



**DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA  
LIMITED SCOPE PROJECT CONCEPT REPORT**

Project Type: <u>Safety</u>	P.I. Number: <u>0009899</u>
GDOT District: <u>District 6</u>	County: <u>Bartow</u>
Federal Route Number: <u>I-75</u>	State Route Number: <u>SR 401</u>

I-75 @ CR 633/RED TOP MOUNTAIN ROAD - SB & NB RAMPS

**Submitted for approval:**

<u>C. Andy Curry</u> GDOT Concept/Design Phase	<u>Office Head (sign)</u>	<u>2/25/13</u> DATE
<u>Vanita...</u> Office Head (GDOT Project Manager's Office)		<u>2/28/2013</u> DATE
<u>...</u> GDOT Project		<u>2/25/13</u> DATE

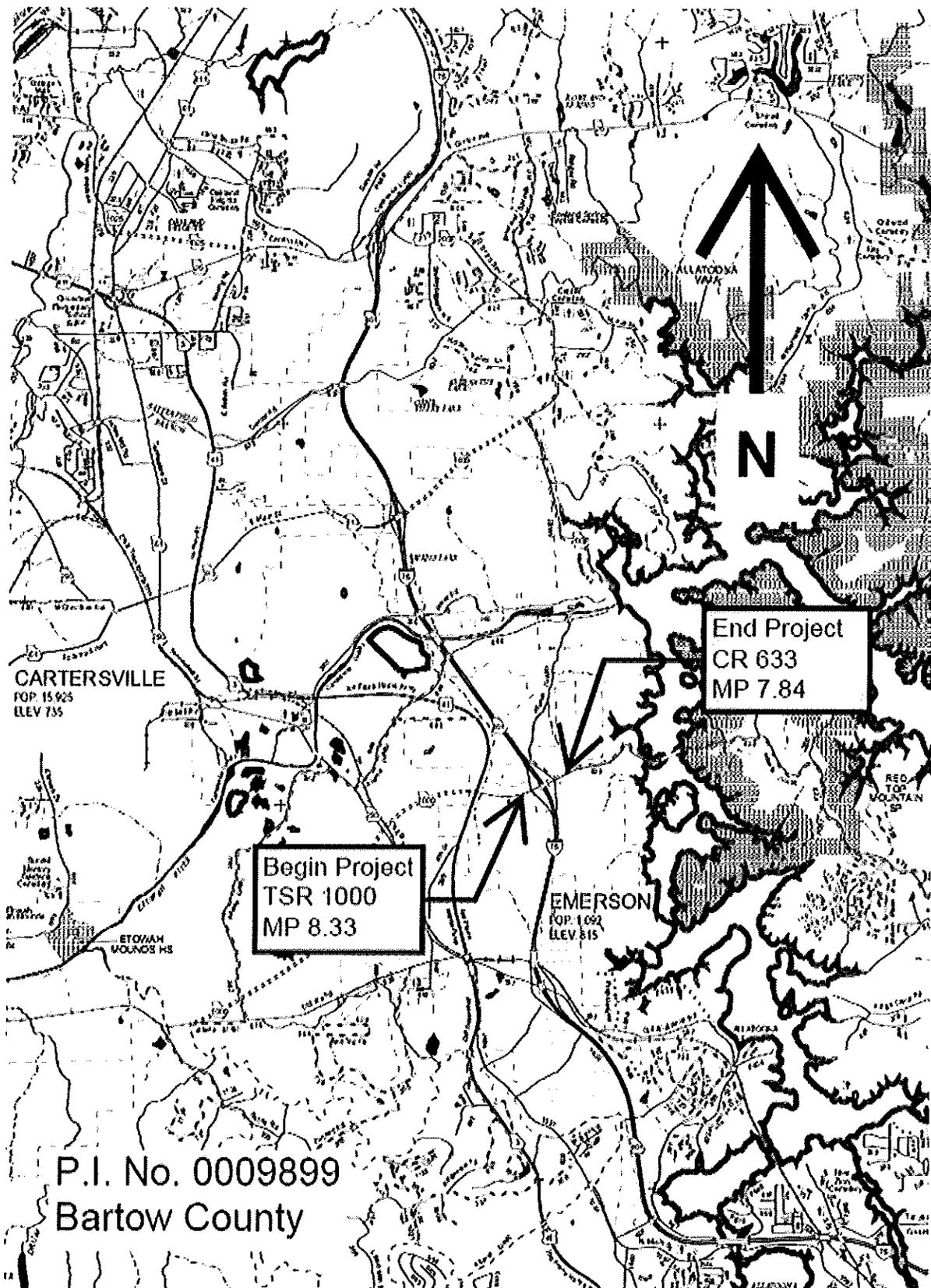
**Recommendation for approval:**

<u>GLENN BOWMAN *TJ</u> Program Control Administrator	DATE
<u>KATHY ZAHUL *TJ</u> State Environmental Administrator (recommendation required)	DATE
<u>LISA MYERS *TJ</u> State Traffic Engineer (recommendation required for roundabout projects)	DATE
<u>ABDULWAHID MUNSHI *TJ</u> Project Review Engineer	DATE
<u>...</u> State Utilities Engineer	DATE
<u>...</u> District Engineer (projects not originating in District Office)	DATE
<u>...</u> State Transportation Financial Management Administrator	DATE

The concept as presented herein and submitted for approval is consistent with that which is included in the Regional Transportation Plan (RTP) and/or the State Transportation Improvement Program (STIP).

<u>Cynthia R. ...</u> State Transportation Planning Administration (recommendation required)	<u>3-2013</u> DATE
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*\* RECOMMENDATION ON FILE*



P.I. No. 0009899  
Bartow County

**PROJECT LOCATION**

## PLANNING & BACKGROUND DATA

### Project Justification Statement:

The proposed project will enhance safety and improve operational efficiency at the Interstate 75/SR 401 interchange with Red Top Mountain Rd in Bartow County, GA. In Georgia, nearly a third of fatal crashes occur at intersections making intersection safety a focus area for the Georgia Department of Transportation. Nationally intersection crashes account for 40% of all reported crashes and approximately 20% of traffic fatalities. Of those fatalities, nearly 50% are the result of angle collisions. Angle collisions are often high speed, high impact crashes which are more likely to result in serious injuries or fatalities.

Roundabouts have been identified as one of nine proven countermeasures by the Federal Highway Administration (FHWA). The installation of roundabouts in comparison to traditional safety countermeasures such as traffic signals have resulted in a greater reduction in crash frequency and in many instances better operational efficiency. Roundabouts are generally navigated at slower speeds which reduces the severity of crashes. A roundabout also presents fewer conflict points than a traditional intersection resulting in a lower crash potential.

In the project area, I-75/SR 401 is an Interstate Principal Arterial and Red Mountain Rd is a four lane divided Urban Minor Arterial with a posted speed limit of 45 mph and an AADT of 17,490 vehicles per day. Currently, the intersections with the northbound and southbound ramps are stop controlled with single turn lanes on each of the approaches. On the land adjacent to the interchange a Development of Regional Impact will be constructed consisting of a 100,000 square foot indoor sports facility, 16 baseball fields and 12 soccer fields. The addition of this development will significantly increase the traffic volumes at this interchange, increasing delay and reducing the operational efficiency of the interchange.

In addition to the operational challenges created by the new development, the crash rates at the interchange are expected to increase in a no-build scenario. Crash data from 2004-2008 indicated that 38 crashes occurred at these intersections resulting in 10 total injuries. Studies have shown that the installation of a roundabout results in nearly an 80% reduction in fatal and serious injury crashes and nearly a 40% reduction in property damage crashes.

### Description of the proposed project:

The project is located at the I-75/SR 401 interchange with Red Top Mountain Rd (CR 633) in Bartow County, GA adjacent to the Emerson town line. The project length is approximately 0.5 miles along Red Top Mountain Rd (along with a very short portion of Old Alabama Rd) and includes two intersections with I-75 at the northbound and southbound exit and entrance ramps. It is proposed to retain the interchange in its' current configuration, therefore a No-Build alternate is preferred.

