACT COST					\$0

Difference [Original-Proposed]      **\$16,009**

### SOURCES

- |   |   |
|---|---|
| <ol style="list-style-type: none"> <li>1. Project Cost Estimate</li> <li>2. USC Estimate Database</li> <li>3. GDOT Item Mean Summary</li> <li>4. Means Estimating Manual</li> </ol> | <ol style="list-style-type: none"> <li>5. Richardson's Estimating Manual</li> <li>6. Vendor (Specify)</li> <li>7. Attached Calculation Sheet</li> </ol> |
|---|---|

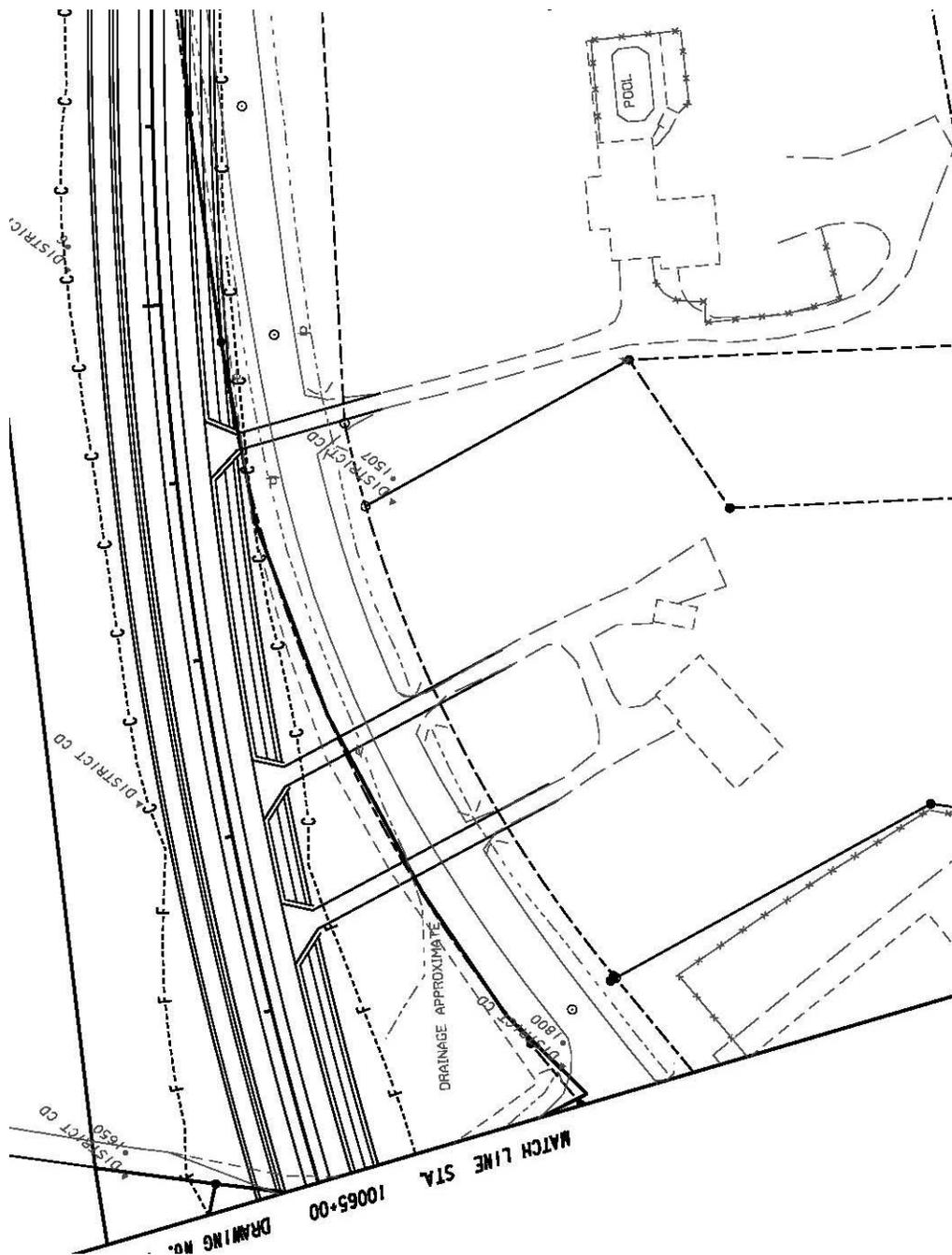
# ORIGINAL DESIGN SKETCH/DETAIL

PROPOSAL NUMBER: R-11.0

PAGE NUMBER: 3 of 5

PROJECT #/PI #: CSSTP-0007-00(319) / 0007319

Current Design: Extending 3 driveways to Proposed  
Realigned SR 347 Section

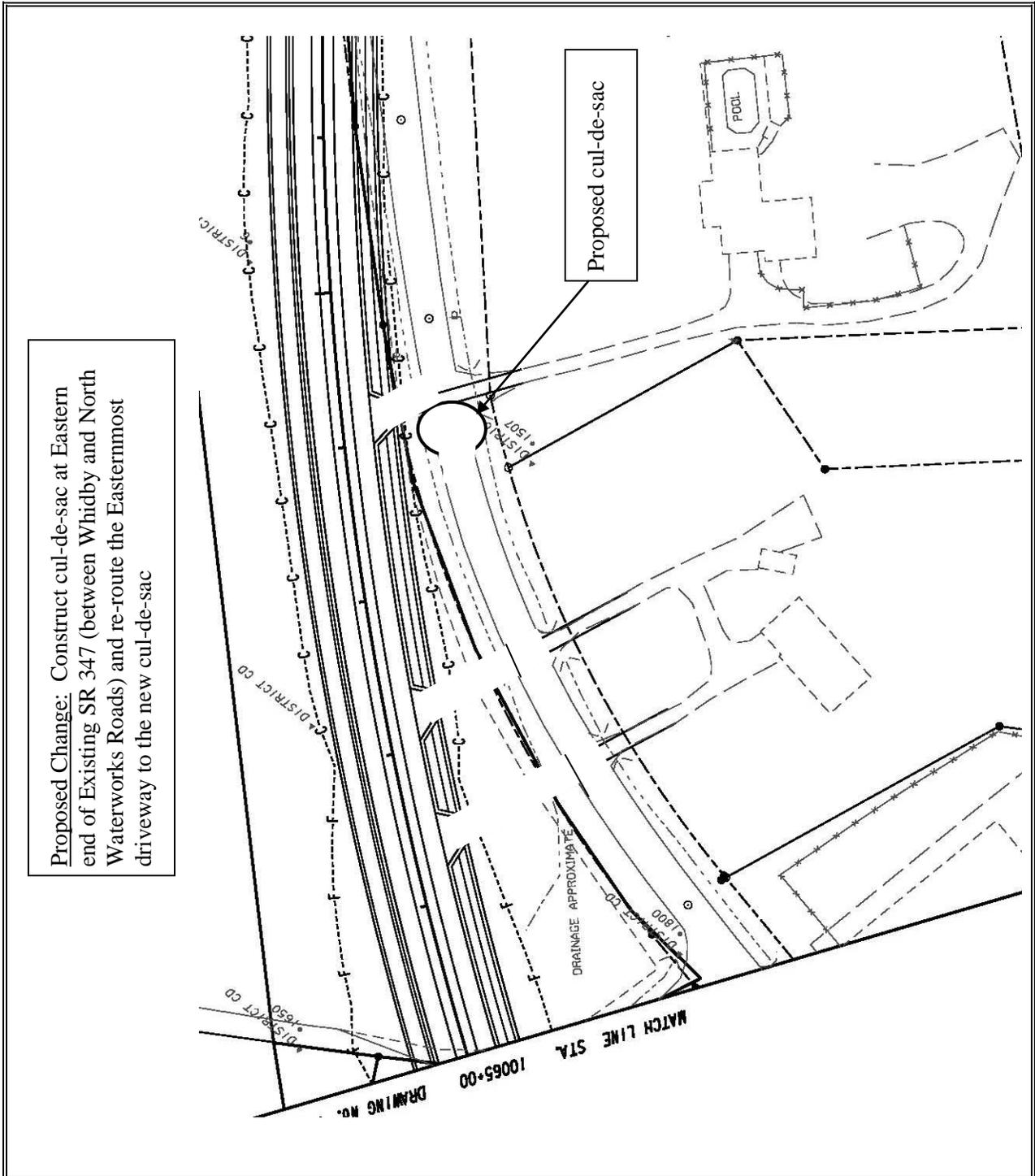


# PROPOSED CHANGE SKETCH/DETAIL

PROPOSAL NUMBER: R-11.0

PAGE NUMBER: 4 of 5

PROJECT #/PI #: CSSTP-0007-00(319) / 0007319



## CALCULATIONS

**PROPOSAL NUMBER:** R-11.0

**PAGE NUMBER:** 5 of 5

**PROJECT #/PI #:** CSSTP-0007-00(319) / 0007319

### **Concrete Valley Gutter Reduction**

16' wide by 8' deep (per driveway) = 15 SY per driveway eliminated x 3 driveways = 45 SY

### **Concrete Driveway Reduction**

Total driveway extensions = 240 LF x 10' wide = 2400 SF = 267 SY

### **Cul-de-sac Construction**

The cul-de-sac is currently being constructed approximately 425' to West. Thus, we are simply moving the location of the new cul-de-sac and not changing the associated costs.

