

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

**OFFICE OF DESIGN POLICY & SUPPORT
INTERDEPARTMENTAL CORRESPONDENCE**

FILE P.I. # 0009620

OFFICE Design Policy & Support

Murray County
GDOT District 6 - Cartersville
Roundabout - SR 225 @ CR 132

DATE 9/12/2013

FROM  for Brent Story, State Design Policy Engineer

TO SEE DISTRIBUTION

SUBJECT APPROVED CONCEPT REPORT

Attached is the approved Concept Report for the above subject project.

Attachment

DISTRIBUTION:

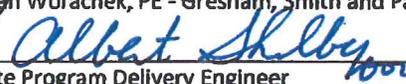
Bobby Hilliard, Program Control Administrator
Genetha Rice-Singleton, State Program Delivery Engineer
Glenn Bowman, State Environmental Administrator
Cindy VanDyke, State Transportation Planning Administrator
Kathy Zahul, State Traffic Engineer
Angela Robinson, Financial Management Administrator
Lisa Myers, State Project Review Engineer
Charles "Chuck" Hasty, State Materials Engineer
Mike Bolden, State Utilities Engineer
Jeff Fletcher, Statewide Location Bureau Chief
DeWayne Comer, District Engineer
Mike Hatcher, District Preconstruction Engineer
Kerry Bonner, District Utilities Engineer
Cynthia Burney, Project Manager
BOARD MEMBER - 14th Congressional District

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

Project Type: <u>Intersection Improvement</u>	P.I. Number: <u>0009620</u>
GDOT District: <u>Six</u>	County: <u>Murray</u>
Federal Route Number: <u>N/A</u>	State Route Number: <u>225</u>

SR 225 @ CR 132/Mt. Carmel Church Road / Mitchell Bridge Road

Submitted for approval:

 Sarah Worachek, PE - Gresham, Smith and Partners	<u>7/8/13</u> DATE
 State Program Delivery Engineer	<u>7/17/13</u> DATE
 GDOT Project Manager	<u>9 Jul 13</u> DATE

Recommendation for approval:

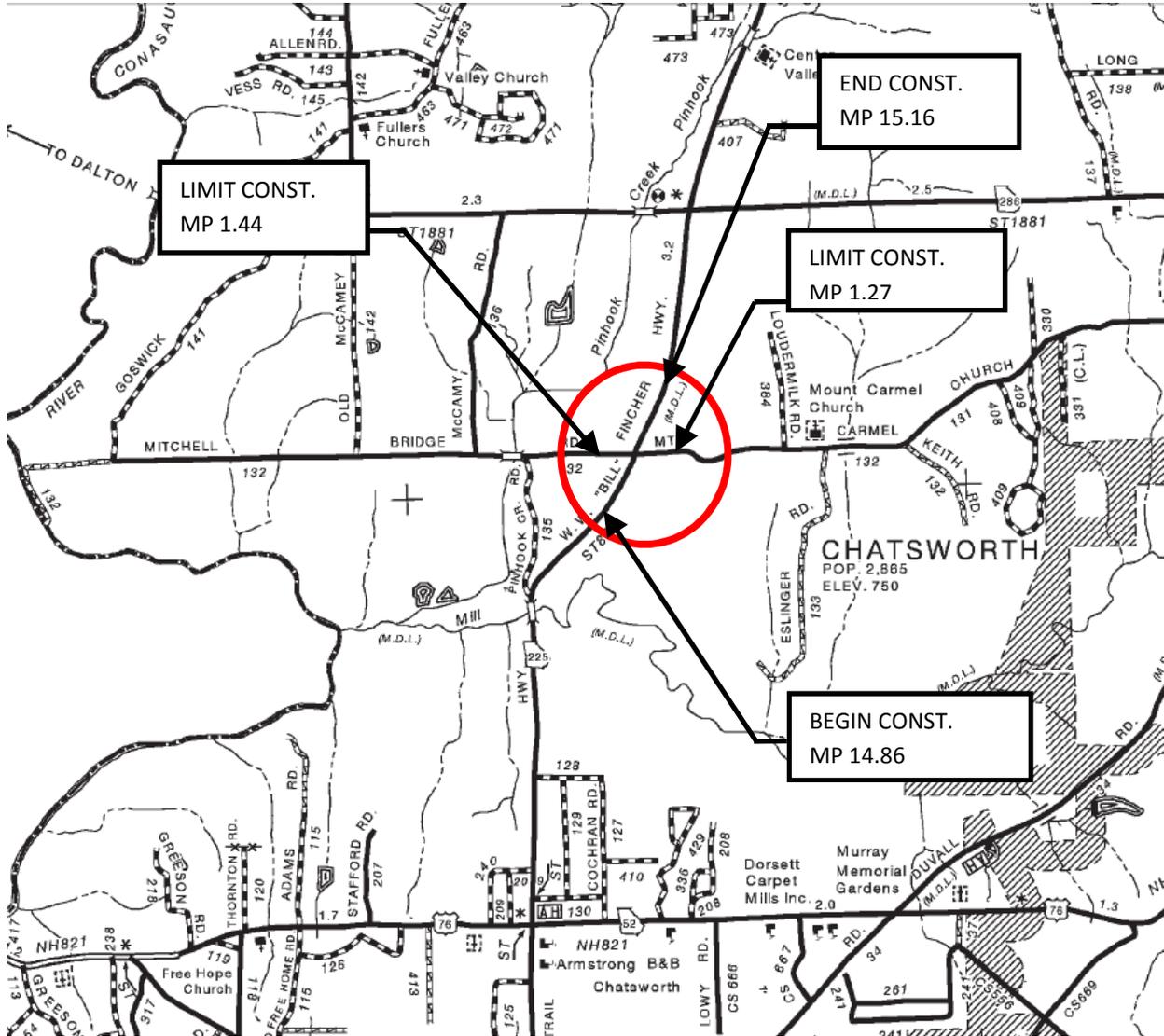
Program Control Administrator	<u>GLENN BOWMAN*/EKP</u>	<u>8/7/2013</u> DATE
State Environmental Administrator	<u>KATHY ZAHUL*/EKP</u>	<u>8/19/2013</u> DATE
State Traffic Engineer	<u>LISA MYERS*/EKP</u>	<u>8/1/2013</u> DATE
Project Review Engineer	<u>JUN BIRNKAMMER*/EKP</u>	<u>8/5/2013</u> DATE
<i>FOR</i> State Utilities Engineer	<u>DE WAYNE COMER*/EKP</u>	<u>7/31/2013</u> DATE
District Engineer		
State Transportation Financial Management Administrator		

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>CINDY VAN DYKE*/EKP</u>	<u>8/8/13</u>
State Transportation Planning Administrator	DATE

** - RECOMMENDATION ON FILE*

Project Location Map



Center of Roundabout MP 15.01 SR 225 and 1.37 CR 132

PLANNING & BACKGROUND DATA

Project Justification Statement:

The intersection project at State Route (SR) 225 (WW Bill Fincher Memorial Highway) and County Road (CR) 132, Mount (Mt.) Carmel Church/Mitchell Bridge Road originated out of the Traffic Operations Office and is part of the Safety Program. This was previously a two-way stop controlled intersection on Mitchell Bridge Road and Mt. Carmel Church Road, but currently functions as a four-way stop controlled intersection. Traffic data reported 60 crashes along SR 225 and Mt. Carmel Church /Mitchell Bridge Road from 2004 to 2009. Of these crashes, 57 occurred along SR 225 within MP 14.49 and 15.49 and 3 occurred along Mt. Carmel Church /Mitchell Bridge Road within MP 0.65 and 1.65 just north of the intersection. From 2004 to 2010, 40 crashes occurred at the intersection (See Table 3 in the Crash Analysis). Of those 40 intersection crashes, 2 have been fatal and approximately 88% have been angle crashes. The current intersection functions with a LOS F (See Table 2 in the Operational and Capacity Analysis). The construction of a four-legged roundabout is proposed for this intersection and is anticipated to reduce crash frequency and severity as well as improve the LOS of the existing intersection.

SR 225 is currently a two-lane roadway with rural shoulders and is classified as a Rural Major Collector Road running North-South. The current posted speed along SR 225 is 55 mph. CR 132 is currently a two-lane road with rural shoulders classified as an Rural Local Road and has a posted speed of 45 mph. SR 225 and CR 132 currently intersect at a 65 degree skew angle.

Land use in the area consists of residential use at the immediate intersection. North Murray High School is located less than a mile east of the intersection on Mt. Carmel Church Road. Bagley Middle School and Woodlawn Elementary School are located a mile north of the intersection along SR 225.

Description of the proposed project: The project is at the intersection of SR 225 and Mt. Carmel Church /Mitchell Bridge Road and is located in Murray County, Georgia. This project consists of constructing a four-legged roundabout with a 150 foot diameter at the intersection of SR 225 and Mt. Carmel Church /Mitchell Bridge Road. The project limits on SR 225 would extend approximately 800 feet north (MP 15.16) and 800 feet south (MP 14.86) of the intersection. The project limits on CR 132 would extend approximately 350 feet west (MP 1.44) and 500 feet east (MP 1.27) from the intersection. The total project length is approximately 1,600 feet (0.30 miles). The existing right-of-way (ROW) along SR 225 is 80 feet and the existing ROW along CR 132 is 100 feet. Additional ROW will be required on SR 225 and CR 132 for the roundabout and approaches as well as for a proposed pond to meet MS4 permitting requirements. The proposed roundabout is anticipated to be constructed under current traffic .

This project lies within Flood Zone "X" described as "Areas determined to be outside to 0.2% annual chance floodplain" per FIRM Map No. 13213C0115D, dated September 29, 2010. This project appears to lie within 1 mile of a Biota Impaired Stream.

Federal Oversight: Full Oversight Exempt State Funded Other

MPO: N/A

MPO -
MPO Project TIP #

Regional Commission: N/A

RC – Northwest Georgia RC
RC Project ID # RC01-000112

Congressional District(s): 14

Projected Traffic AADT:

	Current Year 2012	Open Year 2016	Design Year 2036
SR 225	6,810	7,280	10,190
Mitchell Bridge/Mt. Carmel Church Road	3,470	3,710	5,200

Functional Classification (SR 225): Rural Major Collector
(CR 132): Rural Local Road

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

Is this project on a designated bike route?* No YES
**SR 225*

Is this project located on a pedestrian plan? No YES

Is this project located on or part of a transit network? No YES

CONTEXT SENSITIVE SOLUTIONS

Issues of Concern: School

Context Sensitive Solutions: Ensure that a school bus can navigate the roundabout.