**Federal Oversight:**     Full Oversight     Exempt     State Funded     Other

**MPO:**     N/A     MPO - Choose    MPO Project TIP #

**Regional Commission:**     N/A     RC – Northwest Georgia RC    RC Project ID #

**Congressional District(s):** 11

**Projected Traffic: ADT**

Current Year (2011): 4,900      Open Year (2016): 15,600      Design Year (2036): 36,975

**Functional Classification (Mainline):** Urban Minor Arterial Street

Is this a 3R (Resurfacing, Restoration, & Rehabilitation) Project?       No       YES

Will Context Sensitive Solutions procedures be utilized?       No       YES

**DESIGN AND STRUCTURAL DATA**

**Mainline Roadway Name/Identification:** CR 633/Red Top Mountain Road/Old Alabama Road

Design Feature	Existing	Standard*	Proposed
<b>Typical Section</b>			
- Number of Lanes	4	4	4
- Lane Width(s)	12'	11'-12'	12'
- Median Width & Type	20' raised	20' raised	20' raised
- Outside Shoulder Width & Type	12' (6.5' paved)	n/a	12' (6.5' paved)
- Outside Shoulder Slope	6%	n/a	6%
- Inside Shoulder Width & Type	n/a	n/a	n/a
- Sidewalks	n/a	n/a	n/a
- Auxiliary Lanes	n/a	n/a	n/a
- Bike Lanes	n/a	n/a	n/a
Posted Speed	45 mph		45 mph
Design Speed	45 mph	n/a	45 mph
Min Horizontal Curve Radius	n/a	n/a	n/a
Superelevation Rate	n/a	6%	n/a
Grade	2%	7%	2%
Access Control	Limited Access	n/a	Limited Access
Right-of-Way Width	300'	n/a	300'
Maximum Grade – Ramps	2.2%	5%	2.2%
Design Vehicle	WB-67	n/a	WB-67
Diameter of Roundabout (ICD)	n/a	n/a	n/a

\*According to current GDOT design policy if applicable

**Major Structures:**

Structure	Existing	Proposed
ID #015-0124-0	Length: 278' Typical section: four 12' travel lanes, 12' shoulders, 20' raised median Sufficiency rating: 94.86	Retain existing

**Major Interchanges/Intersections:** Interstate 75 NB & SB Exit & Entrance Ramps

**Utility Involvements:** There are buried telephone conduits, fiber optic lines, overhead electric lines and an existing water line running through the project area. There will be no impacts to the utilities at this time.

**Public Interest Determination Policy and Procedure recommended (Utilities)?**  YES  NO

**SUE Required:**  Yes  No

**Railroad Involvement:** N/A

**Complete Streets – Bicycle, Pedestrian, and/or Transit Warrants:**

Warrants met:  None  Bicycle  Pedestrian  Transit

**Right-of-Way:**

Required Right-of-Way anticipated:  YES  NO  Undetermined

Easements anticipated:  Temporary  Permanent  Utility  Other

Anticipated number of impacted parcels: TBD

Anticipated number of displacements (Total): 0

Businesses: 0

Residences: 0

Other: 0

**Location and Design approval:**  Not Required  Required

**Off-site Detours Anticipated:**  No  Yes  Undetermined

**Transportation Management Plan Anticipated:**  YES  NO

**Design Exceptions to FHWA/AASHTO controlling criteria anticipated:**

FHWA/AASHTO Controlling Criteria	YES	Approval Date (if applicable)	NO	Undetermined
1. Design Speed	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Lane Width	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Shoulder Width	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
4. Bridge Width	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
5. Horizontal Alignment	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
6. Superelevation	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
7. Vertical Alignment	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
8. Grade	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
9. Stopping Sight Distance	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
10. Cross Slope	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
11. Vertical Clearance	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
12. Lateral Offset to Obstruction	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>
13. Bridge Structural Capacity	<input type="checkbox"/>		<input checked="" type="checkbox"/>	<input type="checkbox"/>

**Design Variances to GDOT standard criteria anticipated:**

GDOT Standard Criteria	Reviewing Office	Approval Date (if applicable)		
		YES	NO	Undetermined
1. Access Control - Median Opening Spacing	DP&S	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2. Median Usage & Width	DP&S	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3. Intersection Skew Angle	DP&S	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
4. Lateral Offset to Obstruction	DP&S	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5. Intersection Sight Distance	DP&S	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
6. Bike & Pedestrian Accommodations	DP&S	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
7. GDOT Drainage Manual	DP&S	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
8. Georgia Standard Drawings	DP&S	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
9. GDOT Bridge & Structural Manual	Bridge	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
10. Roundabout Illumination	DP&S	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
11. Rumble Strips	DP&S	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
12. Safety Edge	DP&S	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

VE Study anticipated:  No       Yes       Completed – Date:

**ENVIRONMENTAL DATA**

**Anticipated Environmental Document:**

GEPA:       NEPA:  CE       PCE       None

**Project Air Quality:**

Is the project located in a PM 2.5 Non-attainment area?       No       Yes  
 Is the project located in an Ozone Non-attainment area?       No       Yes  
 Is a Carbon Monoxide hotspot analysis required?       No       Yes

MS4 Compliance – Is the project located in an MS4 area?       No       Yes

**Environmental Permits/Variations/Commitments/Coordination anticipated:**

Permit/ Variance/ Commitment/ Coordination Anticipated	YES	NO	Remarks
1. U.S. Coast Guard Permit	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
2. Forest Service/Corps Land	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
3. CWA Section 404 Permit	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
4. Tennessee Valley Authority Permit	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
5. Buffer Variance	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
6. Coastal Zone Management Coordination	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
7. NPDES	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
8. FEMA	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
9. Cemetery Permit	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
10. Other Permits	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
11. Other Commitments	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
12. Other Coordination	<input type="checkbox"/>	<input checked="" type="checkbox"/>	

Is a PAR required?  No  Yes  Completed – Date:

**NEPA/GEPA:** The project is expected to require a Categorical Exclusion (CE) environmental document. There are no risks to the CE known/expected at this time.

**Ecology:** No protected species issues are expected to be encountered. The only water resource impacts expected is to either ephemeral and/or intermittent stream(s).

**History:** There are no history resource issues expected.

**Archaeology:** There is no archaeology resource issue(s) expected.

**Air & Noise:** There are no air/noise issues expected.

**Public Involvement:** A public information open house (PIOH) meeting will be required for this project. The PIOH will be held once design plans are available.

**Major stakeholders:** Major stakeholders include the traveling public, area businesses (gas station) and utility companies.

## ROUNABOUTS

Lighting agreement/commitment letter received:  No  Yes

Planning Level assessment: N/A

Peer Review required:  No  Yes  Completed – Date:

**Feasibility Study:** A Draft Feasibility Study was submitted for this project. Based on the safety assessment, operational analyses and costing exercise for the Red Top Mountain Road and I-75 Interchange, the study recommended a roundabout as the preferred alternate for the following reasons:

- While both the signalized alternative and the roundabout alternative will operate with acceptable levels of delay, the roundabout is predicted to operate with less delay and queuing. The cost of time associated with delay is also reduced using a roundabout. In off-peak periods there is virtually no delay as compared to actuated traffic signal control that operates in off-peak hours.
- A cursory safety performance assessment indicates the roundabout has approximately half the predicted injury crashes of the signalized alternative, but the roundabout is predicted to have approximately one additional property damage accident per year as compared to the signalized alternative. Since the injury collision costs and severities are higher than property damage-only collisions, the roundabout is deemed to be preferred for future safety considerations.
- The cost of the interim signalized alternative is approximately half of the interim roundabout alternative; but the roundabout alternative can be upgraded to handle the 2036 forecasted traffic volumes for less cost than the signalized alternative. The roundabout alternative would not require any work on the existing bridge or for Red Top Mountain Road and the signalized alternative would require widening the existing bridge or building a new bridge to provide one more lane in each direction along with extensive approach works for Red Top Mountain Road.

In review of the Draft Roundabout Feasibility Study, the Office of Roadway Design disagrees with the study's conclusion that a roundabout is the best alternative for this location. The following discussion is provided to invalidate the conclusions in the study:

Under the Executive Summary:

1. The first bullet states that both intersections will operate at an acceptable level. The analysis to make this comparison did not use the same traffic volumes nor was the HCS intersection analysis optimized correctly. Section 4.1 in the report states that the volumes for the roundabout analysis are reduced by 15% for the build year and 10% for the design year. The feasibility study HCS analysis claims that a 3 left turn lane configuration is needed in 2036 for EB Red Top Mountain to NB I-75 signalized intersection for it to operate at an acceptable level. The Roadway Office completed an HCS analysis at both of the proposed signal locations with 2036 traffic. Acceptable levels of service were achieved with a 2-left turn lane configuration. This statement also neglects to mention that in the 2036 design year a three lane roundabout is needed on the east side, even with the 10% reduction in projected traffic volumes.
2. The third bullet comparing costs of each alternate is incorrect. The construction costs utilized to support the 2036 signalized intersection are in error. The cost of the signalized intersections would be about one-fourth the cost of the roundabouts. As noted above, the Roadway Office HCS analysis shows that the two left lane configuration will operate at an acceptable level of service which allows for the retention of the existing bridge width and would eliminate any costs for roadway widening. In addition to removing the construction costs for additional pavement and bridge, the costs shown for signals are found to be double the average bid costs for a signal installation in Georgia.

In addition to the Executive Summary, the Roadway office submits the additional comments to the remaining report:

2.1 Roundabout Design – the 2036 configuration requires a 3 lane roundabout at the eastern NB ramps along with a two lane NB bypass. The third roundabout lane cannot be tapered properly within the distance to the bridge. Also, when vehicles are side-by-side in the bypass, the right-most vehicle's sight is blocked by an adjacent vehicle from vehicles exiting the roundabout.

2.2 Traffic Signal Design - Though we are in agreement with the study's proposed 2026 lane configuration for the signalized alternate, we disagree with the study's 2036 analysis and lane configuration modifications due to the above noted in-house HCS analysis.