### **Existing Pavement Demolition**

From the proposed location of the cul-de-sac to the current design location is 425'. This is the length of existing pavement that would not be removed. Reduction of pavement demolition is: 425' x 24' wide = 10,200 SF = 1,133 SY

## VALUE ENGINEERING PROPOSAL

<b>PROPOSAL NUMBER:</b> R-12.0	<b>PAGE NUMBER:</b> 1 of 4
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<b>PROJECT #/PI #:</b>	<b>CSSTP-0007-00(319) / 0007319</b>
<b>PROJECT TITLE:</b>	<b>SR 347 from Lake Lanier to McEver Road Hall County</b>

<b>PROPOSAL DESCRIPTION:</b> ELIMINATE SHORT ACCELERATION LANES AT HOLIDAY ROAD AND JOY DRIVE.
--

**ORIGINAL DESIGN:** In the current design, the intersection of Holiday Road right of Sta 10099+50 has a right turn lane on SR 347 and an acceleration lane approximately 100' long and 100' taper. Also, the intersection of Joy Drive right of Sta 10110+25 has a right turn lane on SR 347 and an acceleration lane approximately 50' long and 100' taper.

**PROPOSED CHANGE:** It is proposed to eliminate the short acceleration lanes and develop the approaches in accordance with the GDOT Regulations for Driveway and Encroachment Control.

**JUSTIFICATION:** Removing the acceleration lanes would be in accordance with GDOT design guidelines which states "Acceleration lanes are generally not provided on low speed highways".