DESIGN AND STRUCTURAL DATA

Mainline Design Features:

Roadway Name/Identification: SR 225/WW Bill Fincher Memorial Highway (Rural Major Collector)

Feature	Existing	Standard*	Proposed
Typical Section			
- Number of Lanes	2	N/A	One circular lane within roundabout
- Lane Width(s)	12 ft.	10 ft. min	12 ft. lanes, 20' circular lane within roundabout
- Median Width & Type	N/A	N/A	Splitter Islands vary 4-38'
- Outside Shoulder Width & Type	0-2 ft. paved, 0-6 ft. grassed	6.5 ft. paved, 3.5 ft. grassed, 10-16 ft. Urban	Rural: 6.5 ft. paved, 3.5 ft. grassed, Urban: 2.5 ft. curb & gutter, 2 ft. grass strip, 5 ft. sidewalk, 2.5 grassed
- Outside Shoulder Slope	2:1 Max	2:1 Max	2:1 Max
- Inside Shoulder Width & Type	N/A	N/A	12' truck apron with type 9 header curb and type 7 curb and gutter within roundabout
- Sidewalks	N/A	N/A	5 ft.
- Auxiliary Lanes	N/A	N/A	N/A
- Bike Lanes	N/A	N/A	N/A
Posted Speed	55 mph		55 mph, 20 mph at roundabout
Design Speed Roadway Approach	55 mph		55 mph
Design Speed Roundabout	N/A		20 mph
Min Horizontal Curve Radius	N/A	1061 ft. Min	1061 ft. Min.
Superelevation Rate	2% Max	6% Max	3.83% Max
Grade	4% Max	6% Max	6% Max
Access Control	Permit		Permit
Right-of-Way Width	80 ft.		Varies 117-180 ft.
Maximum Grade – Crossroad	4%	4% Max	4% Max
Design Vehicle	WB-67	WB-67	WB-67
Inscribed Diameter	N/A	150'	150'

Sideroad Design Features:

Roadway Name/Identification: CR 132 / Mt. Carmel Church Road / Mitchell Bridge Road (Rural Local Road)

Feature	Existing	Standard*	Proposed
Typical Section			
- Number of Lanes	2	N/A	One circular lane within roundabout
- Lane Width(s)	11 ft.	10 ft. min	11 ft. lanes, 20' circular lane within roundabout
- Median Width & Type	N/A	N/A	Splitter Islands vary 2-30'
- Outside Shoulder Width & Type	0 ft. paved, 0-2 ft. grassed	2 ft. paved 6 ft. grassed 10-16 ft. Urban	Rural: 2 ft. paved, 6ft. grassed, Urban: 2.5 ft. curb & gutter, 2 ft. grass strip, 5 ft. sidewalk, 2.5 grassed
- Outside Shoulder Slope	2:1 Max	2:1 Max	2:1 Max
- Inside Shoulder Width & Type	N/A	N/A	12' truck apron with type 9 header curb and type 7 curb and gutter within roundabout
- Sidewalks	N/A	N/A	5 ft.
- Auxiliary Lanes	N/A	N/A	N/A
- Bike Lanes	N/A	N/A	N/A
Posted Speed	45 mph		45 mph, 20 mph at roundabout
Design Speed Roadway Approach	45 mph		45 mph
Design Speed Roundabout	N/A		20 mph
Min Horizontal Curve Radius	N/A	642 ft. Min	N/A
Superelevation Rate	2% Max	6% Max	N/A
Grade	4% Max	7% Max	5% Max
Access Control	Partial		Partial
Right-of-Way Width	100 ft.	N/A	Varies 100-210 ft.
Design Vehicle	WB-67	WB-67	WB-67

*According to current GDOT design policy if applicable

Major Structures: N/A

Major Interchanges/Intersections: SR 225 at CR 132/Mt. Carmel Church Road / Mitchell Bridge Road

Utility Involvements: Telephone, Power, Cable, Water (along CR 132), Windstream, N. Ga EMC

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

Project location is within one mile of a school.

Project location is on a designated bicycle route.

Right-of-Way:

Required Right-of-Way anticipated: YES NO Undetermined

Easements anticipated: Temporary Permanent Utility Other

Anticipated number of impacted parcels:	7
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 [TMP] Required: YES NO

Project classified as: Non-Significant Significant

TMP Components Anticipated: TTC TO PI

Design Exceptions to FHWA/AASHTO controlling criteria anticipated:

FHWA/AASHTO Controlling Criteria	YES	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	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 Design	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
10. Roundabout Illumination - (if applicable)	DP&S	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
11. Rumble Strips/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:** Categorical Exclusion EA/FONSI EIS

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 checked="" type="checkbox"/>	<input type="checkbox"/>	
8. FEMA	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
9. Cemetery Permit	<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: A categorical exclusion will be required. A public meeting was required. No 4(f) resources have been identified within the area.

Ecology: No waters were identified in the project area. Seasonal clearing restrictions are anticipated for protected bat species.

History: No eligible historic resources identified.

Archeology: The archaeology short form was approved 1/6/12 with no concurrence required.

Air & Noise: A noise Type III assessment and air screening were approved and transmitted 1/22/13 with no concurrence required.

Public Involvement: The Public Information Open House (PIOH) was held 4/9/13 with 34 attendees. Of the six formal comments, one was in support of the project and five were opposed to the project. One of the signed PIOH response letters is attached that includes the responses and comments.

Major stakeholders: The travelling public, Murray County Government, and North Murray High school are major stakeholders.

ROUNABOUTS

Lighting agreement/commitment letter received: No Yes

Planning Level Assessment: A roundabout intersection is recommended at the SR 225 and Mt. Carmel Church/Mitchell Bridge Road intersection based on traffic operations. The intersection does not meet traffic signal warrants based on projected Year 2036 Design Year traffic volumes.

Feasibility Study: The components of a roundabout feasibility study are contained within this report and peer review.

Peer Review required: No Yes Completed – Date:

CONSTRUCTION

Issues potentially affecting constructability/construction schedule: Accommodating School traffic

Early Completion Incentives recommended for consideration: No Yes

PROJECT RESPONSIBILITIES

Project Activities:

Project Activity	Party Responsible for Performing Task(s)
Concept Development	GDOT/Consultant
Design	GDOT/Consultant
Right-of-Way Acquisition	GDOT
Utility Relocation	Utility Owners
Letting to Contract	GDOT
Construction Supervision	GDOT
Providing Material Pits	GDOT/ Contractor
Providing Detours	N/A
Environmental Studies, Documents, and Permits	GDOT/ Consultant
Environmental Mitigation	GDOT
Construction Inspection & Materials Testing	GDOT

Lighting required: No Yes

GDOT will be responsible for the lighting installation, and Murray County will be responsible for the future operations and maintenance. The lighting agreement is attached to this concept report.

Initial Concept Meeting: N/A

Concept Meeting: A concept meeting was held 06/13/13.

See attached meeting minutes.

Other projects in the area: PI # 0010982 – Murray County Bike Lanes – Phase II, LR Funding

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/Consultant	GDOT	GDOT	GDOT	N/A	
\$ Amount	\$408,000	\$418,000	\$36,000	\$1,586,220		\$2,448,220
Date of Estimate	10/27/2011	2/28/2013	3/4/2013	6/27/2013		

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

**The reimbursable amount could increase to \$ 133,030.00 should Chatsworth Water and Sewer apply for and be granted assistance.

ALTERNATIVES DISCUSSION

Preferred Alternative: Roundabout			
Estimated Property Impacts:	7	Estimated Total Cost:	\$2,448,220
Estimated ROW Cost:	\$418,00.00	Estimated CST Time:	18 months
<p>Rationale: This alternative is anticipated to reduce crash frequency and severity while improving the intersection to a LOS A/A for the opening year and LOS B/A for the design year (AM/PM Peak) (Table 3 in the Operational and Capacity Analysis Report). This roundabout is anticipated to improve safety at the intersection by reducing the overall number of conflict points from thirty-two to eight (a reduction of 75%) which includes reducing the crossing conflict points from sixteen to zero and the merge and diverge conflict points from sixteen to eight. A roundabout with the left-offset method would also reduce the operating speed at the intersection, allowing the drivers more time to react to potential conflicts and reduce crash severity. Based on FHWA’s <i>Roundabouts A Safer Choice</i> publication, in general roundabouts reduce fatalities by more than 90%*, reduce injuries by 76%** , reduce crashes by 35%**, and makes the intersection safer for pedestrians due to the slower speeds. Due to the greater LOS, improved safety and reduced total estimated cost when compared to a signalized intersection, the roundabout is considered the preferred alternative.</p>			

* "Safety Effect of Roundabout Conversions in the United States: Empirical Bayes Observational Before-After Study." Transportation Research Record 1751, Transportation Research Board (TRB), National Academy of Sciences (NAS), Washington, D.C., 2001.

** NCHRP Report 572: Roundabouts in the United States. National Cooperative Highway Research Program, TRB, NAS, Washington, D.C., 2007.

Alternative # 1: No Build			
Estimated Property Impacts:	0	Estimated Total Cost:	\$0
Estimated ROW Cost:	\$0	Estimated CST Time:	0

Rationale: From 2004 to 2009, 57 crashes that have occurred along SR 225 and Mt. Carmel Church/Mitchell Bridge Road (See Table 1 in the Crash Analysis Summary). From 2004 to 2010, 40 crashes occurred at the intersection (See Table 3 in the Crash Analysis Summary) with 2 of those crashes having been fatal.

For the existing and no-build conditions, the HCM determines LOS for the whole intersection by computing the control delay at the intersection. The results of the capacity analysis for the no-build existing and anticipated future conditions are summarized in Table 1.

Table 1. Existing and No-Build Anticipated Future Level of Service

Intersection	Traffic Control	Level of Service (AM/PM)		
		2012	2016 No-Build	2036 No-Build
SR 225 @ Mitchell Bridge/Mt. Carmel Church Road	Stop Control on Mitchell Bridge/Mt. Carmel Church Road	F/E	F/F	F/F

This alternative would not reduce crash frequency and severity at this intersection nor would it improve the LOS. Therefore this alternative was not considered a viable alternative for the project.