4.1 Analysis inputs - It is not acceptable to reduce the predicted traffic volumes for a roundabout by 15 & 10 % when comparing to a signalized intersection. The volumes should remain the same to compare the two intersection types equally.

6.4 Pedestrians and Bicycles - Every quadrant on the roundabouts have a right turn bypass. Although pedestrians and bicycles can be accommodated, a roundabout bypass configuration does not provide stop controls as a signalized intersection. The Need and Purpose discusses a sports facility and therefore bicycle and pedestrian access should be promoted.

7.0 Summary Evaluation and Conclusion Section; many comments comparing the two intersection types shown are subjective and provide no basis to draw conclusions.

**Recommendation:**

Due to the items listed above, the Office of Roadway Design recommends that this project not move forward as a roundabout. If it is determined that traffic increases due to a future development warrant signals, an interchange reconfiguration, other alternates such as a Diverging Diamond, a future project should be programmed.

**PROJECT RESPONSIBILITIES**

**Project Activities:**

Project Activity	Party Responsible for Performing Task(s)
Concept Development	Roadway Design

Lighting required:  No  Yes

**Other projects in the area:**

P.I. No. 0007893 I-75 from CR 633/Glade Road to SR 20

P.I. No. 0009898 I-75 @ CR 397/Old Allatoona Road – SB & NB Ramps (Roundabout)

P.I. No. 621410- SR 113/Old Alabama Rd reloc from SR 113/Pumpkinvine Creek to CR 699/Old Old Alabama Rd

Other coordination to date: N/A

**Project Cost Estimate and Funding Responsibilities:**

	Breakdown of PE	ROW	Utility	CST*	Environmental Mitigation	Total Cost
By Whom	GDOT	GDOT		GDOT		
Authorized \$ Amount	\$204,000	\$0	\$0	\$0	\$0	
\$ amount spent	\$50,000					\$50,000
Date of Estimate	2/26/2010			2/1/2013		

\*CST Cost includes: Construction, Engineering and Inspection, and Liquid AC Cost Adjustment.

## ALTERNATIVES DISCUSSION

### Alternative Selection:

<b>Preferred Alternative: No-Build Stop-controlled intersections at Red Top Mountain Road/I-75 NB &amp; SB Ramps</b>			
<b>Estimated Property Impacts:</b>	n/a	<b>Estimated Total Cost:</b>	n/a
<b>Estimated ROW Cost:</b>	n/a	<b>Estimated CST Time:</b>	n/a
<p><b>Rationale:</b> This alternative was selected because it provides adequate capacity for existing traffic volumes. Neither of the two existing ramp intersections warrant a signal. The original proposed traffic volumes had been generated using GDOT standard traffic counting and projection measures in conjunction with a development of regional impact that included traffic projections proposed to be generated by the LakePoint Sporting Community Development. These volumes in addition to the use of predictive crash history suggested a roundabout design as the preferred alternative, but due to the uncertainty of the timeline for the full build out of the LakePoint Sporting Community Development it was decided that the original proposed traffic volumes should not be used. Upon review of the existing information, the GDOT Chief Engineer decided that, although he acknowledges that roundabouts are the preferred solutions at some locations, this project was not a feasible location for the proposed multi lane roundabout design at this time.</p>			

<b>Alternative 1: Signalized intersections at Red Top Mountain Road/I-75 NB ramps and I-75 SB ramps</b>			
<b>Estimated Property Impacts:</b>	n/a	<b>Estimated Total Cost:</b>	\$1.76 million
<b>Estimated ROW Cost:</b>	n/a	<b>Estimated CST Time:</b>	6 Months
<p><b>Rationale:</b> This alternative was not selected because the current project's funding is not programmed for a signal improvement. This alternate would be the preferred alternative should traffic increase to the predicted volumes due to the construction of the LakePoint Sporting Community Development. A Diverging Diamond Interchange (DDI) could also potentially satisfy the proposed need.</p>			

<b>Alternative 2: Roundabouts at Red Top Mountain Road/I-75 NB ramps and I-75 SB ramps</b>			
<b>Estimated Property Impacts:</b>	n/a	<b>Estimated Total Cost:</b>	\$3.22 million
<b>Estimated ROW Cost:</b>	n/a	<b>Estimated CST Time:</b>	2 Years
<p><b>Rationale:</b> This alternative was not selected because a signalized intersection or Diverging Diamond Interchange (DDI) could satisfy the proposed need. This alternate has approximately half the injury crashes of the signalized alternate, but may have one additional property damage crash per year.</p>			

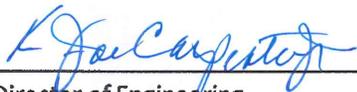
### Comments/Additional Information:

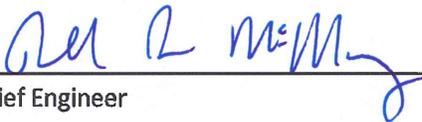
This project is currently funded as a roundabout project. Due to the preferred No-Build, the project is recommended for deletion. A future project could be programmed in the future at these locations if signals are warranted.

**Attachments:**

1. Concept Layouts (Roundabout)
2. Detailed Cost Estimates:
  - a. Construction (Signal)
  - b. Construction (Roundabout)
3. Crash Summaries
4. Traffic Diagrams
5. GDOT HCS Signalized Intersection Analysis
6. Highway Safety Manual Crash Reduction Factor Calculations Exemption Letter
7. Minutes of Project Deletion Meeting

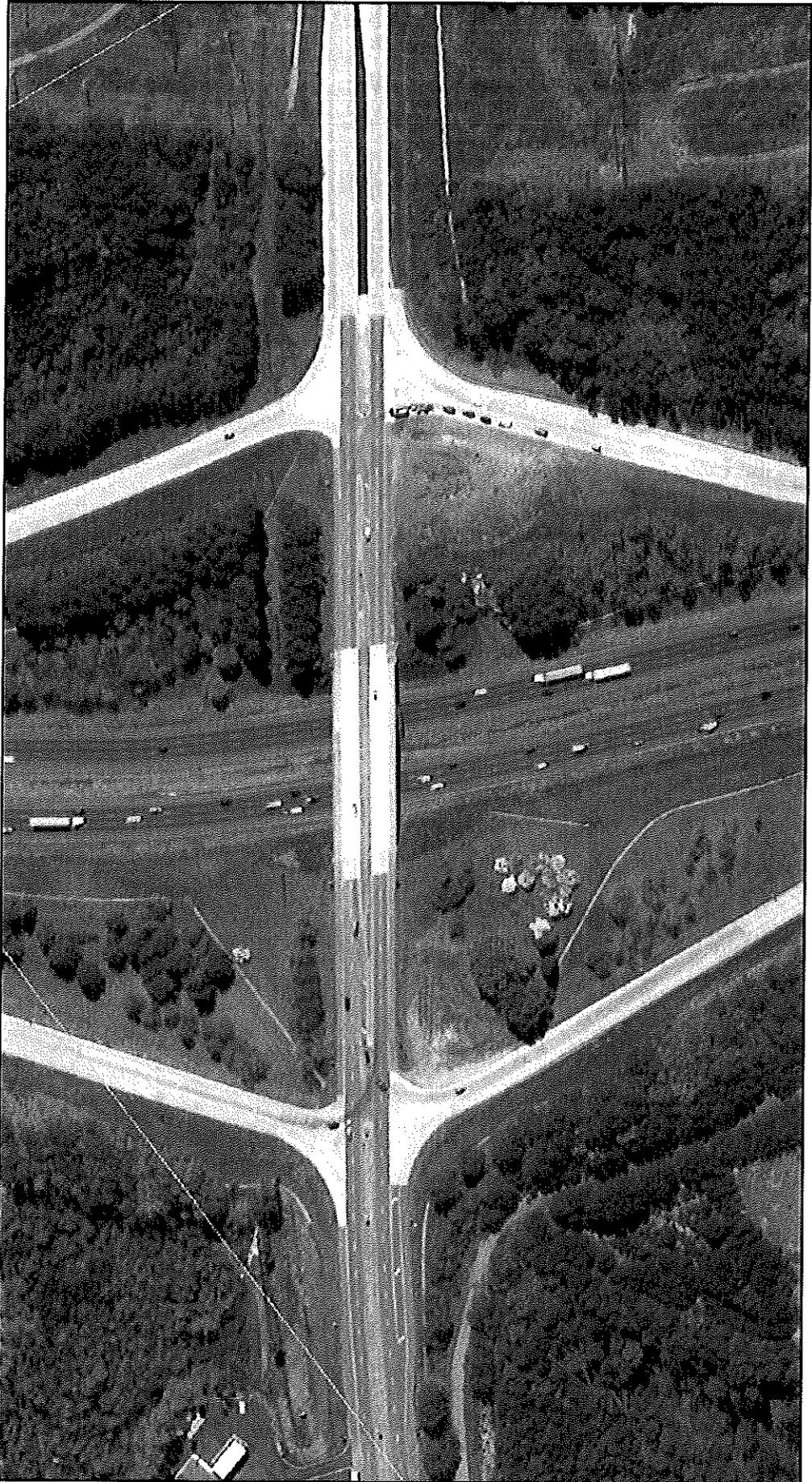
**APPROVALS**

Concur:  3/28/2013  
Director of Engineering

Approve:   
Chief Engineer

4/8/13  
Date

Existing Aerial Photo



P.I. #0009899

GEORGIA DEPARTMENT OF TRANSPORTATION

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DATE: 4/24/2012

ESTIMATE

LOCATION: Red Top Mountain Road / I-75(SR 401)  
Ramp Intersections  
Bartow County