**ADVANTAGES:**

- Meets GDOT policy
- Reduces construction cost

**DISADVANTAGES:**

- None apparent

	INITIAL COST	OPERATING COST	TOTAL LIFE-CYCLE COST
<b>ORIGINAL DESIGN:</b>	\$ 12,246		\$ 12,246
<b>PROPOSED CHANGE:</b>	\$ 0		\$ 0
<b>SAVINGS:</b>	\$ 12,246		\$ 12,246

## COST ESTIMATING WORKSHEET

<b>PROPOSAL NUMBER:</b>	R-12.0	<b>PAGE NUMBER:</b>	2 of 4
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<b>PROJECT #/PI #:</b>	CSSTP-0007-00(319) / 0007319
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### ORIGINAL DESIGN

ITEM	SOURCE CODE	U/M	QTY	UNIT COST	TOTAL COST
Asphalt and GAB (reductions)	1/7	SY	200	\$61.23	\$12,246
SUBTOTAL – COST TO PRIME					\$12,246
MARKUP					Incl.
<b>TOTAL CONTRACT COST</b>					<b>\$12,246</b>

### PROPOSED CHANGE

ITEM	SOURCE CODE	U/M	QTY	UNIT COST	TOTAL COST
SUBTOTAL – COST TO PRIME					0.00
MARKUP					Incl.
<b>TOTAL CONTRACT COST</b>					<b>0.00</b>

Difference [Original-Proposed]                      **\$12,246**

### SOURCES

- |   |   |
|---|---|
| <ol style="list-style-type: none"> <li>1. Project Cost Estimate</li> <li>2. USC Estimate Database</li> <li>3. GDOT Item Mean Summary</li> <li>4. Means Estimating Manual</li> </ol> | <ol style="list-style-type: none"> <li>5. Richardson's Estimating Manual</li> <li>6. Vendor (Specify)</li> <li>7. VE Calculation sheet</li> </ol> |
|---|---|

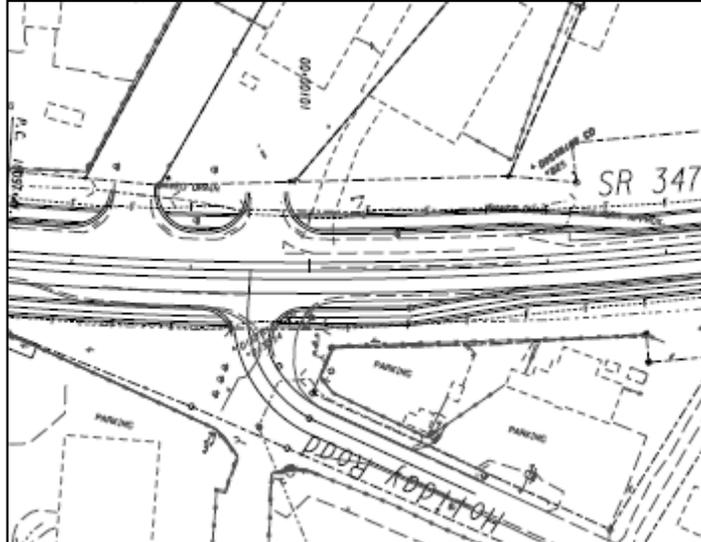
# ORIGINAL DESIGN SKETCH/DETAIL

PROPOSAL NUMBER: R-12.0

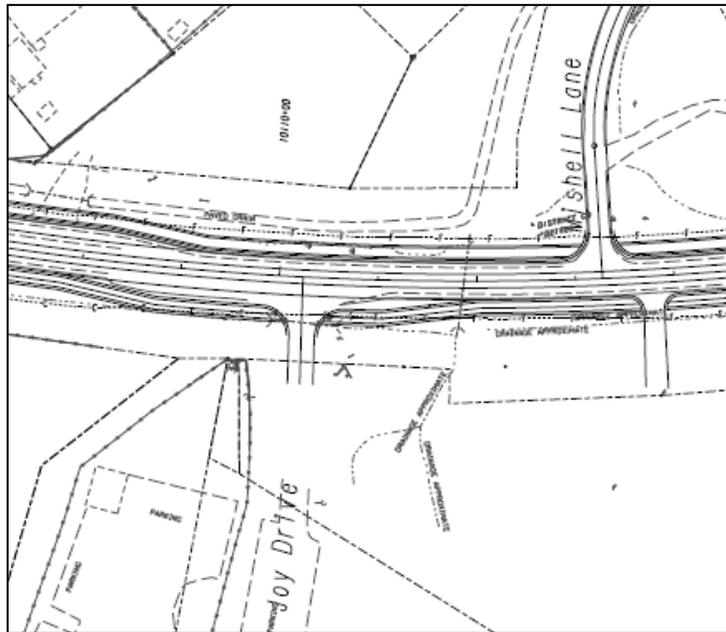
PAGE NUMBER: 3 of 4

PROJECT #/PI #: CSSTP-0007-00(319) / 0007319

## 100' Acceleration Lane at Holiday Road



## 50' Acceleration Lane at Joy Drive



## CALCULATIONS

PROPOSAL NUMBER: R-12.0

PAGE NUMBER: 4 of 4

PROJECT #/PI #: CSSTP-0007-00(319) / 0007319

### Current Design Pavement Cost Calculations:

310-1101: 12" GAB = 0.68 tons/SY x \$19.50/ton = \$13.26/SY

402-3121: 7" Asph 25MM = (7")(110#sy-in/2000#)(\$83.07/T) = \$31.98/SY

402-3190: 2" Asph 19MM = (2")(110#sy-in/2000#)(\$83.07/T) = \$9.14/SY

402-3113: 1.5" Asph 12.5MM = (1.5")(110#sy-in/2000#)(\$83.07/T) = \$6.85/SY

Total pavement cost = **\$61.23/SY**

### Elimination of Acceleration Lane at Holiday Road:

100' x 12' = 1200 SF / 9 = 133 SY x \$61.23 = \$8,144 reduction in pavement cost

### Elimination of Acceleration Lane at Joy Drive:

50' x 12' = 600 SF / 9 = 67 SY x \$61.23 = \$4,102 reduction in pavement cost

## VALUE ENGINEERING PROPOSAL

<b>PROPOSAL NUMBER:</b> R-13.0	<b>PAGE NUMBER:</b> 1 of 4
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<b>PROJECT #/PI #:</b>	<b>CSSTP-0007-00(319) / 0007319</b>
<b>PROJECT TITLE:</b>	<b>SR 347 from Lake Lanier to McEver Road Hall County</b>

**PROPOSAL DESCRIPTION:** REDUCE LENGTH OF RIGHT TURN LANE INTO HOLIDAY MARINA.

**ORIGINAL DESIGN:** An existing 600' right turn lane (550' lane with a 50' taper) is located at the entrance to the Holiday Marina property. The current design includes providing a 675' turn lane (600' lane with a 75' taper) at this location.