Alternative # 2: Signalized Intersection at 70° skew angle			
Estimated Property Impacts:	10	Estimated Total Cost:	\$2,431,383
Estimated ROW Cost:	\$454,000	Estimated CST Time:	12 months
<p>Rationale: A signal was considered for this intersection. A Traffic Signal Operational Analysis was performed on the intersection and it was determined that the SR 225 and Mt. Carmel Church/Mitchell Bridge Road intersection does not meet any of the signal warrants for the Year 2036 Design Year (See Table 4 in Planning Level Assessment Memo). In addition, a total of 40 crashes occurred at this intersection from 2004 to 2010 (as seen in Table 3 of the Crash Analysis) which is partly due to the number of conflict points that occur at the intersection. A signalized intersection would not reduce the number of conflict points at the intersection and the number of conflict points would remain at thirty-two. Finally, the current intersection is at a 65° skew angle which warrants a design exception. Improving the skew angle of the alignment to the minimal 70° skew angle set by the GDOT Design Policy Manual would increase impacts to the adjacent properties and therefore cause increased ROW costs. The fact that this intersection does not warrant a traffic signal combined with reduced safety benefits and increased total cost of a signalized intersection when compared to a roundabout makes this alternative not a viable option.</p>			

Attachments:

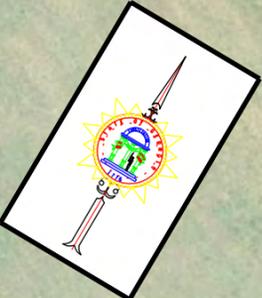
1. Concept Layout
2. Typical sections
3. Detailed Cost Estimates:
 - a. Construction including Engineering and Inspection
 - b. Completed Fuel & Asphalt Price Adjustment forms
 - c. Right-of-Way
 - d. Utilities
 - e. Cost Estimation System
4. Crash Analysis
5. Traffic diagrams
6. Operational and Capacity Analysis
7. Roundabout Data (*see GDOT Design Policy Manual*)
 - a. Planning level Assessment Memo
 - b. Lighting commitment letter
8. Highway Safety Analysis Summary
9. Minutes of Concept meetings
10. Public Involvement Response Letter

APPROVALS

Concur: *K. J. Carpenter* *9/4/2013*
Director of Engineering

Approve: *Bill R. M. M.*
Chief Engineer

9/9/13
Date



LEGEND	
EDGE OF PAVEMENT	
PEDESTRIAN CROSSWALK	
CONCRETE ISLAND	
TRUCK APRON	
CONCRETE SIDEWALK	
LANDSCAPE/HARDSCAPE	
REQ'D R/W	
EXISTING R/W LINE AND PROPERTY LINE	

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

PROPOSED INTERSECTION IMPROVEMENTS

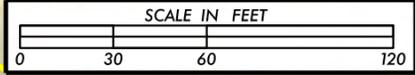
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MITCHELL BRIDGE RD**

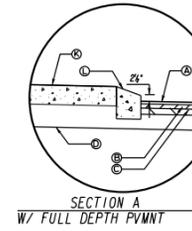
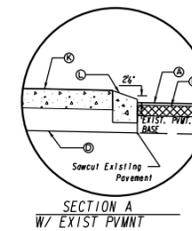
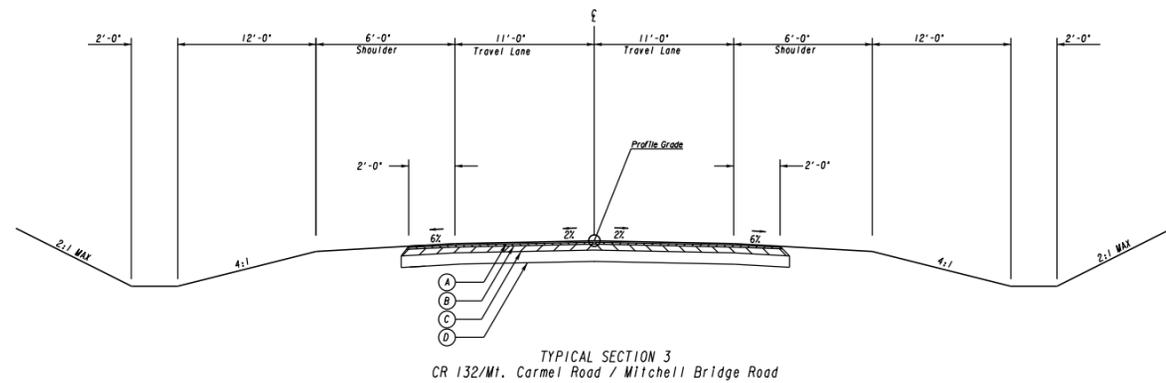
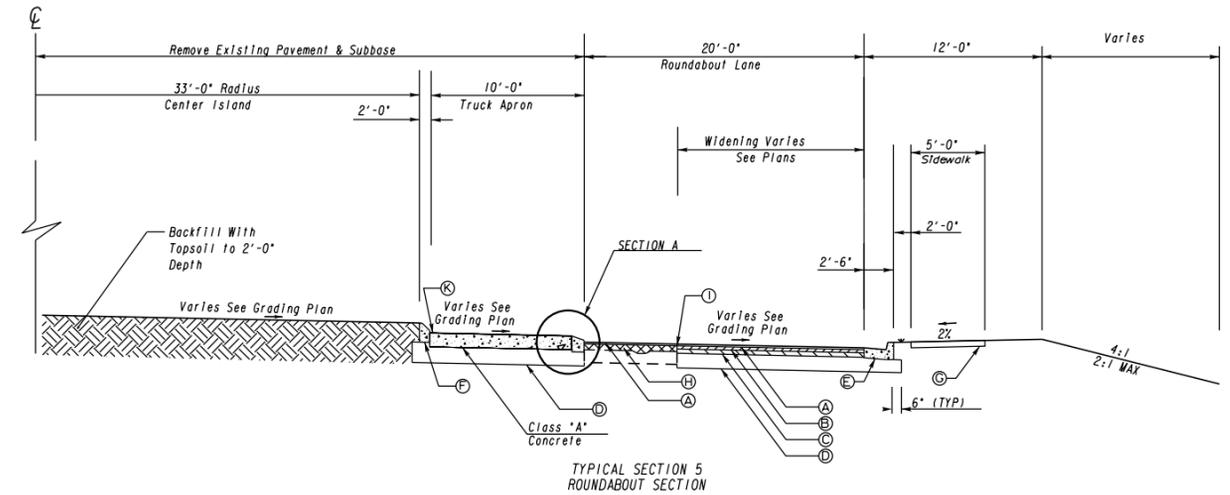
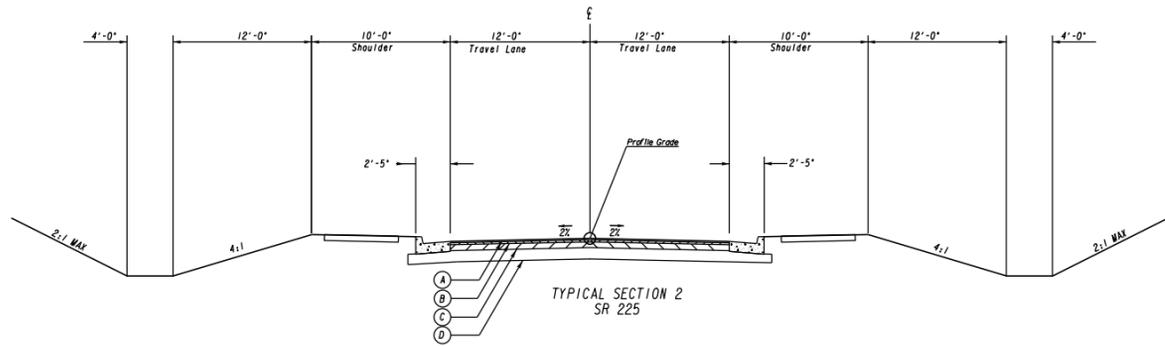
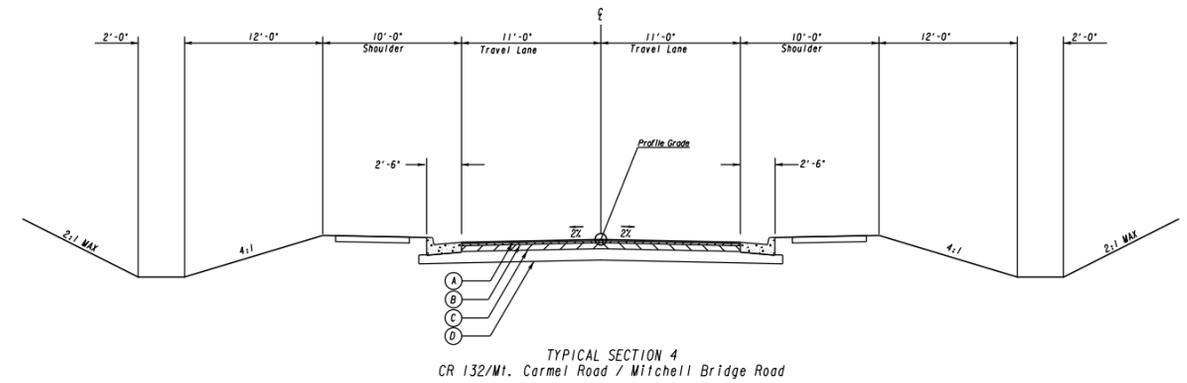
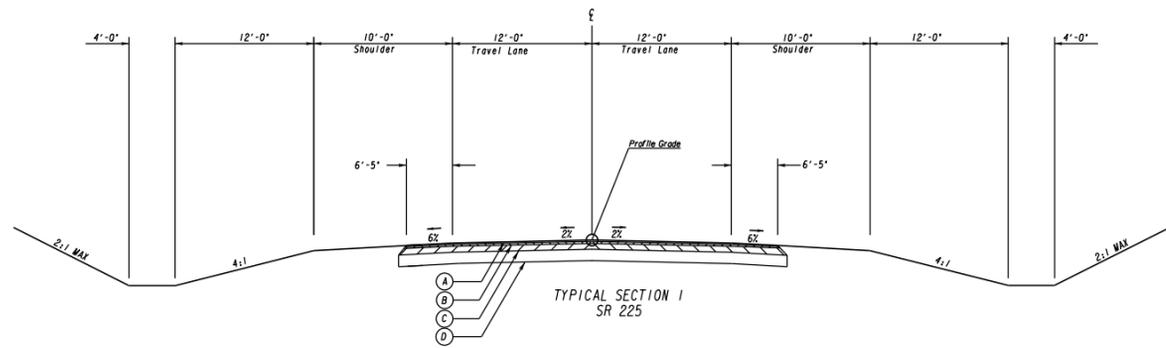
MURRAY COUNTY
P.I.# 0009620

DATE: April 2013
SCALE: 1"= 30'



GRESHAM
SMITH AND
PARTNERS





- REQUIRED PAVEMENT:**
- Ⓐ 1½" RECYCLED ASPH. CONC. 12.5 mm SUPERPAVE, GP 2 ONLY, INCL BITUM MATL & H LIME (165 LB/SQ. YDS)
 - Ⓑ 2" RECYCLED ASPH. CONC. 19 mm SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME (220 LB/SQ. YDS)
 - Ⓒ 3" RECYCLED ASPH. CONC. 25 mm SUPERPAVE, GP 1 OR 2, INCL BITUM MATL & H LIME (330 LB/SQ. YDS)
 - Ⓓ 12" GRADED AGGREGATE BASE
 - Ⓔ 8"x30" CONC. CURB & GUTTER, GA. STD. 9032-B, TYPE 2
 - Ⓕ 6" CONCRETE HEADER CURB, TYPE 7
 - Ⓖ CONCRETE SIDEWALK, 4", GA. STD. 9031-W
 - Ⓗ ASPHALTIC CONCRETE LEVELING, AS REQUIRED
 - Ⓛ PAVEMENT FABRIC
 - Ⓜ 7½" CONCRETE MEDIAN WITH 4" COLORED BRICK PATTERN, TYPE 7 FACE
 - Ⓝ COLOR TILE RED, FEDERAL STANDARD 595B, COLOR *31310
 - Ⓚ 10" CLASS A CONC WITH REINF., STAMPED COLORED BRICK PATTERN
 - Ⓞ (COLOR TILE RED, FEDERAL STANDARD 595B, COLOR *31310)
 - Ⓟ 4" CONCRETE HEADER CURB, TYPE 9