Ourston #11979

**SIGNAL ALTERNATIVE CONCEPTUAL ESTIMATE**

(BASED ON CONCEPTUAL DRAWING, ALL QUANTITIES WILL CHANGE WITH FINAL DESIGN)

<u>NEW ITEM #</u>	<u>NEW ITEM DESCRIPTION</u>	<u>Quantity</u>	<u>Unit</u>	<u>Estimated Price</u>	<u>Amount</u>
<b>Mainline</b>					
206-0001	Unclassified Excavation (1)	5,000.00	CY	2.50	\$12,500.00
610-2700	Removing Concrete	9,750.00	SY	15.00	\$146,250.00
310-1101	GR Aggregate Base, 10-Inch Depth	5,160.00	TON	15.00	\$77,400.00
430-0220	Concrete Pavement 11-Inch	8,000.00	SY	40.00	\$320,000.00
441-0104	Concrete Median 4-Inch	1,500.00	SY	27.00	\$40,500.00
		3,000.00	LF	16.00	\$48,000.00
153-1100	Storm Sewer/Culverts	1.00	LS	30,000.00	\$30,000.00
	Field Engineers Office TP 1	1.00	EACH	60,000.00	\$60,000.00
	Traffic Control	1.00	LS	30,000.00	\$30,000.00
	Overhead Sign Bridges with black and white signs	6.00	EACH	10,000.00	\$60,000.00
	Pavement Marking	1.00	LS	15,000.00	\$15,000.00
	Lighting (Included in the signal cost)	0.00	EACH	10,000.00	\$0.00
	Signal	2.00	SY	187,000.00	\$374,000.00
	Landscaping (Roundabout central island)	0.00	EACH	5,000.00	\$0.00
	Reducing Median on Bridge	500.00	SY	120.00	\$60,000.00
	20% Contingencies				\$254,730.00
				<b>SUBTOTAL</b>	<b>\$1,528,380.00</b>
	Assumed No Right-of-Way Required	0.00	S.F.	0.00	\$0.00
	Utilities	1.00	L.S.	0.00	\$0.00
				<b>15 % E &amp; C</b>	<b>\$229,257.00</b>
				<b>TOTAL</b>	<b>\$1,757,637.00</b>

**ASSUMPTIONS FOR CONCEPTUAL ESTIMATE**

(1) Unclassified Excavation was calculated assuming 20-inches of cut throughout roadway.

P.I. #0009899

GEORGIA DEPARTMENT OF TRANSPORTATION

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DATE: 4/24/2012

ESTIMATE

LOCATION: Red Top Mountain Road / I-75(SR 401)  
Ramp Intersections  
Bartow County

Ourston #11979

**ROUNDABOUT ALTERNATIVE CONCEPTUAL ESTIMATE**

(BASED ON CONCEPTUAL DRAWING, ALL QUANTITIES WILL CHANGE WITH FINAL DESIGN)

NEW ITEM #	NEW ITEM DESCRIPTION	Quantity	Unit	Estimated Price	Amount
<b>Mainline</b>					
206-0001	Unclassified Excavation (1)	16,500.00	CY	2.50	\$41,250.00
	Removing Concrete	27,300.00	SY	10.00	\$273,000.00
310-1101	GR Aggregate Base, 10-Inch Depth	16,500.00	TON	15.00	\$247,500.00
430-0220	Concrete Pavement 11-Inch	21,650.00	SY	40.00	\$866,000.00
	Concrete Median 4-Inch	4,100.00	SY	15.00	\$61,500.00
	Concrete Curb and Gutter	8,750.00	LF	16.00	\$140,000.00
	Storm Sewer/Culverts	1.00	LS	100,000.00	\$100,000.00
153-1100	Field Engineers Office TP 1	1.00	EACH	60,000.00	\$60,000.00
	Traffic Control	1.00	LS	75,000.00	\$75,000.00
	Overhead Sign Bridges with green and white signs	6.00	EACH	25,000.00	\$150,000.00
	Pavement Marking	1.00	LS	15,000.00	\$15,000.00
	Lighting (cost per pole with wiring included)	24.00	EACH	10,000.00	\$240,000.00
	Truck Apron - Colored Concrete 8-Inch	870.00	SY	65.00	\$56,550.00
	Landscaping (Roundabout central island)	2.00	EACH	5,000.00	\$10,000.00
	20% Contingencies				\$467,160.00
				<b>SUBTOTAL</b>	<b>\$2,802,960.00</b>
	Assumed No Right-of-Way Required	0.00	S.F.	0.00	\$0.00
	Utilities	1.00	L.S.	0.00	\$0.00
				<b>15 % E &amp; C</b>	<b>\$420,444.00</b>
				<b>TOTAL</b>	<b>\$3,223,404.00</b>

**ASSUMPTIONS FOR CONCEPTUAL ESTIMATE**

(1) Unclassified Excavation was calculated assuming 20-inches of cut throughout roadway.