**PROPOSED CHANGE:** The proposed change is to reduce the right turn lane to 175' with a 100' taper for a total of 275', which is the minimum required right turn lane length according to GDOT criteria for a posted speed of 45 mph.

**JUSTIFICATION:** Reducing the length of the turn lane would decrease the amount of impacts, while satisfying GDOT criteria, as shown in the "Driveway and Encroachment Control" Manual.

**ADVANTAGES:**

- Reduces right-of-way impacts
- Reduces costs
- Reduces impervious area

**DISADVANTAGES:**

- Possible property owner dissatisfaction

	INITIAL COST	OPERATING COST	TOTAL LIFE-CYCLE COST
<b>ORIGINAL DESIGN:</b>	\$ 257,461		\$ 257,461
<b>PROPOSED CHANGE:</b>	\$ 102,055		\$ 102,055
<b>SAVINGS:</b>	\$ 155,406		\$ 155,406

## COST ESTIMATING WORKSHEET

<b>PROPOSAL NUMBER:</b>	R-13.0	<b>PAGE NUMBER:</b>	2 of 4
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<b>PROJECT #/PI #:</b>	<b>CSSTP-0007-00(319) / 0007319</b>
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### ORIGINAL DESIGN

ITEM	SOURCE CODE	U/M	QTY	UNIT COST	TOTAL COST
Full Depth Pavement	1	SY	850	\$61.23	\$52,045
Right-of-way, commercial	1	SF	9450	\$19.92	\$188,244
Earthwork	1	SF	8100	\$2.12	\$17,172
SUBTOTAL – COST TO PRIME					\$257,461
MARKUP					Incl.
<b>TOTAL CONTRACT COST</b>					<b>\$257,461</b>

### PROPOSED CHANGE

ITEM	SOURCE CODE	U/M	QTY	UNIT COST	TOTAL COST
Full Depth Pavement	1	SY	300	\$61.23	\$18,367
Right-of-way, commercial	1	SF	3850	\$19.92	\$76,692
Earthwork	1	SF	3300	\$2.12	\$6,996
SUBTOTAL – COST TO PRIME					\$102,055
MARKUP					Incl.
<b>TOTAL CONTRACT COST</b>					<b>\$102,055</b>

Difference [Original-Proposed]      **\$155,406**

### SOURCES

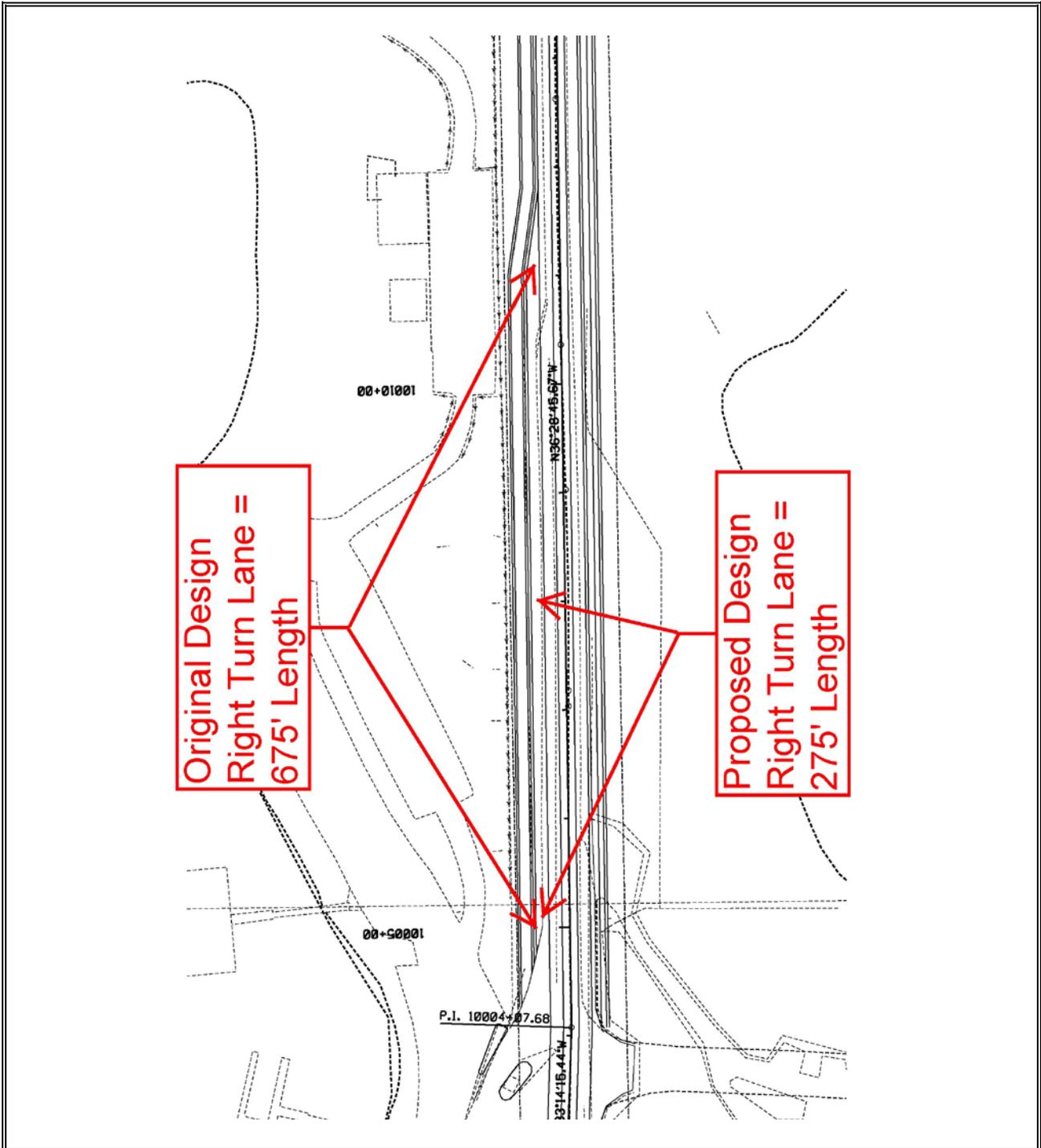
- |   |  |
|---|--|
| <ol style="list-style-type: none"> <li>1. Project Cost Estimate</li> <li>2. USC Estimate Database</li> <li>3. GDOT Item Mean Summary</li> <li>4. Means Estimating Manual</li> </ol> | <ol style="list-style-type: none"> <li>5. Richardson's Estimating Manual</li> <li>6. Vendor (Specify)</li> <li>7. Other (Specify)</li> </ol> |
|---|--|