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION

TYPICAL SECTIONS

**SR 225 @ CR 132/MT. CARMEL RD/
MITCHELL BRIDGE RD**

MURRAY COUNTY

P. I. # 0009620

DATE: July 2013

SCALE: Not to Scale



GRESHAM
SMITH AND
PARTNERS

PROJ. NO.	CSSFT-0009-00(620)	CALL NO.
P.I. NO.	0009620	
DATE	6/27/2013	

INDEX (TYPE)	DATE	INDEX
REG. UNLEADED	Jun-13	\$ 3.424
DIESEL		\$ 3.805
LIQUID AC		\$ 567.00

Link to Fuel and AC Index:
<http://www.dot.ga.gov/doingbusiness/Materials/Pages/asphaltcementindex.aspx>

LIQUID AC ADJUSTMENTS

PA=[((APM-APL)/APL)]xTMTxAPL

Asphalt

Price Adjustment (PA)				57289.68	\$	57,289.68
Monthly Asphalt Cement Price month placed (APM)	Max. Cap	60%	\$	907.20		
Monthly Asphalt Cement Price month project let (APL)			\$	567.00		
Total Monthly Tonnage of asphalt cement (TMT)				168.4		

ASPHALT	Tons	%AC	AC ton
Leveling	110	5.0%	5.5
12.5 OGFC		5.0%	0
12.5 mm	243	5.0%	12.15
9.5 mm SP		5.0%	0
25 mm SP	2010	5.0%	100.5
19 mm SP	1005	5.0%	50.25
	3368		168.4

BITUMINOUS TACK COAT

Price Adjustment (PA)				\$ 935.16	\$	935.16
Monthly Asphalt Cement Price month placed (APM)	Max. Cap	60%	\$	907.20		
Monthly Asphalt Cement Price month project let (APL)			\$	567.00		
Total Monthly Tonnage of asphalt cement (TMT)				2.74886459		

Bitum Tack

Gals	gals/ton	tons
640	232.8234	2.74886459

BITUMINOUS TACK COAT (surface treatment)

Price Adjustment (PA)				5338.849755	\$	5,338.85
Monthly Asphalt Cement Price month placed (APM)	Max. Cap	60%	\$	907.20		
Monthly Asphalt Cement Price month project let (APL)			\$	567.00		
Total Monthly Tonnage of asphalt cement (TMT)				15.69326794		

Bitum Tack	SY	Gals/SY	Gals	gals/ton	tons
Single Surf. Trmt.		0.20	0	232.8234	0
Double Surf.Trmt.	8304	0.44	3653.76	232.8234	15.69326794
Triple Surf. Trmt		0.71	0	232.8234	0
					15.69326794

TOTAL LIQUID AC ADJUSTMENT **\$ 63,563.69**

DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE P.I. No. 0009620; Murray County OFFICE Cartersville
SR 225 @ CR 132/Mt Carmel Rd/Mitchell Bridge Rd DATE March 4, 2013

FROM Kerry D. Bonner, District Utilities Engineer

TO Genetha Rice-Singleton, State Program Delivery Engineer
ATTN: Charity Belford

SUBJECT PRELIMINARY UTILITY COST ESTIMATE

As requested by your office, we are furnishing you with a preliminary utility cost estimates for each utility with facilities potentially located within the project limits.

FACILITY OWNER	NON-REIMBURSABLE	REIMBURSABLE
North Georgia EMC		\$ 36,000.00
Charter Communications	\$ 20,000.00	
Chatsworth Water and Sewer*	\$ 97,030.00	
Windstream	\$ 50,889.00	
Totals	\$167,919.00	\$36,000.00

Total Preliminary Utility Cost Estimate is \$203,919.00.

*The reimbursable amount could increase to \$ 133,030.00 should Chatsworth Water and Sewer apply for and be granted assistance.

If you have any questions, please contact Jennifer Deems at 770-387-3616.

KDB/jd

C: File/Estimating Book

DEPARTMENT OF TRANSPORTATION STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE PROJECT No. , **OFFICE**
 DATE

P.I. No.

FROM

TO Lisa L. Myers, Project Review Engineer

SUBJECT REVISIONS TO PROGRAMMED COSTS

PROJECT MANAGER

MNGT LET DATE

MNGT R/W DATE

PROGRAMMED COST (TPro W/OUT INFLATION)

LAST ESTIMATE UPDATE

CONSTRUCTION \$

DATE

RIGHT OF WAY \$

DATE

UTILITIES \$

DATE

REVISED COST ESTIMATES

CONSTRUCTION* \$

RIGHT OF WAY \$

UTILITIES \$

* Costs contain % Engineering and Inspection

REASON FOR COST INCREASE

CONTINGENCY SUMMARY

Construction Cost Estimate:	\$ 1,454,196	(Base Estimate)
Engineering and Inspection:	\$ 68,460	(Base Estimate x 5 %)
Total Liquid AC Adjustment	\$ 63,564	(From attached worksheet)
Construction Total:	\$ 1,586,220	

REIMBURSABLE UTILITY COST

Utility Owner

Reimbursable Cost

North Georgia EMC

\$36,000

Attachments

Crash Analysis Summary

Crash data at the intersection the SR 225 at Mt. Carmel Church /Mitchell Bridge Road was obtained for the period between January 1, 2004 and December 31, 2009. Crash data for the intersecting roadways was also requested for the period between January 1, 2004 and December 31, 2010. The traffic crash history summarized by severity is shown in Tables 1, 2 and 3 for the intersection and intersecting roads.

Table 1. Summary of Traffic Crash History along SR 225

MP 14.49 to MP 15.49

Year	Crashes		
	Total	Injury	Fatal
2004	8	6	0
2005	8	6	0
2006	14	6	0
2007	9	7	1
2008	11	5	0
2009	7	3	0
Total	57	33	1

Table 2. Summary of Traffic Crash History along Mt. Carmel Church /Mitchell Bridge Rd

MP 0.65 to MP 1.65

Year	Crashes		
	Total	Injury	Fatal
2004	0	0	0
2005	1	1	0
2006	1	0	0
2007	0	0	0
2008	0	0	0
2009	1	1	0
Total	3	2	0

As shown in Tables 1 and 2, there were 57 crashes along SR 225 within 0.5 miles of the intersection and 3 crashes along Mt. Carmel Church/Mitchell Bridge Road within 0.5 miles of the intersection between 2004 and 2009. As shown in Table 3, there were 40 total crashes at the intersection between 2004 and 2010. The majority of the crashes recorded were angle type, which accounted for approximately 88% of the total number of crashes. Approximately 35% of the crashes that occurred at the SR 225 and Mt. Carmel Church/Mitchell Bridge Road intersection were injury crashes. There were also two fatal crashes recorded at this intersection.

Table 3. Summary of Traffic Crash History at the SR 225 and Mt. Carmel Church /Mitchell Bridge Road Intersection

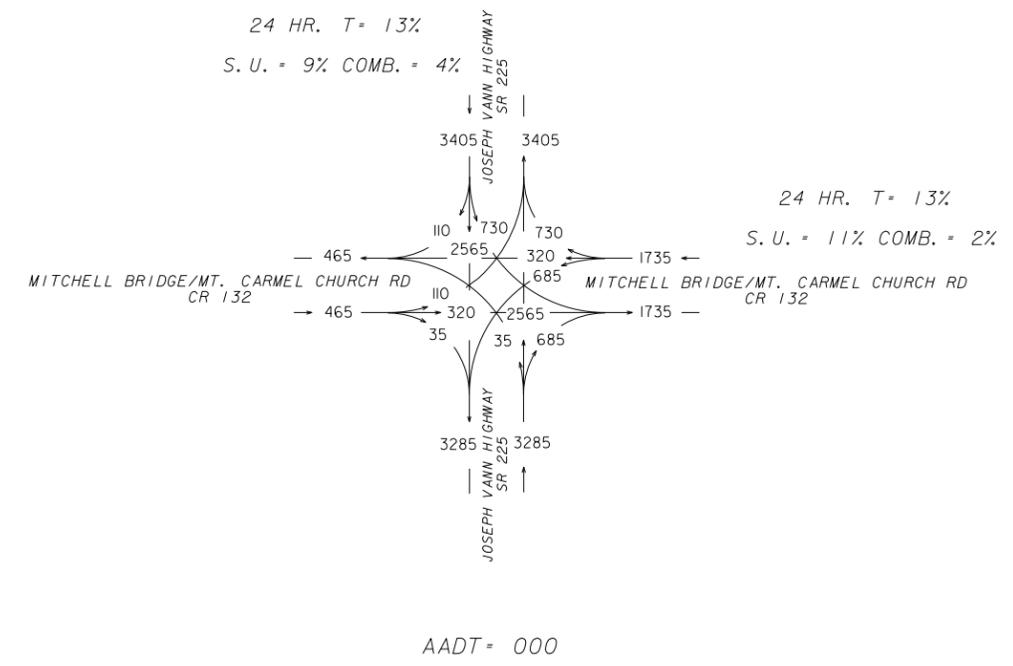
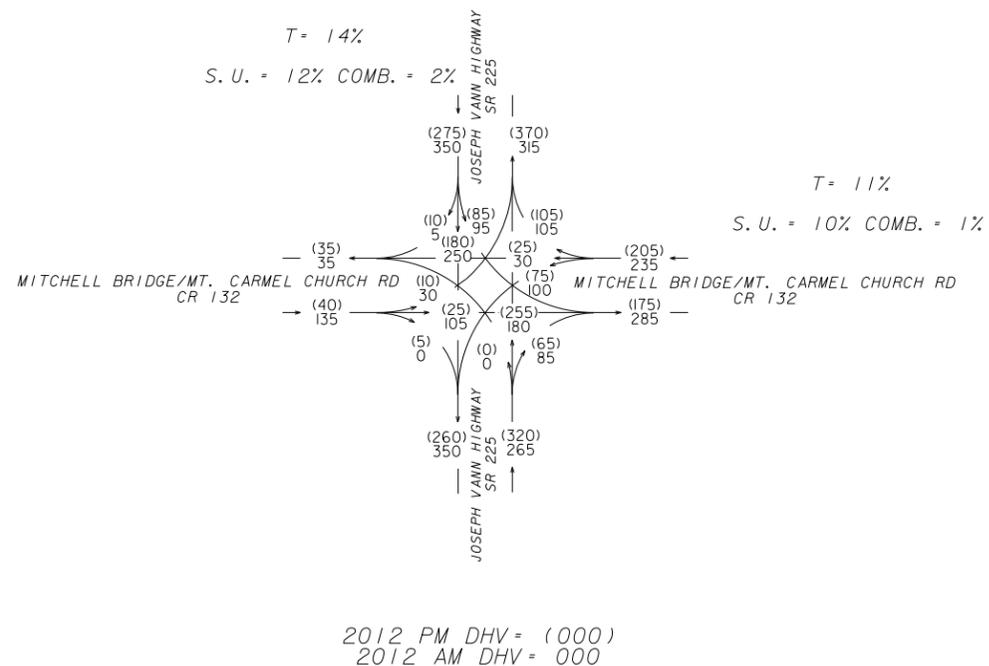
Year	Manner of Collision					Total	Type of Crash		
	Angle	Head On	Rear End	Sideswipe	Other		PDO*	Injury	Fatal
2004	4	0	0	0	0	4	1	3	0
2005	6	0	0	0	0	6	0	6	0
2006	4	0	1	0	0	5	4	1	0
2007	9	0	0	0	0	9	1	7	1
2008	4	0	1	1	0	6	3	3	0
2009	6	0	0	0	0	6	4	2	0
2010	2	0	1	0	1	4	1	2	1
Total	35	0	3	1	1	40	14	24	2