**BARTOW COUNTY, I-75 ramps #401483 and #401485**

Additional Information (Compiled from Police Reports)																				
Accident No	Date	Time	County	Route Type	Route	Milelog	Ramp Section	Injuries	Fatalities	Collision	Location of Impact	Harmful Event	Light	Surface	Dir Veh1	Dir Veh2	Mnvr Veh1	Mnvr Veh2	Actual Location	Notes
'50480373	2/22/2005	4:40 PM	Bartow	State Route	'040100	7.48	3	0	0	Rear End	Ramp	Motor Vehicle in Motion	Daylight	Dry	W	W	Turning Right	Turning Right	NB exit ramp@Red Top Mtn Rd	Both veh actually heading NB
'60970579	3/23/2006	9:06 AM	Bartow	State Route	'040100	8.01	3	0	0	Rear End	On Roadway	Motor Vehicle in Motion	Daylight	Dry	E	E	Straight	Stopped	NB exit ramp@Red Top Mtn Rd	Veh 2 waiting to turn right-Both veh actually heading NB
'62740448	7/14/2006	2:10 PM	Bartow	State Route	'040100	7.48	3	1	0	Not A Collision With A Motor Vehicle	On Roadway	Highway Traffic Sign	Dark-Not Lighted	Wet	N	N	Straight		Intersection-NB ramps/Red Top Mtn Rd	Veh speeding-ran stop sign-struck Red Top median then guardrail
'71770577	4/15/2007	2:10 AM	Bartow	State Route	'040100	7.48	3	0	0	Not A Collision With A Motor Vehicle	On Roadway	Motor Vehicle in Motion	Dark-Not Lighted	Wet	N	N	Straight		NB exit ramp@Red Top Mtn Rd	Skidded on wet road
'73250514	8/3/2007	10:00 PM	Bartow	State Route	'040100	7.48	3	0	0	Angle	On Roadway	Motor Vehicle in Motion	Daylight	Wet	N	W	Turning Left	Straight	Intersection-NB ramps/Red Top Mtn Rd	Veh 1 failed to yield-pulled in front of Veh 2
'74120105	8/30/2007	4:08 PM	Bartow	State Route	'040100	7.48	2	0	0	Rear End	Ramp	Motor Vehicle in Motion	Daylight	Wet	N	N	Straight	Stopped	NB exit ramp-away from intersection	Queue on exit ramp
'75380590	9/23/2007	7:20 AM	Bartow	State Route	'040100	7.48	2	1	0	Rear End	On Shoulder	Motor Vehicle in Motion	Dawn	Dry	N	N	Straight	Stopped	NB exit ramp-away from intersection	
'93470059	7/4/2009	9:45 AM	Bartow	State Route	'040100	7.48	3	0	0	Not A Collision With A Motor Vehicle	Off Roadway	Other Fixed Object	Daylight	Oil	W		Turning Left		Intersection-NB ramps/Red Top Mtn Rd	Motorcycle skidded on oil slick
'93470062	7/11/2009	5:25 AM	Bartow	State Route	'040100	8.05	3	0	0	Not A Collision With A Motor Vehicle	On Shoulder	Guardrail Face	Dark-Not Lighted	Dry	N	N	Straight		NB exit ramp@Red Top Mtn Rd	Veh ran stop sign-struck guardrail on far side-DUI
'94180191	8/2/2009	12:50 PM	Bartow	State Route	'040100	7.48	3	1	0	Not A Collision With A Motor Vehicle	On Roadway	Other Non-Collision	Daylight	Wet	N	N	Straight		NB exit ramp-away from intersection	Motorcycle skidded to avoid gravel on road
'62590555	7/10/2006	1:59 PM	Bartow	State Route	'040100	8.01	3	0	0	Rear End	Ramp	Motor Vehicle in Motion	Daylight	Dry	S	S	Straight	Stopped	SB exit ramp@Red Top Mtn Rd	Veh 2 waiting to turn right
'72040582	5/16/2007	1:05 PM	Bartow	State Route	'040100	8.01	3	0	0	Rear End	On Roadway	Motor Vehicle in Motion	Daylight	Dry	S	S	Turning Right	Stopped	SB exit ramp@Red Top Mtn Rd	
'74120107	9/12/2007	9:15 AM	Bartow	State Route	'040100	8.01	3	0	0	Rear End	On Shoulder	Parked Motor Vehicle	Daylight	Dry	N	S	Backing	Parked	SB exit ramp-away from intersection	
'82160483	5/19/2008	6:15 PM	Bartow	State Route	'040100	8.01	3	0	0	Angle	On Roadway	Motor Vehicle in Motion	Daylight	Dry	S	W	Straight	Straight	Intersection-SB ramps/Red Top Mtn Rd	Veh 1 failed to yield-pulled in front of Veh 2
'83480324	8/28/2008	5:54 PM	Bartow	State Route	'040100	8.01	3	1	0	Rear End	On Roadway	Motor Vehicle in Motion	Daylight	Dry	S	S	Turning Right	Turning Right	SB exit ramp@Red Top Mtn Rd	
'92340245	5/20/2009	2:50 PM	Bartow	State Route	'040100	8.01	3	0	0	Sideswipe - Same Direction	On Roadway	Motor Vehicle in Motion	Daylight	Dry	W	W	Turning Right	Straight	Red Top Mtn Rd@SB exit ramp	Veh 1 failed to yield (no detailed description)
'92920130	6/27/2009	5:56 PM	Bartow	State Route	'040100	8.01	2	0	0	Rear End	On Roadway	Parked Motor Vehicle	Daylight	Dry	S	S	Straight	Stopped	SB exit ramp@Red Top Mtn Rd	Veh 2 waiting to turn right
'92920135	6/28/2009	2:37 PM	Bartow	State Route	'040100	8.01	3	0	0	Rear End	On Roadway	Parked Motor Vehicle	Daylight	Dry	S	S	Turning Right	Stopped	SB exit ramp@Red Top Mtn Rd	
'93470054	7/21/2009	7:24 PM	Bartow	State Route	'040100	8.01	3	0	0	Rear End	On Roadway	Motor Vehicle in Motion	Daylight	Dry	S	W	Straight	Straight	Intersection-SB ramps/Red Top Mtn Rd	Veh 1 SB turning left failed to yield; Veh 2 WB stopped to avoid collision & was rear-ended by Veh 3 WB
'93470065	7/26/2009	1:28 PM	Bartow	State Route	'040100	8.01	3	0	0	Sideswipe - Same Direction	On Roadway	Motor Vehicle in Motion	Daylight	Dry	S	W	Turning Right	Straight	Red Top Mtn Rd@SB exit ramp	Veh 1 failed to yield
'94870298	9/4/2009	4:38 PM	Bartow	State Route	'040100	8.01	3	0	0	Rear End	On Roadway	Motor Vehicle in Motion	Daylight	Dry	W	W	Turning Left	Turning Left	SB exit ramp@Red Top Mtn Rd	Both veh actually turning right