# ORIGINAL DESIGN SKETCH/DETAIL

PROPOSAL NUMBER: R-13.0

PAGE NUMBER: 3 of 4

PROJECT #/PI #: CSSTP-0007-00(319) / 0007319



## CALCULATIONS

**PROPOSAL NUMBER:** R-13.0

**PAGE NUMBER:** 4 of 4

**PROJECT #/PI #:** CSSTP-0007-00(319) / 0007319

### ORIGINAL DESIGN:

#### Full Depth Pavement Cost Calculations:

310-1101: 12" GAB = 0.68 tons/SY x \$19.50/ton = \$13.26/SY

402-3121: 7" Asph 25MM = (7")(110#sy-in/2000#)(\$83.07/T) = \$31.98/SY

402-3190: 2" Asph 19MM = (2")(110#sy-in/2000#)(\$83.07/T) = \$9.14/SY

402-3113: 1.5" Asph 12.5MM = (1.5")(110#sy-in/2000#)(\$83.07/T) = \$6.85/SY

Pavement Unit Cost = \$61.23/SY

Total Pavement Cost = [(\$61.23/SY)((12' x 600')+(6' x 75'))]/(9 SF/SY) = **\$52,045**

#### Right-of-way Cost Calculations:

Commercial (to 10' outside LOC):

R/W Unit Cost = (\$2,285,655/ 3.95 AC)(1 AC/ 43,560 SF)(1.5) = \$9.26/SF

Total R/W Cost = (\$9.26/SF)(14' x 675) = **\$188,244**

#### Earthwork Cost Calculations:

Earthwork Unit Cost = (\$2,500,000.00/ 1,181,734 SF) = \$2.12/SF

Total Earthwork Cost = (\$2.12/SF)(12' x 675') = **\$17,172**

**ORIGINAL DESIGN COST = \$257,461**

### PROPOSED CHANGE:

#### Proposed Change Full Depth Pavement Cost Calculations:

Total Pavement Cost = [(\$61.23/SY)((12 x 175') + (6' x 100'))]/(9 SF/SY) = **\$18,367**

#### Proposed Change Right-of-way Cost Calculations:

Commercial (to 10' outside LOC):

Total R/W Cost = (\$9.26/ SF)(14' x 275') = **\$76,692**

#### Proposed Change Earthwork Cost Calculations:

Total Earthwork Cost = (\$2.12/SF)(12' x 275') = **\$6,996**

**PROPOSED CHANGE COST = \$102,055**

**TOTAL COST SAVINGS = \$155,406**

## VALUE ENGINEERING PROPOSAL

<b>PROPOSAL NUMBER:</b>	R-16.0	<b>PAGE NUMBER:</b>	1 of 4
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<b>PROJECT #/PI #:</b>	CSSTP-0007-00(319) / 0007319
<b>PROJECT TITLE:</b>	SR 347 from Lake Lanier to McEver Road Hall County

<b>PROPOSAL DESCRIPTION:</b> USE 12' TRAVEL LANES AND REDUCE TURN LANE WIDTH FROM 14' TO 12'.
---

**ORIGINAL DESIGN:** The current design of the SR-347 typical roadway section includes two 12' travel lanes in each direction with a 14' wide turn lane.

**PROPOSED CHANGE:** It is proposed to reduce the turn lane from 14' to 12', with the travel lanes remaining at 12'.

**JUSTIFICATION:** The roadway is classified as "Urban Minor Arterial" with a 45 MPH Design Speed and GDOT policy refers to AASHTO which allows continuous 2-way turn lanes to range from 10' to 16' in Section 4.3, Lane Widths, of the AASHTO Geometric Design Manual. Thus, this proposed change meets GDOT and AASHTO requirements while reducing the amount of impervious surfaces and providing a construction cost savings to the project.