*PDO= Property Damage Only



2012 EXISTING
AM AND PM PK HR
TRAFFIC VOLUMES

2012 EXISTING
AADT TRAFFIC VOLUMES



2012 EXISTING YEAR
AM AND PM PEAK HOUR
AND AADT TRAFFIC VOLUMES



**G R E S H A M
S M I T H A N D
P A R T N E R S**

NOT TO SCALE

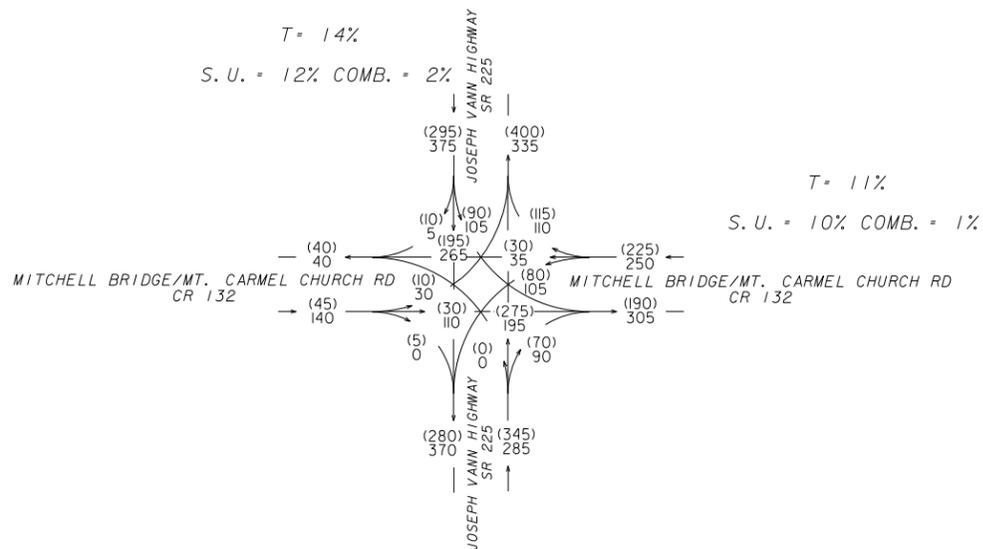
REVISION DATES

STATE OF GEORGIA
DEPARTMENT OF TRANSPORTATION
OFFICE: PROGRAM DELIVERY
CSSFT-0009-00(620) PI# 0009620
SR 225 AT CR 132
CONCEPT LAYOUT
MURRAY COUNTY

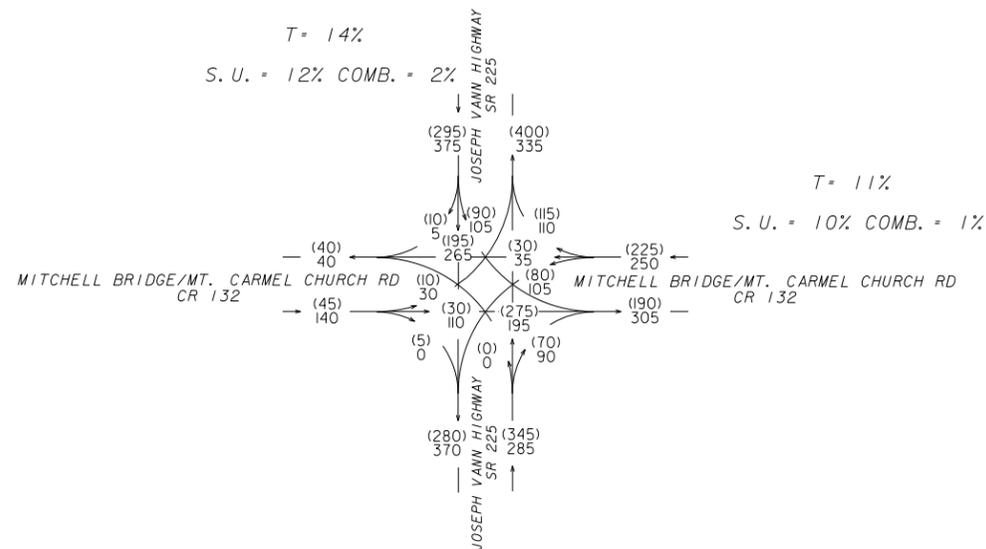
MAY 18, 2012

DRAWING No.
10-001

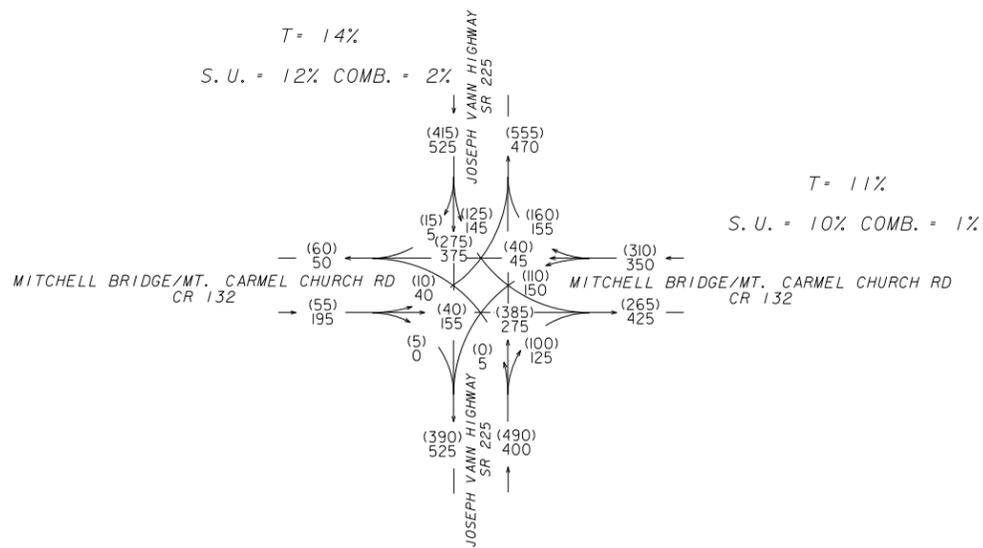
2016 OPENING YEAR
 NO BUILD
 AM AND PM PK HR
 TRAFFIC VOLUMES



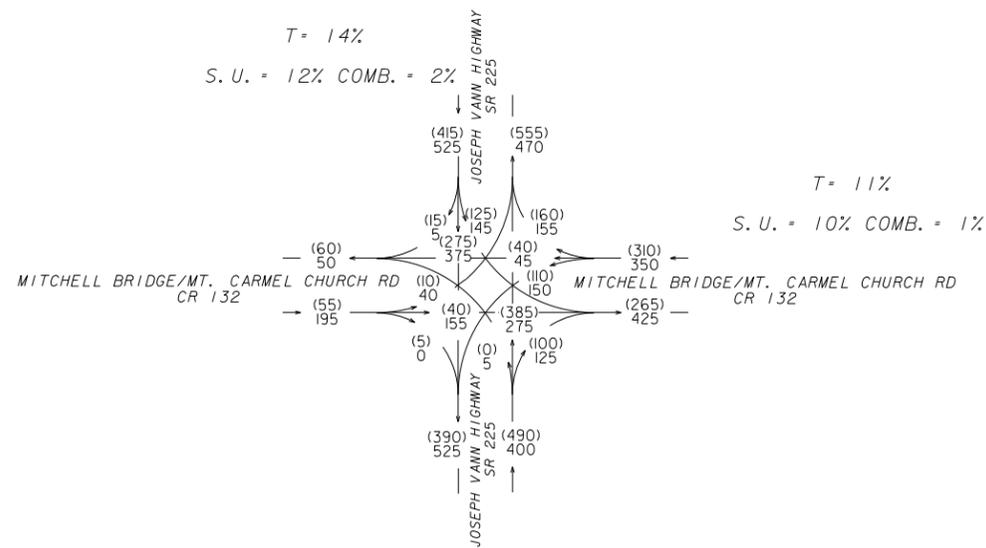
2016 OPENING YEAR
 BUILD
 AM AND PM PK HR
 TRAFFIC VOLUMES



2036 DESIGN YEAR
 NO BUILD
 AM AND PM PK HR
 TRAFFIC VOLUMES



2036 DESIGN YEAR
 BUILD
 AM AND PM PK HR
 TRAFFIC VOLUMES



2016 OPENING YEAR
 2036 DESIGN YEAR
 AM AND PM PEAK HOUR
 TRAFFIC VOLUMES

LEGEND

PM DHV = (000)
 AM DHV = 000



GRESHAM
 SMITH AND
 PARTNERS

NOT TO SCALE

REVISION DATES

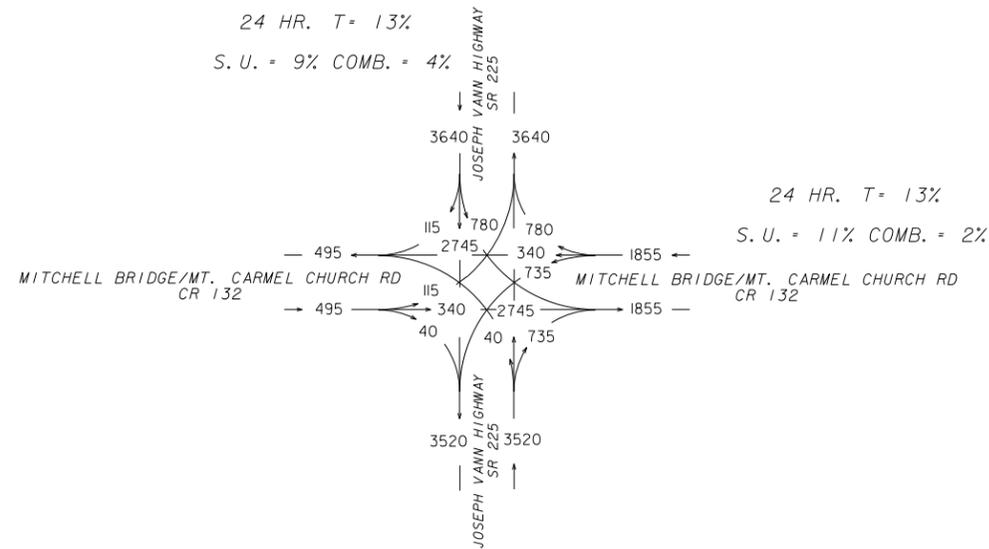
NO.	DATE	DESCRIPTION

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE: PROGRAM DELIVERY
 CSSFT-0009-00(620) PI# 0009620
 SR 225 AT CR 132
 CONCEPT LAYOUT
 MURRAY COUNTY