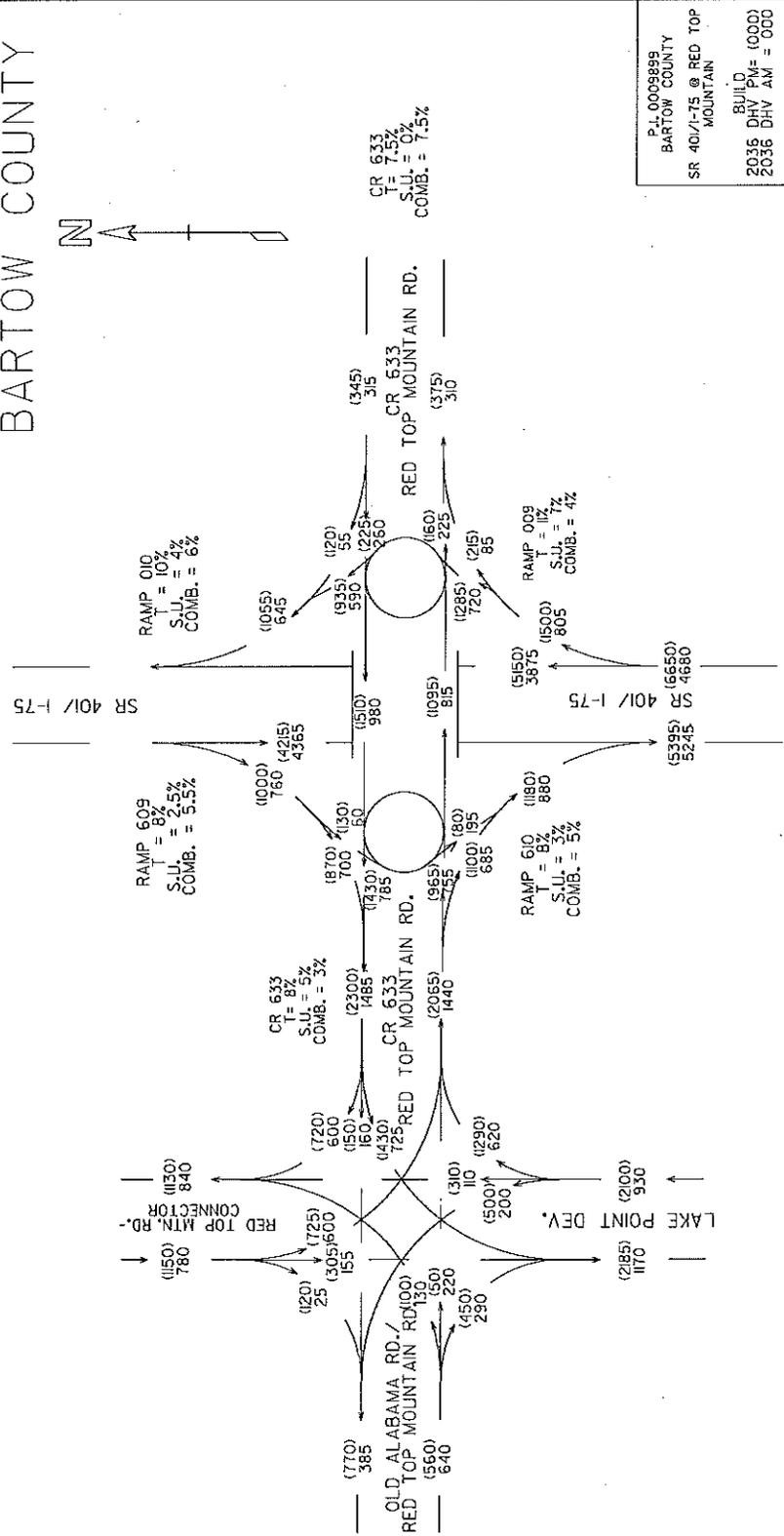


2036 DHV  
BUILD INCLUDES LAKE POINTE DEVELOPMENT

BARTOW COUNTY



SR 40/I-75  
T = 25%  
S.U. = 9%  
COMB. = 16%

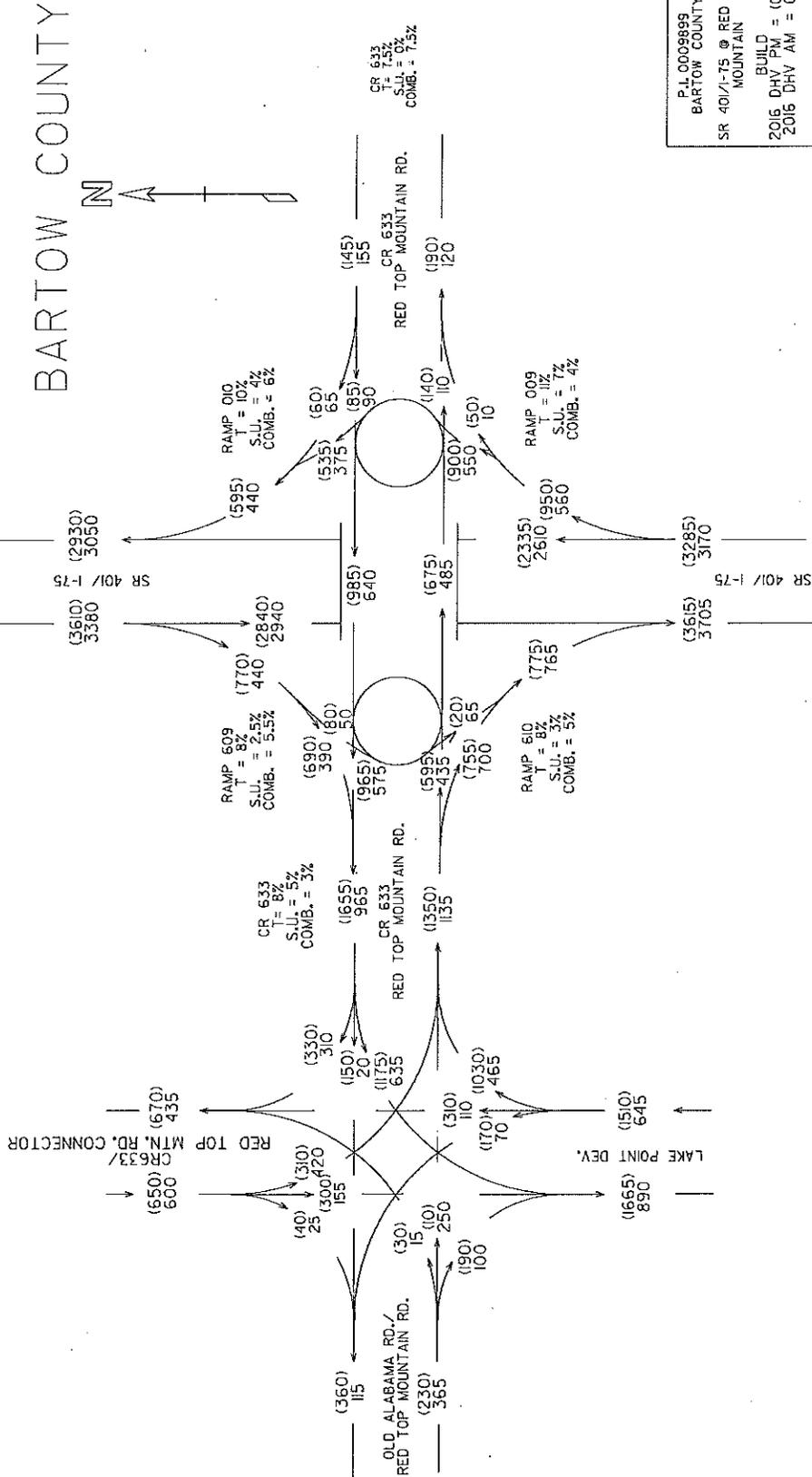


P.L. 0008899  
BARTOW COUNTY  
SR 40/I-75 @ RED TOP  
MOUNTAIN  
BUILD  
2036 DHV PM= 1000  
2036 DHV AM = 000

2016 DHV  
 BUILD INCLUDES LAKE POINTE DEVELOPMENT

PAGE 3 OF 6

GEORGIA DEPARTMENT OF TRANSPORTATION  
 OFFICE OF PLANNING

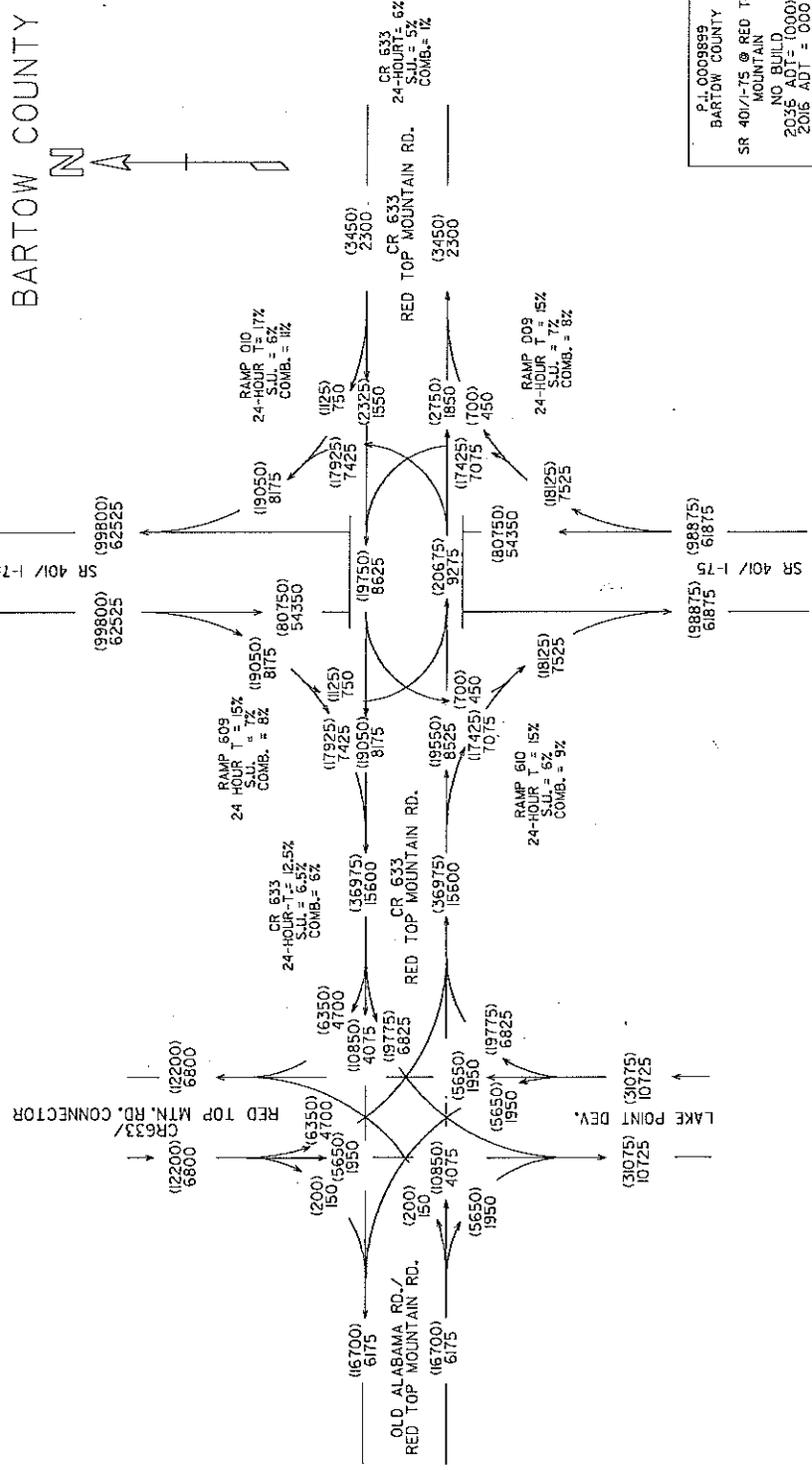


P.L. 0009889  
 BARTOW COUNTY  
 SR 401/I-75 @ RED TOP  
 MOUNTAIN  
 BUILD  
 2016 DHV PM = 1000  
 2016 DHV AM = 000

LRW  
 12-1

2016/2036 ADT  
 NO-BUILD INCLUDES LAKE POINTE DEVELOPMENT

GEORGIA DEPARTMENT OF TRANSPORTATION  
 OFFICE OF PLANNING



BARTOW COUNTY  
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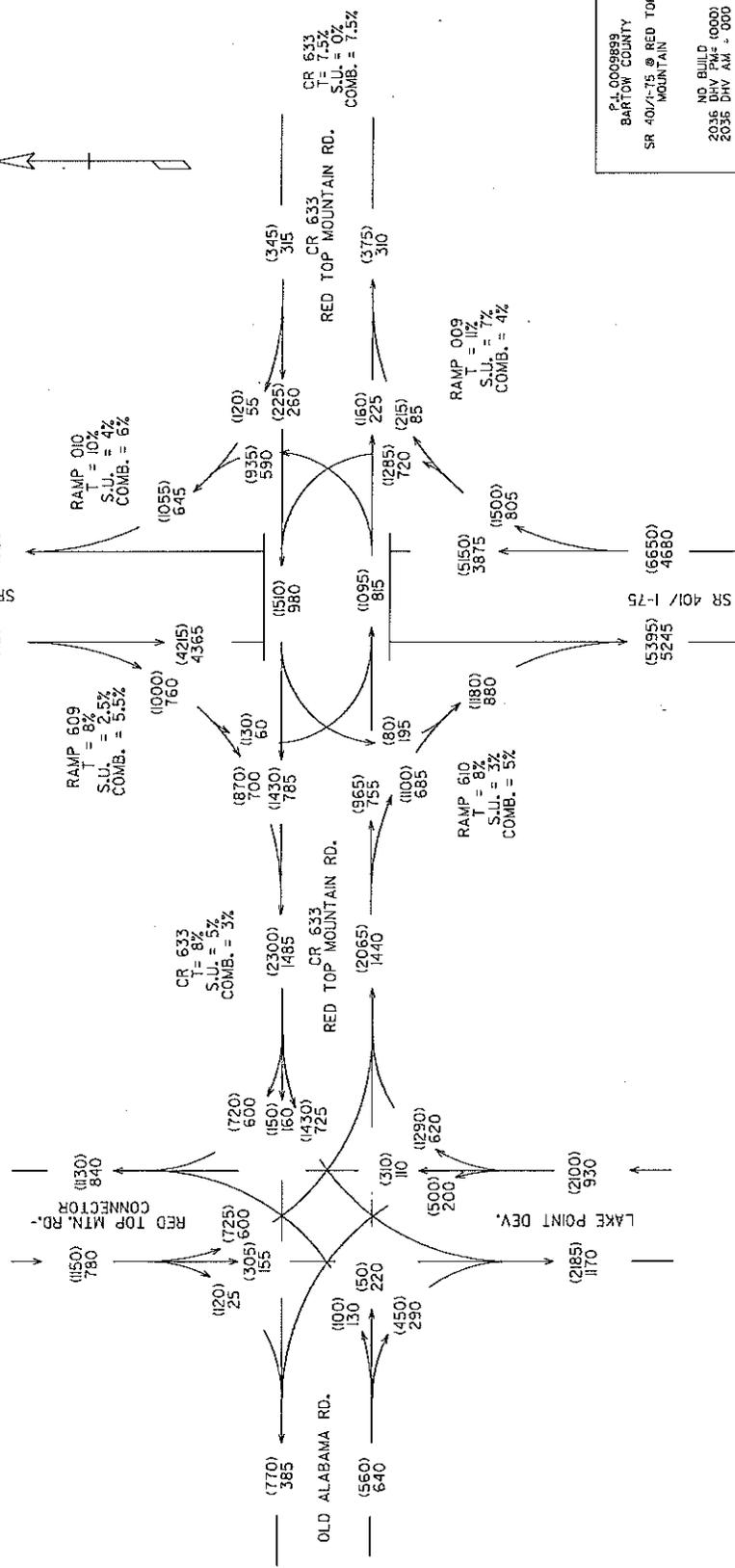
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 BARTOW COUNTY  
 SR 401/T-75 @ RED TOP MOUNTAIN  
 NO BUILD  
 2036 ADT = 10000  
 2016 ADT = 0000  
 SR 401/T-75  
 24-HOUR T = 17%  
 S.U. = 6%  
 COMB. = 11%