**ADVANTAGES:**

- Reduces construction cost
- Acceptable design for classification of roadway
- Less impervious area

**DISADVANTAGES:**

- Would require transition taper from roadway section to East

	INITIAL COST	OPERATING COST	TOTAL LIFE-CYCLE COST
<b>ORIGINAL DESIGN:</b>	\$ 217,464		\$ 217,464
<b>PROPOSED CHANGE:</b>	\$ 0		\$ 0
<b>SAVINGS:</b>	\$ 217,464		\$ 217,464

## COST ESTIMATING WORKSHEET

<b>PROPOSAL NUMBER:</b>	R-16.0	<b>PAGE NUMBER:</b>	2 of 4
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<b>PROJECT #/PI #:</b>	CSSTP-0007-00(319) / 0007319
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### ORIGINAL DESIGN

ITEM	SOURCE CODE	U/M	QTY	UNIT COST	TOTAL COST
Pavement (reduction)	1/7	SY	2,735	\$61.23	\$167,464
Grading Complete (reduction)	1/7	LS	1	\$50,000	\$50,000
SUBTOTAL – COST TO PRIME					\$217,464
MARKUP					Incl.
TOTAL CONTRACT COST					\$217,464

### PROPOSED CHANGE

ITEM	SOURCE CODE	U/M	QTY	UNIT COST	TOTAL COST
SUBTOTAL – COST TO PRIME					\$0
MARKUP					Incl.
TOTAL CONTRACT COST					\$0

Difference [Original-Proposed]      **\$217,464**

### SOURCES

- |   |   |
|---|---|
| <ol style="list-style-type: none"> <li>1. Project Cost Estimate</li> <li>2. USC Estimate Database</li> <li>3. GDOT Item Mean Summary</li> <li>4. Means Estimating Manual</li> </ol> | <ol style="list-style-type: none"> <li>5. Richardson's Estimating Manual</li> <li>6. Vendor (Specify)</li> <li>7. Attached Calculation Sheet</li> </ol> |
|---|---|

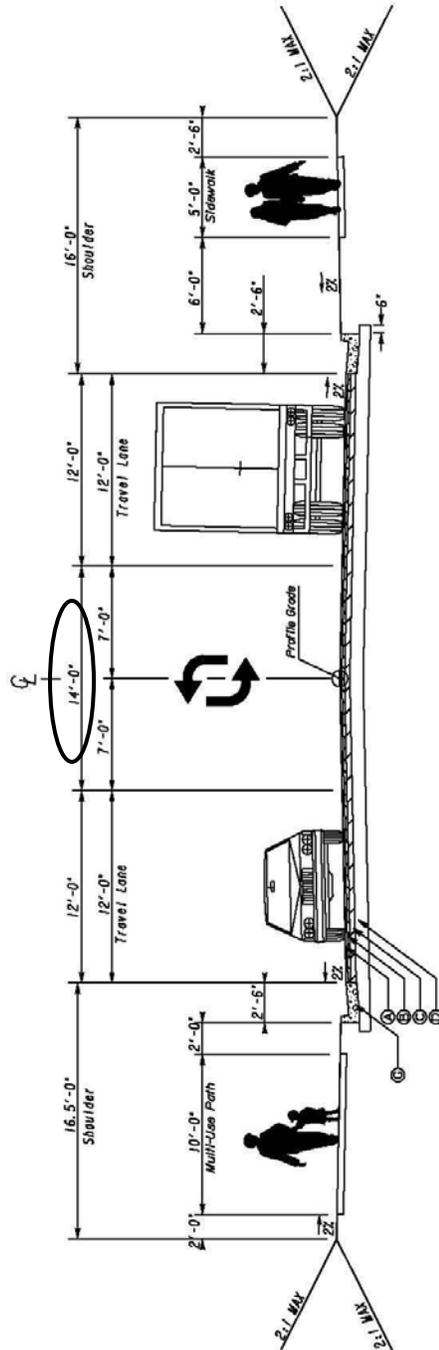
# PROPOSED CHANGE SKETCH/DETAIL

**PROPOSAL NUMBER:** R-16.0

**PAGE NUMBER:** 3 of 4

**PROJECT #/PI #:** CSSTP-0007-00(319) / 0007319

Proposed Change: Reduce 4'0" turn lane to 12'0"



*Urban 2-Lane 14' Flush Median  
New Location & Widening  
Tangent*

## CALCULATIONS

PROPOSAL NUMBER: R-16.0

PAGE NUMBER: 4 of 4

PROJECT #/PI #: CSSTP-0007-00(319) / 0007319

### Current Design Pavement Cost Calculations:

310-1101: 12" GAB = 0.68 tons/SY x \$19.50/ton = \$13.26/SY

402-3121: 7" Asph 25MM = (7")(110#sy-in/2000#)(\$83.07/T) = \$31.98/SY

402-3190: 2" Asph 19MM = (2")(110#sy-in/2000#)(\$83.07/T) = \$9.14/SY

402-3113: 1.5" Asph 12.5MM = (1.5")(110#sy-in/2000#)(\$83.07/T) = \$6.85/SY

Total pavement cost = **\$61.23/SY**

### Pavement Area Reduction

Section length = 12,310 LF total project

12,310 LF x 2' width reduction/ = 24,620 SF / 9 = 2,735 SY

### Earthwork and Clear/Grub Reduction

Assume "Grading – Complete" reduced by 2% for reduced roadway section by 2'. Attributed to reduced earthwork and clear/grub.