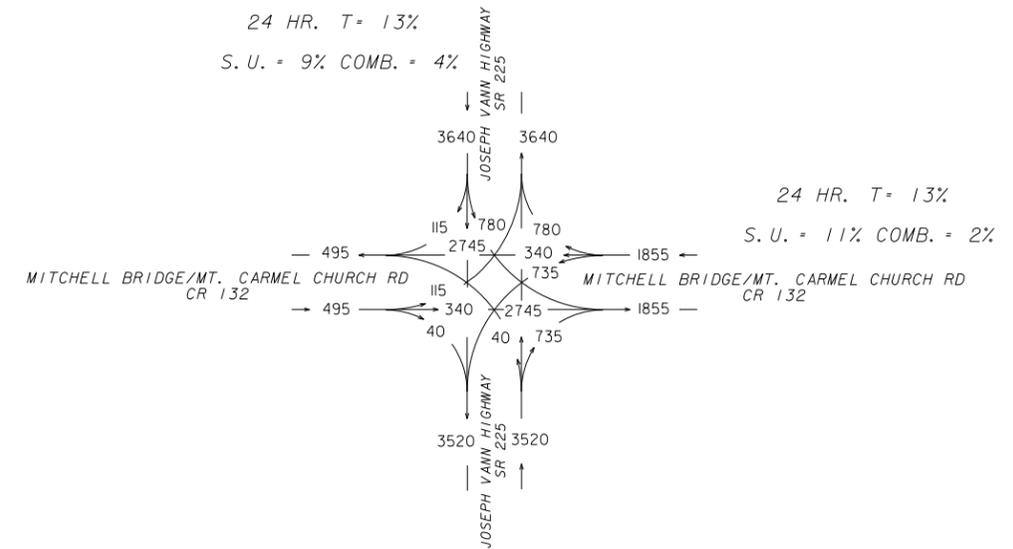
MAY 18, 2012

DRAWING No.
10-002

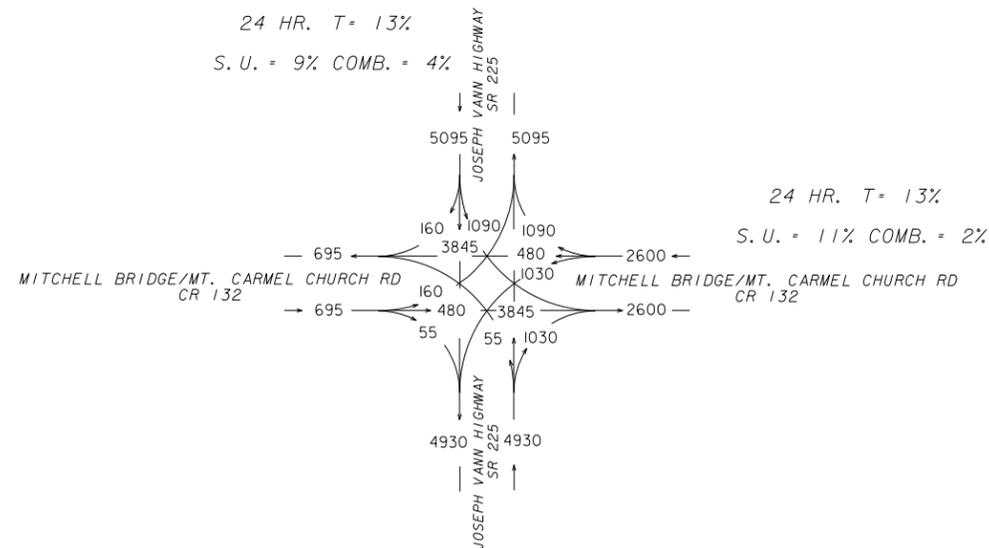
2016 OPENING YEAR
 NO BUILD
 AADT TRAFFIC VOLUMES



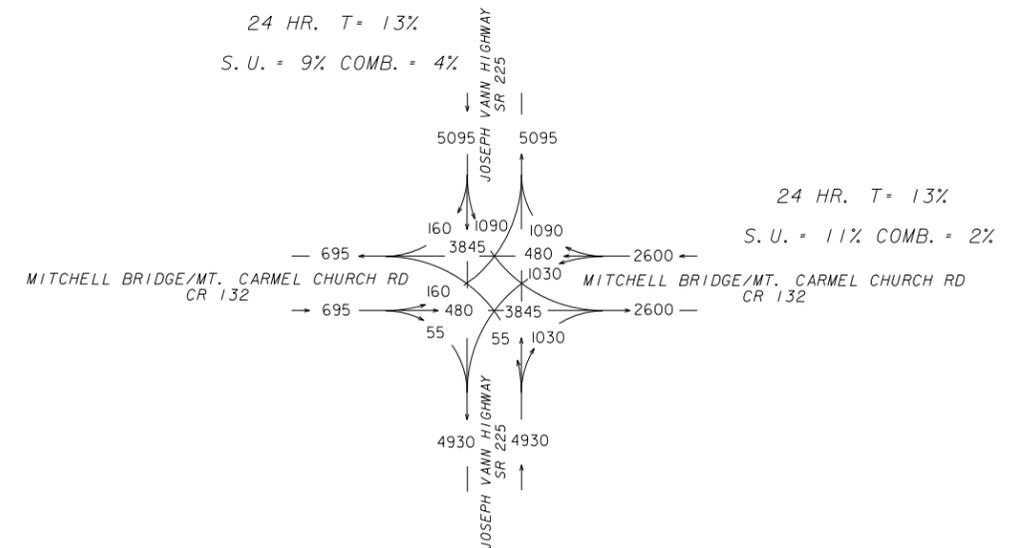
2016 OPENING YEAR
 BUILD
 AADT TRAFFIC VOLUMES



2036 DESIGN YEAR
 NO BUILD
 AADT TRAFFIC VOLUMES



2036 DESIGN YEAR
 BUILD
 AADT TRAFFIC VOLUMES



2016 OPENING YEAR
 2036 DESIGN YEAR
 AADT TRAFFIC VOLUMES

LEGEND

AADT = 000



GRESHAM
 SMITH AND
 PARTNERS

NOT TO SCALE

REVISION DATES

NO.	DATE	DESCRIPTION

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE: PROGRAM DELIVERY
 CSSFT-0009-00(620) PI# 0009620
 SR 225 AT CR 132
 CONCEPT LAYOUT
 MURRAY COUNTY

MAY 18, 2012

DRAWING No.
10-003

Operational and Capacity Analysis Summary

During the analysis A.M. and P.M. peak hour turning movement counts and 24-hour approach counts were obtained at the SR 225 and Mt. Carmel Church/Mitchell Bridge Road intersection by All Traffic Data, Inc. on January 24, 2012. These “short-term” traffic counts were adjusted using day of the week, month of the year and axle adjustment factors to develop annual average daily traffic (AADT) volumes.

The operational analysis was completed assuming that the opening year for this project is 2016 and that the design year is 2036. The 2016 Opening Year and the 2036 Design Year AADT were calculated by applying an annual growth rate to the existing AADT. The growth rate used in the traffic growth projections was calculated (1.70%) based on the historical AADT volumes at a traffic count location (TC 213) which was located just south of the SR 225 and Mt. Carmel Church/Mitchell Bridge Road intersection. The existing and anticipated AADT near the SR 225 and Mt. Carmel Church/Mitchell Bridge Road intersection are presented in Table 1.

Table 1. Existing and Anticipated AADT

Roadway Segment	2012 “Existing Year” AADT	2016 “Opening Year” AADT	2036 “Design Year” AADT
SR 225 North of Mt. Carmel Church /Mitchell Bridge Rd	6,810	7,280	10,190
SR 225 South of Mt. Carmel Church /Mitchell Bridge Rd	6,570	7,040	9,860
Mt. Carmel Church /Mitchell Bridge Rd East of SR 225	3,470	3,710	5,200
Mt. Carmel Church /Mitchell Bridge Rd West of SR 225	930	990	1,390

A capacity analysis was conducted at the Mt. Carmel Church/Mitchell Bridge Road intersection to determine the operational characteristics based on the existing and anticipated future conditions. The capacity analysis for the existing conditions and future no-build conditions was performed using the methodologies outlined in the 2010 Highway Capacity Manual (HCM) and the Synchro 8.0 software program. The results of the capacity analysis for the existing conditions and future no-build conditions for the anticipated future are summarized in Table 2.

The capacity analysis for a roundabout at the intersection for 2016 and 2036 was conducted using the Sidra software program and the GDOT Roundabout Analysis Tool. The results of the capacity analysis for the proposed roundabout for the anticipated future are summarized in Table 3.

Table 2: Existing and No-Build Anticipated Intersection Level of Service

Intersection	Traffic Control	Level of Service (AM/PM)		
		2012	2016 No-Build	2036 No-Build
SR 225 @ Mt. Carmel Church/Mitchell Bridge Road Road	Stop Control on Mt. Carmel Church/Mitchell Bridge Road	F/E	F/F	F/F

Table 3. Roundabout Anticipated Intersection Level of Service (AM/ PM Peak)

Approach	Sidra Analysis		GDOT Roundabout Analysis Tool ¹	
	2016 "Opening Year"	2036 "Design Year"	2016 "Opening Year"	2036 "Design Year"
North	B/B	B/B	A/A	B/A
East	B/B	B/B	A/A	B/B
South	B/B	C/B	A/A	B/B
West	B/B	C/B	A/A	B/A

1 – Results are based on the NCHRP-572 Model



G R E S H A M
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P A R T N E R S

MEMORANDUM

TO: Office of Planning — Georgia Department of Transportation

FROM: France Campbell, P.E., PTOE — Gresham, Smith and Partners

DATE: July 11, 2012

**SUBJECT: PLANNING LEVEL ASSESSMENT
OPERATIONAL ANALYSIS
P.I. NO. 0009620
SR 225 @ CR 132/MT CARMEL ROAD / MITCHELL BRIDGE ROAD
MURRAY COUNTY, GA
GS&P Project No. 26340.17**

INTRODUCTION

Gresham, Smith and Partners (GS&P) has completed a operational analysis for a proposed roundabout at the intersection of SR 225 and Mt. Carmel Church/Mitchell Bridge Road. A signal warrant analysis was also conducted to determine if a traffic signal is a potential alternative at the intersection. This memorandum summarizes the findings of the operational analysis.

OPERATIONAL ANALYSIS METHODOLOGY

A.M. and P.M. peak hour, turning movement counts and 24-hour approach counts were obtained at the SR 225 and Mt. Carmel Church/Mitchell Bridge Road intersection by All Traffic Data, Inc. on January 24, 2012. These “short-term” traffic counts were adjusted using day of the week, month of the year and axle adjustment factors to develop annual average daily traffic (AADT) volumes.

It was assumed that the opening year for this project is 2016 and that the design year is 2036. The 2016 Opening Year and the 2036 Design Year AADT were calculated by applying an annual growth rate to the existing AADT. The growth rate used in the traffic growth projections was calculated (1.70%) based on the historical AADT volumes at a traffic count location (TC 213) which was located just south of the SR 225 and Mt. Carmel Church/Mitchell Bridge Road intersection. The existing and anticipated AADT near the SR 225 and Mt. Carmel Church/Mitchell Bridge Road intersection are presented in Table 1.