2036 DHV  
NO-BUILD INCLUDES LAKE POINTE DEVELOPMENT

PAGE 5 OF 6

GEORGIA DEPARTMENT OF TRANSPORTATION  
OFFICE OF PLANNING

BARTOW COUNTY



P.L.0008889  
BARTOW COUNTY  
SR 401/1-75 @ RED TOP MOUNTAIN  
NO. BUILD  
2036 DHV PM: 0000  
2036 DHV AM: 000

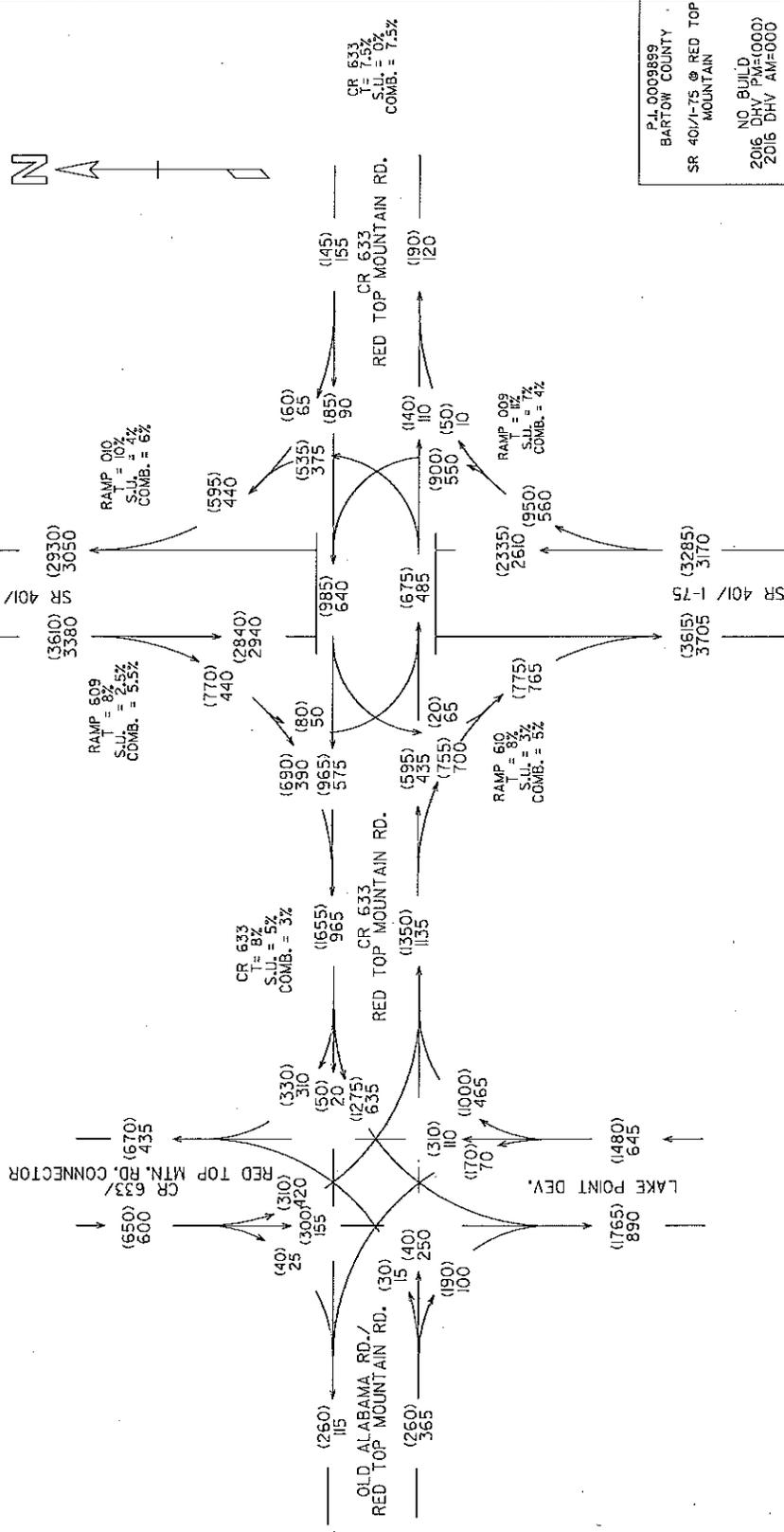
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# 2016 DHV NO-BUILD INCLUDES LAKE POINTE DEVELOPMENT