Grading – Complete for project = \$2,500,000 x 2% reduction = \$50,000 reduction

## VE STUDY SIGN-IN SHEET

SR 347

Project No.: CSSTP-0007-00(319)

County: Hall

PI No.: 0007319

Date: May 6-9, 2013

Days

FIRST	LAST	NAME	DOT OFFICE OR COMPANY NAME	PHONE NUMBER	EMAIL ADDRESS
X	X	Robert Reid Jr.	Engineering Services	404)631-1754	rreid@dot.ga.gov
X	X	Matt Sanders	Engineering Services	404)631-1752	msanders@dot.ga.gov
X	O	Lisa Myers	Engineering Services	404)631-1770	lmyers@dot.ga.gov
X	O	Nabil Raad	Traffic Operations	404)635-2854	nraad@dot.ga.gov
X	O	Darrell Richardson	Roadway Design	404)631-1705	drichardson@dot.ga.gov
X	X	Joshua Taylor	Roadway Design	404)631-1659	jotaylor@dot.ga.gov
X	X	Sonya Sykes	Roadway Design	404)631-1698	ssykes@dot.ga.gov
X	X	Ryan Fernandez	OPD	404)631-1162	rfernandez@dot.ga.gov
X	O	Joshua Waddell	D3 Design (TEA)	706)741-7115	jowaddell@dot.ga.gov
X	X	Tom Orr	US Cost	770)481-1638	torr@uscost.com
X	X	Jerry Brooks	Kimley-Horn	678)502-1864	jerry.brooks@kimley-horn.com
X	X	Lenor Bromberg	KEA Group	404)805-8244	lbromberg@keagroup.com
X	X	Lane Gortemoller	KEA Group	-----	lgortmoller@keagroup.com
X	O	Wendy Dyson	Atkins	770)933-0280	wendy.dyson@atkinsglobal.com
		(Via Video)			
X	O	Matt Needham	D1 Area Engineer	770)535-5759	mneedham@dot.ga.gov
X	O	Jason Dykes	D1 Asst. Const. Engineer	770)718-5023	jdykes@dot.ga.gov

0 = Did Not Attend Presentation

16 = Attended Project Overview (Day 1)

9 = Attended Project Presentation (Day 4)

## VALUE ENGINEERING STUDY

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### FUNCTION ANALYSIS

The following functions for the SR 347 from Lake Lanier to McEver Road project were identified during discussions with the VE participants on the first day of the study. These two-word functions consist of an active verb, and a quantifiable (measurable) noun. The functions represent the proposed capital improvement expenditures of the project, and assist the V.E. team in becoming familiar with the needs and long-term goals for the project. The Basic Function of the project is to “Improve Operations”. The following are considered by the V.E. team to be Secondary and Supporting Functions.

<b>Verb</b>	<b>Noun</b>		<b>Verb</b>	<b>Noun</b>
Accommodate	Pedestrians		Maintain	Access
Accommodate	Cyclists		Minimize	Impacts
Support	Commerce		Demolish	Roadway
Reduce	Congestion		Convey	Water
Reduce	Crash Frequency		Re-establish	Vegetation
Achieve	Speed Design		Award	Contract
Protect	Travelers		Control	Erosion
Maintain	Lake Volume		Control	Traffic
Illuminate	Roundabout		Protect	Property
Direct	Drainage		Maintain	Sight Distance
Support	Vehicles		Inform	Traveler
Retain	Water		Clear	Trees
Treat	Water		Excavate	Earth
Limit	Outflows			

**VALUE ENGINEERING STUDY**

**COST MODEL/DISTRIBUTION**

**Project # CSSTP-0007-00(319)      PI No. 0007319**  
**SR 347/Lanier Islands Parkway from Lake Lanier to McEver Road**  
**Hall County, Georgia**

ITEM	COST \$	% OF TOTAL
RIGHT-OF-WAY	4,920,000	37.31%
ASPHALT CONCRETE PAVING	2,680,975	20.33%
GRADING - COMPLETE	2,500,000	18.96%
SIDEWALKS	773,300	5.86%
AGGREGATE BASE COURSE	720,838	5.47%
TRAFFIC CONTROL	500,000	3.79%
CURB & GUTTER	307,867	2.33%
DRAINAGE SYSTEM	186,724	1.42%
GRASSING/EROSION CONTROL	178,327	1.35%
GUARDRAILS	168,731	1.28%
FIELD ENGINEER'S OFFICE	69,347	0.53%
LIGHTING	66,373	0.50%
CONCRETE SLABS/APRONS/MEDIANS	49,861	0.38%
SIGNAGE/MARKING	43,982	0.33%
MILLING	18,792	0.14%
LANDSCAPING	0	0.00%
BRIDGES/STRUCTURES	0	0.00%
RETAINING WALLS	0	0.00%
<b>*TOTAL - PROJECT</b>	<b>13,185,117</b>	<b>100.00%</b>
*Does not include Engrg & Inspection, Fuel Adjustment or Liquid AC Adjustment		

## VALUE ENGINEERING STUDY

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### BRAINSTORMING OR SPECULATION IDEAS