Table 1. Existing and Anticipated AADT

Roadway Segment	2012 "Existing Year" AADT	2016 "Opening Year" AADT	2036 "Design Year" AADT
SR 225 North of Mitchell Bridge/Mt. Carmel Church Rd	6,810	7,280	10,190
SR 225 South of Mitchell Bridge/Mt. Carmel Church Rd	6,570	7,040	9,860
Mitchell Bridge/Mt. Carmel Church Rd East of SR 225	3,470	3,710	5,200
Mitchell Bridge/Mt. Carmel Church Rd West of SR 225	930	990	1,390

The operational analysis for the existing conditions and future no-build conditions was performed using the methodologies outlined in the 2010 Highway Capacity Manual (HCM) and the Synchro 8.0 software program. The results of the operational analysis for the existing conditions and future no-build conditions for the anticipated future are summarized in Table 2.

Table 2: Existing and No-Build Anticipated Intersection Level of Service

Intersection	Traffic Control	Level of Service (AM/PM)		
		2012	2016 No-Build	2036 No-Build
SR 225 @ Mitchell Bridge/Mt. Carmel Church Road	Stop Control on Mitchell Bridge/Mt. Carmel Church Road	F/E	F/F	F/F

ROUNDBOUT OPERATIONAL ANALYSIS RESULTS

A operational analysis was conducted at the SR 225 and Mt. Carmel Church/Mitchell Bridge Road intersection to determine the operational characteristics based on the anticipated future conditions with a single lane roundabout. The operational analysis was completed assuming that the opening year for this project is 2016 and that the design year is 2036. The operational

analysis for a roundabout at the intersection for 2016 and 2036 was conducted using the Sidra software program and the GDOT Roundabout Analysis Tool. The results of the operational analysis for the proposed single lane roundabout for the anticipated future are summarized in Table 3.

Table 3. Roundabout Anticipated Intersection Level of Service (AM/ PM Peak)

Approach	Sidra Analysis		GDOT Roundabout Analysis Tool ¹	
	2016 "Opening Year"	2036 "Design Year"	2016 "Opening Year"	2036 "Design Year"
North	B/B	B/B	B/A	B/A
East	B/B	B/B	A/A	A/B
South	B/B	C/B	A/A	B/B
West	B/B	C/B	A/A	B/A

1 – Results are based on the 2010 HCM Model for the 2016 "Opening Year" and the Calibrated Model for the 2036 "Design Year"

As shown in Table 3, the single lane roundabout is expected to operate at a LOS C or better for each peak period on all legs of the intersection in the Sidra Analysis. Using the GDOT Roundabout Analysis Tool, the single lane roundabout is expected to operate at a LOS B or better for each peak period on all legs of the intersection.

TRAFFIC SIGNAL OPERATIONAL ANALYSIS RESULTS

In order to determine if the SR 225 and Mt. Carmel Church/Mitchell Bridge Road intersection is a candidate for signalization, a signal warrant analysis was performed. The standard signal warrants are contained in the *Manual of Uniform Traffic Control Devices* (MUTCD). The following three MUTCD warrants are relevant to this analysis:

- Warrant 1 – Eight-Hour Vehicular Volume: This warrant is intended to be applied under one of three conditions. The first condition (Warrant 1A) is based on minimum vehicular volume in which a large volume of intersecting traffic is the principal reason to consider signalization. The second condition (Warrant 1B) is based on interruption of continuous traffic in which the traffic on the major street is so heavy that the intersecting street traffic suffers excessive delays or conflicts. The third condition (Warrant 1C) is the combination of the first two conditions.

- Warrant 2 – Four-Hour Vehicular Volume: This warrant is intended to be applied where cross traffic to the major street is the primary consideration for installing a traffic signal.
- Warrant 3 – Peak Hour: This warrant is intended for use at a location where traffic conditions are such that in the peak hour(s) of an average day, the minor street approach suffers significant delay when entering or crossing the major street.

Table 4. Results of the Signal Warrant at the SR 225 and Mt. Carmel Church/Mitchell Bridge Road Intersection

Scenario	Eight Hour			Four Hour	Peak Hour
	Condition A	Condition B	Condition C		
Year 2036 "Design Year" Build	No (2)	No (2)	No (3)	No (2)	No (0)

Note: Yes/No tells if the warrant is met and the values tell the number of hours the warrant is met.

As shown in Table 4, the SR 225 and Mt. Carmel Church/Mitchell Bridge Road intersection does not meet any of the signal warrants for the Year 2036 Design Year. Since the intersection does not warrant a traffic signal, a traffic signal was not considered as a potential alternative at this intersection

CONCLUSIONS

A roundabout intersection should be placed at the SR 225 and Mt. Carmel Church/Mitchell Bridge Road intersection based on traffic operations. The intersection does not meet traffic signal warrants based on projected Year 2036 Design Year traffic volumes.

RECOMMENDATIONS

This traffic study recommends that GDOT place a roundabout intersection at the SR 225 and Mt. Carmel Church/Mitchell Bridge Road intersection as a component of GDOT Project PI# 0009620.

FC

cc: Project file



COMMISSIONER OF MURRAY COUNTY

P.O. BOX 1129/121 NORTH 4TH AVE., CHATSWORTH, GA 30705
TELEPHONE 706-517-1400 FAX 706-517-5193



December 20, 2010

Scott A. MacLean, Lead Design Engineer
Georgia Department of Transportation
Office of Design Policy & Support, 26th Floor
One Georgia Center
600 West Peachtree Street, NW
Atlanta, GA 30308

Dear Mr. MacLean:

SUBJECT: GDOT P.L. NUMBER 0009620-LIGHTING REQUIRED FOR ROUNDABOUT AT SR
225 @ CR 132/MT. CARMEL ROAD/MITCHELL BRIDGE ROAD

Murray County is willing to share in the costs of the lighting of the above referenced project by funding the Energy, Operation and Maintenance of the installed lighting system. The Department will fund the design and the construction costs, including all materials. The estimated cost to power the lighting is approximately \$300-\$500 per month, depending on local power rates.

Having no pre-construction, work up sheet on this project, the county will be advised of any additional, local responsibilities by the Department.

Murray County appreciates the Department's consideration of this enhancement to our infrastructure system.

Sincerely,

A handwritten signature in black ink that reads "David Ridley".

David Ridley
Commissioner

Highway Safety Analysis Summary

Potential crash reductions for the proposed roundabout at the SR 225 at Mt. Carmel Church /Mitchell Bridge Road intersection were evaluated in accordance with guidelines set forth in the Highway Safety Manual (HSM). The estimated number of crashes for each future year was calculated based on the HSM predictive method, the crash data gathered at this intersection over a prior seven years (2004 through 2010), Average Annual Daily Traffic Volumes (AADT), and HSM crash reduction factors estimated for the proposed improvements at the SR 225 at Mt. Carmel Church /Mitchell Bridge Road intersection. Table 1 shows the existing crash data at the intersection for the period between January 1, 2004 and December 31, 2010. Crash reduction factors were estimated based on data from the HSM for the following improvements:

- Remove skew at intersection
- Add roundabout at intersection
- Add lighting at intersection

Table 1. Summary of Traffic Crash History at the SR 225 and Mt. Carmel Church /Mitchell Bridge Road Intersection

Year	Manner of Collision					Total	Type of Crash		
	Angle	Head On	Rear End	Sideswipe	Other		PDO*	Injury	Fatal
2004	4	0	0	0	0	4	1	3	0
2005	6	0	0	0	0	6	0	6	0
2006	4	0	1	0	0	5	4	1	0
2007	9	0	0	0	0	9	1	7	1
2008	4	0	1	1	0	6	3	3	0
2009	6	0	0	0	0	6	4	2	0
2010	2	0	1	0	1	4	1	2	1
Total	35	0	3	1	1	40	14	24	2

*PDO= Property Damage Only

The expected number of crashes was then segregated into estimates for different crash severities (i.e., fatal, injury, and property damage only). Table 2 shows the distribution of crashes expected over the life of each Build Alternative, as a means to illustrate their respective safety benefits. As shown in Table 2, a 74 percent reduction in total crashes, a 68 percent reduction in property damage and fatal crashes and a 83% reduction in injury crashes is estimated at this intersection with the installation of a roundabout. Over the 20 year design life of the roundabout, this would result in approximately 145 total crashes, 74 property damage only crashes, 67 injury crashes and 2 fatal crashes.

**Table 2. Summary of Estimated Crash Reductions at the SR 225 and Mt. Carmel Church
/Mitchell Bridge Road Intersection**

Year and Alternative	Total	PDO*	Injury	Fatal
Opening Year (2016)				
No Build	8.18	4.66	3.38	0.15
Roundabout	2.09	0.73	1.31	0.05
Reduction	6.09	3.92	2.07	0.10
Design Year (2036)				
No Build	10.41	5.92	4.30	0.19
Roundabout	2.66	0.93	1.67	0.06
Reduction	7.75	4.99	2.63	0.13
Project Life (2016-2036)				
No Build	194.32	110.57	80.25	3.50
Roundabout	49.65	35.19	13.36	1.11
Reduction	144.67	75.38	66.90	2.38
Percent Reduction	74%	68%	83%	68%

*PDO= Property Damage Only



G R E S H A M
S M I T H A N D
P A R T N E R S

June 26, 2013

MEETING NOTES

**CONCEPT TEAM MEETING GDOT DISTRICT 6
SR225 @CR 132/MT. CARMEL CHURCH ROAD/MITCHELL BRIDGE ROAD
P.I. NO. 0009620
GS&P Project No. 26340.17**

MEETING DATE: June 13, 2013
PARTICIPANTS: See Attached
DISCUSSION: PROJECT CONCEPT TEAM MEETING

A concept team meeting was held to review the draft project concept report at GDOT District 6.

1. It was noted to insert the word "Church" into the location description to read: "SR225 @ CR 132/Mt. Carmel Church Road/Mitchell Bridge Road"
2. It was noted that the R/W authorization date is October 2014 and the LET date is October 2015
3. Noted to add callout for begin/end project, on project location map.
4. Noted to add roundabout diameter for: **PLANNING & BACKGROUND DATA/Description of the proposed project.**
5. It was noted that changes and additions for **DESIGN AND STRUCTURAL DATA** should include:
 - a. Median Width & Type, Proposed, Splitter islands vary 4'-38'.
 - b. Outside Shoulder Width & Type: describe the urban shoulder dimensions.
 - c. Posted Speed, proposed change to 20 mph or 25-check fastest path, at roundabout.
 - d. Insert new line to include inscribed diameter of the roundabout.
6. During the discussion of utility involvements, it was noted that Windstream telephone (fiber, copper, crossbox), North GA EMC Power have existing facilities. It was also stated that the project would have \$50k telephone non-



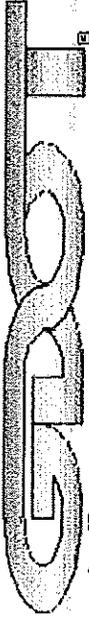
MEETING NOTES
CONCEPT TEAM MEETING GDOT DISTRICT 6
P.I. NO. 0009620
GS&P Project No. 26340.17
June 25, 2013
Page 2

- reimbursable costs and \$36k reimbursable costs. There was also \$500k in water non-reimbursable costs.
7. Under environmental data, it was noted to change "A public meeting will likely be required" to public meeting was held and include summary, but no need to include all comments.
 8. The GDOT stated the lighting agreement had been received and will be added to the report and listed in the attachments.
 9. It was recommended to verify nearby projects and if project is located on a bike route.
 10. The construction cost estimate will be updated in the report.
 11. It was recommended not to list any attachments that where not applicable and would, therefore not be included in report.
 12. It was recommended to add estimated RW and total costs to the preferred and second alternatives in the alternatives discussion and add as attachments to report.
 13. The concept layout will be updated to the latest version in the report and asked to be provided in color.
 14. The typical sections are calling for 8" x 24" curb and gutter. This should be revised to 8" x 30". Also the connection between the center island and the curb apron should be header curb.
 15. The traffic diagrams show 13% 24 hour trucks. It was recommended to verify these amounts. Also correct street names on the diagrams.