PAGE 6 OF 6

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OFFICE OF PLANNING

BARTOW COUNTY

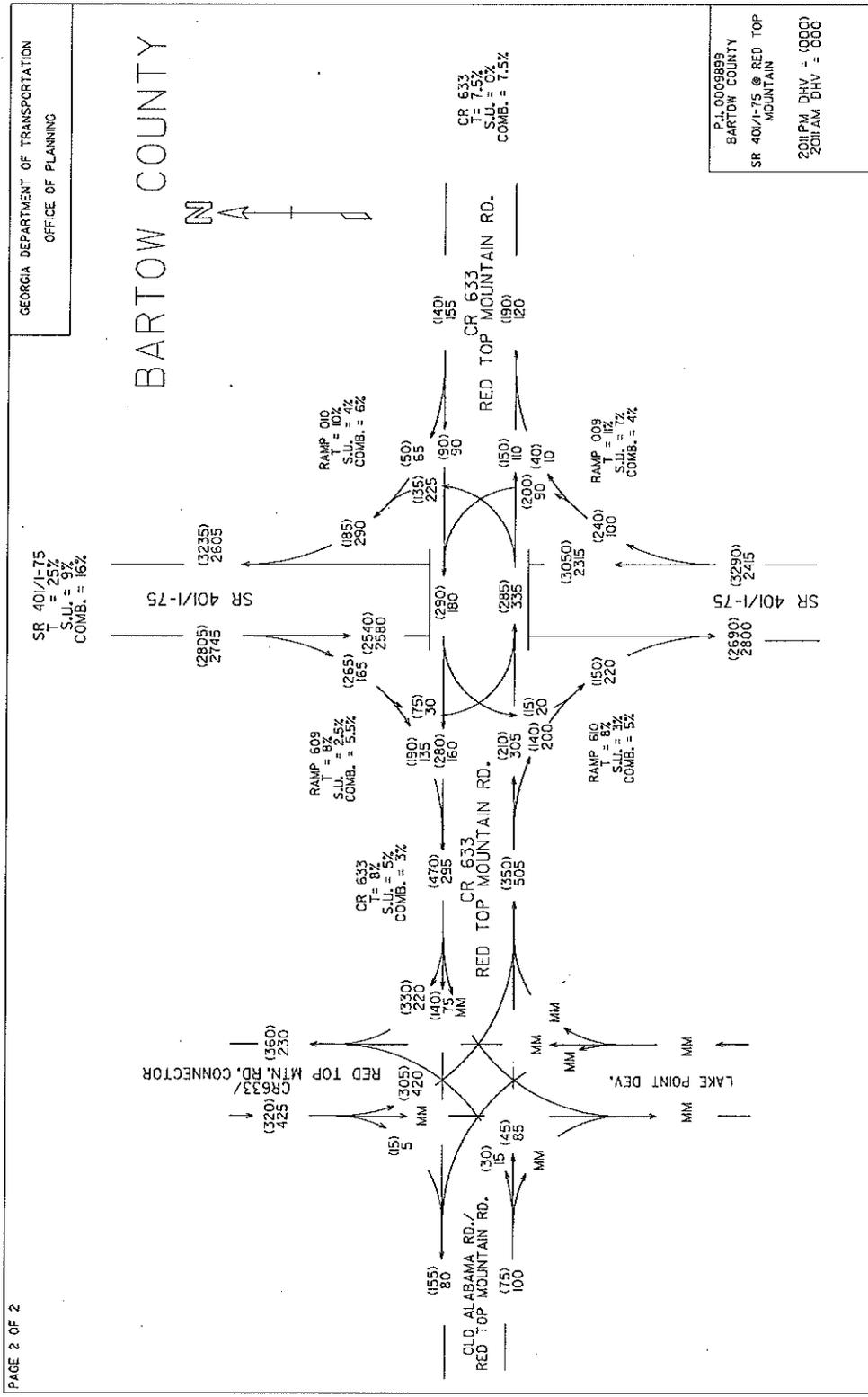


P.L. 0009899  
BARTOW COUNTY  
SR 401/I-75 @ RED TOP MOUNTAIN  
NO BUILD  
2016 DHV PM=1000  
2016 DHV AM=000

LRW  
12-11



# 2011-EXISTING DHV CONDITIONS



# 0009899 Signalized Operational Analysis Results

## I-75 Southbound Exit Ramp - 2026

Peak Hour	Average Delay By Approach									
	Intersection Level Of Service		EB - Red Top Mt. Rd.		WB - Red Top Mt. Rd.		NB - I-75 SB Entrance		SB - I-75 SB Exit	
	Level Of Service	Average Delay	Level Of Service	Average Delay	Level Of Service	Average Delay	Level Of Service	Average Delay	Level Of Service	Average Delay
2026 AM	B	17.6	B	15.4	B	16.7	NA	NA	C	21
2026 PM	C	24.8	B	19.5	C	28.8	NA	NA	C	23.7

## I-75 Northbound Exit Ramp - 2026

Peak Hour	Average Delay By Approach									
	Intersection Level Of Service		EB - Red Top Mt. Rd.		WB - Red Top Mt. Rd.		NB - I-75 NB EXIT		SB - I-75 NB ENTRANCE	
	Level Of Service	Average Delay	Level Of Service	Average Delay	Level Of Service	Average Delay	Level Of Service	Average Delay	Level Of Service	Average Delay
2026 AM	B	16.8	B	14.6	B	14.9	B	19.6	NA	NA
2026 PM	C	20.9	C	22.8	C	22.2	B	19.3	NA	NA

# 0009899 Signalized Operational Analysis Results

## I-75 Southbound Exit Ramp - 2036

Peak Hour	Average Delay By Approach														
	Intersection Level Of Service			EB - Red Top Mt. Rd.			WB - Red Top Mt. Rd.			NB - I-75 SB Entrance			SB - I-75 SB Exit		
	Level Of Service	Average Delay	Level Of Service	Average Delay	Level Of Service	Average Delay	Level Of Service	Average Delay	Level Of Service	Average Delay	Level Of Service	Average Delay	Level Of Service	Average Delay	
2036 AM	B	16.2	A	8.7	C	22.7	NA	NA	NA	NA	20.3	C	C	20.3	
2036 PM	C	20.4	A	9.9	C	30.3	NA	NA	NA	NA	26	C	C	26	

## I-75 Northbound Exit Ramp - 2036

Peak Hour	Average Delay By Approach														
	Intersection Level Of Service			EB - Red Top Mt. Rd.			WB - Red Top Mt. Rd.			NB - I-75 NB EXIT			SB - I-75 NB ENTRANCE		
	Level Of Service	Average Delay	Level Of Service	Average Delay	Level Of Service	Average Delay	Level Of Service	Average Delay	Level Of Service	Average Delay	Level Of Service	Average Delay	Level Of Service	Average Delay	
2036 AM	B	17.4	B	17.5	B	12.4	B	19.3	B	19.3	NA	NA	NA	NA	
2036 PM	C	21.5	C	26.9	A	8	A	20.7	C	20.7	NA	NA	NA	NA	

**PI 0009899 Bartow County**

**Proposed Concept Report for a Roundabout at a Interchange Ramp**

The Highway Safety Manual (HSM) has been referenced for the availability of a Predictive Method analysis using a Safety Performance Function (SPF) with associated Crash Modification Factors (CMF) to provide a predicted average crash frequency. The proposed interchange work on this project includes roundabouts to replace existing NB and SB ramp access to and from the Interstate. There is no HSM SPF available for an Interchange, thus a HSM Predictive Method analysis is not available.

# DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA

## Meeting Minutes

**SUBJECT:** Project Status Meeting- Roundabout Feasibility at (P.I. No. 0009899) I-75 @ CR 633/RED TOP MOUNTAIN RD- SB & NB RAMPS-Bartow County & (P.I. No. 0009898) I-75 @ CR 397/OLD ALLATOONA ROAD-SB & NB RAMPS.

**MEETING LOCATION:** One Georgia Center, 22<sup>nd</sup> Floor Conference Room

**MEETING DATE:** October 12, 2012

<b>ATTENDEES:</b>	Gerald Ross	Darrell Richardson
	Russell McMurry	Albert Shelby
	Andy Casey	Charles A. Robinson
	Genetha Rice-Singleton	Chad White Sr.
	Kathy Zahul	

### DISCUSSION:

Albert Shelby provided a general project background for P.I. Nos. 0009899 & 0009898. Albert stated that the GDOT approved traffic for both P.I. Nos. 0009899 and 0009898 in Bartow County had been generated using GDOT standard traffic counting and projection measures in conjunction with a development of regional impact (DRI) that included traffic projections proposed to be generated by the LakePoint Sporting Community Development. The traffic projections and roundabout feasibility study were indicating that a multilane roundabout would be required at the north and southbound interchanges for P.I. No. 0009899. It was also mentioned that there was a low crash history at these interchanges and that the use of a crash predictive method was being utilized for this project's benefit-cost ratio. Both interchanges currently do not warrant a signal. There was also some uncertainty reading the timeline for the full build out of the LakePoint Sporting Community Development that would impact P.I. Nos. 0009899 & 0009898.

Kathy Zahul explained in more detail the crash predictive method that was being proposed to be utilized for P.I. No. 0009899.

Darrell Richardson stated that the signal alternative or diverging diamond interchange (DDI) interchange should be considered if traffic increases due to the construction of the LakePoint Development based on Roadway Design's review of the feasibility study.

Gerald Ross acknowledged that roundabouts are the preferred solutions at some locations, but decided that P.I. No.0009899 was not a feasible location for the proposed mutli lane roundabout design at this time after a review of the existing information. Gerald also stated the signal alternative should be further investigated for P.I. No. 0009898 and this location should be programmed as signal project if warranted.

Kathy Zahul concurred and stated that she would provide Charles A. Robinson a letter requesting that the P.I. No. 0009899 is deleted. Kathy stated that another project could be programmed in the future at this location if a signal was warranted. Kathy also stated that P.I.No.0009898 could be programmed as a signal project based on the results of further investigation of the crashes and signal warrants.

Transcribed by: Charles A. Robinson/Chad White

Reviewed by: Albert Shelby **AYS**

BARTOW COUNTY  
PI 0009899  
I-75 @ CR 633/RED TOP MOUNTAIN RD  
SB & NB RAMPS  
2 ROUNDABOUTS

DEPARTMENT OF TRANSPORTATION  
STATE OF GEORGIA

INDICATION OF ROUNDABOUT SUPPORT

To the Georgia Department of Transportation:

Attn: State Traffic Engineer  
935 E. Confederate Ave, Building 24  
Atlanta, GA 30316

Location

The Commissioner of <sup>Bartow</sup> ~~Plebens~~ County supports the consideration of a roundabout at the location specified below.

Local Road Names: \_\_\_\_\_ at Red Top Mountain Road

State/County Route Numbers: State Route 401

Associated Conditions

The undersigned agrees to participate in the following maintenance of the intersection in the event that the roundabout is selected as the preferred concept alternative:

- The full and entire cost of the electric energy used for any lighting installed and the maintenance thereof (if needed)
- ~~Any maintenance costs associated with the landscaping as approved by the local government and the Georgia Department of Transportation (after construction is complete)~~ CP

We agree to participate in a formal Local Government Lighting Project Agreement during the preliminary design phase. This indication of support is submitted and all of the conditions are hereby agreed to. The undersigned are duly authorized to execute this agreement.

This is the 11<sup>th</sup> day of Oct., 2010

Attest:

By:

Clarence Beaman

Title:

Commissioner

\_\_\_\_\_  
Clerk