**PROJECT TITLE: SR 347 FROM LAKE LANIER TO MCEVER ROAD**

**PROJECT LOCATION: HALL COUNTY, GEORGIA**

<b>NO.</b>	<b>IDEA</b>	<b>RANK</b>
	<b>ROADWAY (R)</b>	
1.0	Eliminate Roundabout and Make Big Creek Road and New Bethany Road Intersection Stop Controlled	4
1.1	Use Signalized Intersection in lieu of Roundabout at Big Creek Road and New Bethany Road	3
1.2	Utilize Existing Corridor from Rowe Drive to North Waterworks Road and Construct Urban Roadway Section as Proposed	Drop
1.3	Utilize Existing Corridor from Rowe Drive to North Waterworks Road and Construct Urban Section as Proposed	2
2.0	Reduce Design and Posted Speed from 45 to 35 MPH West of McEver Road (Entire Project)	5
3.0	Reduce Horizontal Curves from Sta 10015+00 to 10025+00	4
4.0	Reduce Horizontal Curves from Sta 10030+00 to 10041+00	4
5.0	Adjust Vertical Profiles to Balance Earthwork	4
6.0	From Rowe Drive to New Waterworks Road Create 1-Way Road East on Existing SR 347 and 1-Way Road West on New Location of SR 347	4
7.0	Reduce Shoulder on Sidewalk Side from 16' to 12' Wide	5
8.0	Use Asphalt in lieu of Concrete for 10' Wide Multi-use Trail	4
9.0	Eliminate Realignment of New Bethany Road at Existing SR 347	4
10.0	Eliminate Relocation of Lee Circle Between New and Existing SR 347	4
11.0	Move Eastern Cul-de-sac on Existing SR 347 to East Approximately 425' and Eliminate Extension of 3 Driveways to New SR 347	5
12.0	Eliminate Short Acceleration Lanes	3
13.0	Reduce Length of Right-Turn Lane into Holiday Marina	4
14.0	Eliminate Right-Turn Lane at Shoreland Drive	3
15.0	Use Easement in lieu of Right-of-Way at Specific Locations	3
16.0	Use 12' Travel Lanes and Reduce Turn Lane Width from 14' to 12'	4
16.1	Reduce Lane Widths to 11' Travel Lanes and a 12' Turn Lane	3
17.0	Use Rural Shoulder with 6.5' Paved Shoulder to Include Bike Lane	2

The rankings indicated as "Drop" were ideas that were investigated by the VE Team during the workshop but did not prove to be feasible for consideration.

**VALUE ENGINEERING WORKSHOP AGENDA**  
**For**  
**GEORGIA DEPARTMENT OF TRANSPORTATION**

**Project # CSSTP-0007-00(319)      PI No. 0007319**  
**SR 347/Lanier Islands Parkway from Lake Lanier to McEver Road**  
**HALL COUNTY, GEORGIA**

**28 HOUR - V.E. STUDY**  
6-9 May 2013

The value engineering workshop for the subject project will be conducted for 3-1/2 days from 6-9 May 2013, **in the Engineering Services Conference Room (5CR1L2) on the 5th floor of the GDOT General Office Facility located at 600 W. Peachtree Street NW, Atlanta GA 30308; POC – Matt Sanders @ (404)631-1752 voice**

**Pre-workshop Activities**

The V.E. Team Leader coordinates logistics with GDOT, and confirms project objectives and any unique requests, and develops a cost model for the project. The V.E. Team receives and reviews all project documents.

**MONDAY**  
0800 - 0900

**V.E. Team Introduction Phase**

Tom Orr, P.E., CVS  
Team Leader, U.S. Cost, Inc.  
**(V.E. Team Only)**

*The VETL will review previous events along with activities planned for the week and outline several areas which may be investigated by the V.E. team.*

*The team members will discuss their initial impression and understanding of the project with other team members based on their pre-study review of the project plans, cost estimates, and available calculations. The V.E. Team Leader will provide cost models, and cost bar graphs to help the team identify the high-cost features of the project.*

0900 - 1100

**Project Design Briefing**

V.E. Team; A/E, GDOT

*The A/E project design manager will discuss the project constraints/requirements and the proposed design solution(s) in detail. The V.E. team members will ask questions as appropriate to completely understand the project requirements and the proposed design solution (both alternatives considered and those recommended by the design team).*

## MONDAY (CONTINUED)

1100 - 1200      **Function Analysis Phase**      V.E. Team

*The V.E. team will discuss the required functions of the project. The project cost model will be analyzed to identify functions provided by all project features.*

1200 - 1300      **Lunch**

1300 - 1600      **Creative Phase**      V.E. Team

*The V.E. team will creatively review, Brainstorm, and tabulate possible design alternatives for the project. While the designer's solution will serve as the "baseline", the team will identify alternatives not in the recommended solution, but deserving of further investigation. Each project feature will be carefully analyzed with the basic questions in mind:*

***What is the system/item?***

***What does it do (what is its basic function)?***

***What must it do?***

***What does it cost?***

***What is the item worth?***

***What else will do the same, or a better job?***

***What does that alternative cost?***

*During the creative phase, the team will not judge the ideas. The essential requirements for the project, however, must always be considered.*

1600 - 1700      **Analysis Phase**      V.E. Team

*During this phase, all of the ideas or alternatives will be ranked according to their potential for life-cycle (25-year) cost reduction and the potential for acceptance by GDOT, Engineering Designers, and other appropriate parties.*

## TUESDAY

0800 - 1700      **Development Phase**      V.E. Team

*During the development phase, each team member will gather information and prepare written proposals for those ideas assigned to him/her. These may require additional discussions with the designer, GDOT representatives, outside contractors and suppliers, and other specialists to fully define the alternative. The team members will prepare sketches, perform calculations and develop other data to support each proposal. In addition, each team member will prepare estimates of costs for each alternative as originally designed, and as proposed by the V.E. team.*

**WEDNESDAY**

0800 - 1200      **Development Phase**      V.E. Team

1200 - 1300      Lunch

1300 - 1700      **Development Phase & Quality Review**      V.E. Team

**THURSDAY**

0800 – 0900      **Prepare for Presentation**      V.E. Team

0900 – 1000      **V.E. Presentation**      V.E. Team Members, Design Team & GDOT Reps

*The Value Engineering Team will present the proposals developed in the course of the study to the design team representatives and any participating stakeholders. The intent of the presentation is to give a clear understanding of the basis of the proposals rather than to reach a conclusion as to their acceptability. A summary table of results will be distributed at the presentation. The formal V.E. Reports will be issued within 8 business days of the workshop conclusion.*

1000 – 1200      **V.E. Team Wrap-up & Final QC/QA**      V.E. Team Members only

*The Value Engineering Team will have a wrap-up session consisting of a final review of proposals to ensure consistency and clarity of content.*