This represents our understanding of the items discussed at this meeting. If you have any questions or comments concerning any of the information contained herein, please contact me.

Prepared by: Jody Braswell, P.E.
Project Manager

Copy Participants



Georgia Department of Transportation
Office of Program Delivery

0009620, Murray County
SR 225 @ CR 132/Mt Carmel Road/Mitchell Bridge Road

Purpose: Concept Team Meeting

Location: District 6 Office

Date: June 13, 2013

Hour: 10:00 a. m.

<u>Name</u>	<u>Organization</u>	<u>Telephone</u>	<u>Email Address</u>
1. <u>Cynthia Bunn</u>	<u>GDOT</u>	<u>404-631-1851</u>	<u>cburney@dot.ga.gov</u>
2. <u>Kewleza</u>	<u>GDOT</u>	<u>404-635-2859</u>	<u>kweleza@dot.ga.gov</u>
3. <u>KATE DAMBROSIO</u>	<u>GDOT</u>	<u>404-635-2842</u>	<u>kdambrosio@dot.ga.gov</u>
4. <u>Juan Gonzalez</u>	<u>GDOT</u>	<u>404-635-2842</u>	<u>jgonzalez@dot.ga.gov</u>
5. <u>Aimee Turner</u>	<u>GDOT</u>	<u>404-635-2842</u>	<u>aiturner@dot.ga.gov</u>
6. <u>Melanie Hale</u>	<u>GDOT-DesignPolicySupport</u>	<u>404-631-1542</u>	<u>mhal@dot.ga.gov</u>
7. <u>DANIELAS TORRES</u>	<u>GDOT</u>	<u>404-859-7463</u>	<u>dtorres@dot.ga.gov</u>
8. <u>Steve Sander</u>	<u>GDOT</u>	<u>678-630-1270</u>	<u>ssander@dot.ga.gov</u>
9. <u>TYLER LUMSDEN</u>	<u>GDOT</u>	<u>770-630-2588</u>	<u>tlumsden@dot.ga.gov</u>
10. <u>Jennifer Deems</u>	<u>GDOT-Utilities</u>	<u>770-380-3016</u>	<u>jdeems@dot.ga.gov</u>
11. <u>BAREY BROOKS</u>	<u>CHATSWORTH WATER</u>	<u>706-264-7835</u>	<u>barryb@chatsworthwater.com</u>

12. Carla Rutledge GDOT (770) 387-3635 Crutledge@dot.ga.gov
13. Floyd Moser ~~Windstream~~ Windstream (706) 279-7868 Floyd.Moser@windstream.com
14. Sarah Worachek GSP (678) 518-3930 Sarah_worachek@gspnet.com
15. Jody Braswell GSP (678) 518-3655 jody-braswell@gspnet.com
16. ~~Herby~~ Bonner Dist. Util. 7703873614 kbenner@dot.ga.gov
17. Brian Towers NGEMC 706-581-6167 btowers@ngemc.com

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June 6, 2013

Maria Bradley
PO Box 1402
Chatsworth, GA 30705

Re: Project CSSFT-0009-00(620), Murray County, P.I. No. 0009620, SR 225 and CR 132/
Mount Carmel Church Road/Mitchell Bridge Road Intersection – Responses to Open
House Comments

Dear Maria Bradley,

Thank you for your comments concerning the proposed project referenced above. We appreciate your participation and all of the input that was received as a result of the April 9, 2013 Public Information Open House (PIOH). Every written comment received and verbal comment given to the court reporter at the PIOH will be made part of the official record of the project.

A total of 34 people attended the PIOH. Of the six respondents who formally commented, one was in support of the project and five were opposed to the project.

The attendees of the PIOH and those persons sending in comments afterwards raised the following questions and concerns. The GDOT has prepared this one response letter that addresses all comments received so that everyone can be aware of the concerns raised and the responses given. Please find the comments summarized below (*in italics*) followed by our response.

- *The intersection should remain a 4-way stop with turn lanes added.*

Response: Based on the existing traffic and anticipated future traffic growth at the SR 225 and CR 132/Mount Carmel Church Road/Mitchell Bridge Road intersection, a 4-way stop with turn lanes would not meet the traffic demands. In addition to not meeting adequate level of service for the expected traffic at this intersection, the sight distance to oncoming traffic can be severely hampered by vehicles stopped beside one another. For these reasons a 4-way stop with turn lanes is not recommended.

- *I'm concerned about safety, especially for inexperienced drivers and other drivers. A roundabout would be dangerous.*

Response: Research has shown that roundabouts reduce the number and severity of traffic crashes at intersections. In a roundabout, crashes that occur are typically at low-speeds. The most severe crashes that occur at signalized and stop controlled intersections are high-speed crashes and head-on crashes which are unlikely to occur in a roundabout. Roundabouts have been shown to be very effective at intersections in similar circumstances due to the typical reduction in the number and severity of traffic crashes.

- *The intersection should be a signalized intersection with turning signals and lanes. The traffic light a mile up the road at the Hwy 225 and 286 intersection has been an asset to the community.*

Response: Based upon current GDOT standards and guidelines, the SR 225 and CR 132/Mt. Carmel Church Road/Mitchell Bridge Road intersection would not warrant signalization. A signal warrant analysis was conducted by comparing the traffic volumes at the intersection to volume thresholds contained in the national standards which have been adopted by GDOT. The traffic volumes at the SR 225 and CR 132/Mount Carmel Church Road/Mitchell Bridge Road intersection do not meet the traffic volume thresholds, and as a result, a traffic signal is not deemed to be warranted at this intersection. A roundabout is recommended in this situation due to the safety benefits cited above.

- *A roundabout would be a complete waste of money.*

Response: The construction cost for a roundabout at this location is approximately the same as the construction cost for a traffic signal with turn lanes.

- *I'm concerned about large trucks using a roundabout. A large vehicle rolling over in a roundabout would be horrible.*

Response: The proposed roundabout has an outside diameter of 150 feet with a 20-foot travel lane with an additional 12-foot truck apron. A roundabout of this size is adequate for a truck with a trailer length of 53 feet and an overall length of 74 feet. The proposed truck apron would have a full-depth concrete pavement section adequate for travel by large vehicles. The proposed truck apron would have a 4 inch curb height with a mountable face which is designed to allow vehicles to mount the curb if needed.

- *I'm concerned about emergency vehicles. The two to three minute delay for emergency vehicles from the roundabout could make the difference in someone losing their home or life.*

Response: The proposed roundabout has only a single lane, but a truck apron would be provided which could be used by emergency vehicles to pass other vehicles as they travel through the roundabout.

- *Minor fender benders will increase our insurance rates. Some of the news reporters have seen a lot of accidents where these are installed.*

Response: We believe the net benefit will be reduced crashes and injuries due to the safety benefits cited above.

- *I'm concerned about safety with driver's learning curves using roundabouts.*

Response: In our experience drivers quickly adjust to and properly navigate roundabouts. This is trend is supported by national and international experience as well.

- *Mt. Carmel Road backs up water on our land, especially since a subdivision was built causing more runoff onto our property. If this project goes through, surely your engineers will have a pipe under the roundabout taking care of the flood water backed up on our land.*

Response: Runoff from within the GDOT right-of-way would be addressed as part of this project. The existing stormwater runoff from adjacent parcels may be beyond what GDOT would be able to address, though the existing drainage will be examined to determine if any improvements can be made.

- *We just have school eight months a year and the roundabout will be used about two hours a day. Is this a good way to spend tax money or is Murray County being picked for this experiment because Murray is an easy target to be pushed around?*

Response: This intersection is not an experiment for a roundabout. The GDOT and local agencies are planning and designing roundabouts all across Georgia due to the safety benefits cited above. It is also important to note that the construction cost for a roundabout at this location is approximately the same as the construction cost of a traffic signal with turn lanes.

- *SR 225 going south at the four lane at Central is difficult for left turning traffic. There are other places where tax money could be spent. There are other places with continuous flow traffic that need a roundabout much more.*

Response: Other intersections are outside of this project area. Your comment has been forwarded to the GDOT District Six Office for further consideration. If you have any additional questions regarding other project locations, please contact DeWayne Comer, the District Six Engineer, at (770) 387-3602.

- *I would have liked a presentation by GDOT and public conversations to hear the view of others at the meeting.*

Response: The current open house format accommodates individuals with varying schedules, allowing participants to arrive at various times to review the project information and to speak with GDOT representatives at their convenience.

- *We own a corner of the land at the proposed project. All parties should have been notified in writing of the meeting.*

Response: Notification of the meeting was provided by signs posted at the intersection and by legal advertisements in the local newspaper. Any owners of property where right-of-way acquisition is needed will be contacted individually during the right-of-way negotiations phase of the project.

- *We had land taken for power lines. This corner lot is valuable land. Can we, being old, look forward to being scammed by the government again?*

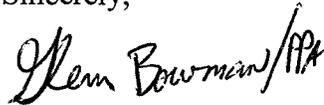
Response: Land acquisition for transportation purposes is strictly governed by numerous state and federal laws and regulations. Since it is not appropriate to discuss individual impacts and compensation in this format, the GDOT Right-of-Way Office will send out letters under separate cover to those property owners who submitted comments regarding right-of-way acquisition processes and procedures. For additional information, please contact Eric Murray – State R/W Acquisition Manager at (404) 895-4976.

- *There was a map printed in the Chatsworth Times, but I cannot read the legend. Is the red line the boundaries or the green line?*

Response: The display shown at the PIOH is also available for review on the GDOT website at www.dot.ga.gov. Click on **Public Outreach** from the **Information Center** dropdown menu at the top right side of the page. The red lines represent the required right-of-way. Yellow lines represent the existing right-of-way and property lines.

Again, thank you for your comments concerning this project. Should you have any further questions, comments, or concerns, please call the project manager, Cynthia Burney, at (404) 631-1851 or the environmental analyst, Paul Alimia, at (404) 631-1353.

Sincerely,

A handwritten signature in black ink that reads "Glenn Bowman" followed by a stylized set of initials "APK".

Glenn Bowman, P.E.
State Environmental Administrator

GB/JB

cc: Cynthia Burney, P.E., GDOT Project Manager