

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

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

FILE P.I. # 0009953

OFFICE Design Policy & Support

Walton County

GDOT District 1 - Gainesville

DATE 4/10/2013

Roundabout: SR 81 @ CR 461/CR 462/Bold
Springs Road

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
Ken Thompson, Statewide Location Bureau Chief
Andy Casey, State Roadway Design Engineer
Attn: Christopher Rudd, Design Group Manager
Tamaya Huff, State Pedestrian and Bicycle Coordinator
Bayne Smith, District Engineer
Brent Cook, District Preconstruction Engineer
Neil Kantner, District Utilities Engineer
Charles Robinson, Project Manager
BOARD MEMBER - 10th Congressional District

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

Project Type: Intersection Improv.
 GDOT District: 1
 Federal Route Number: N/A
 Project Number: 0009953

P.I. Number: 0009953
 County: Walton
 State Route Number: 81

This project proposes to construct a roundabout at the intersection of SR 81 and CR 461/CR 462/Bold Springs Road, in the community of Bold Springs located 8.2 miles northeast of the city of Loganville in Walton County, Georgia.

Submitted for approval:

<u>C. Andy Cury</u>	<u>2/4/13</u>
State Roadway Design Engineer	DATE
<u>[Signature]</u>	<u>2/13/13</u>
State Program Delivery Engineer	DATE
<u>[Signature]</u>	<u>2/7/13</u>
GDOT Project Manager	DATE

Recommendation for approval:

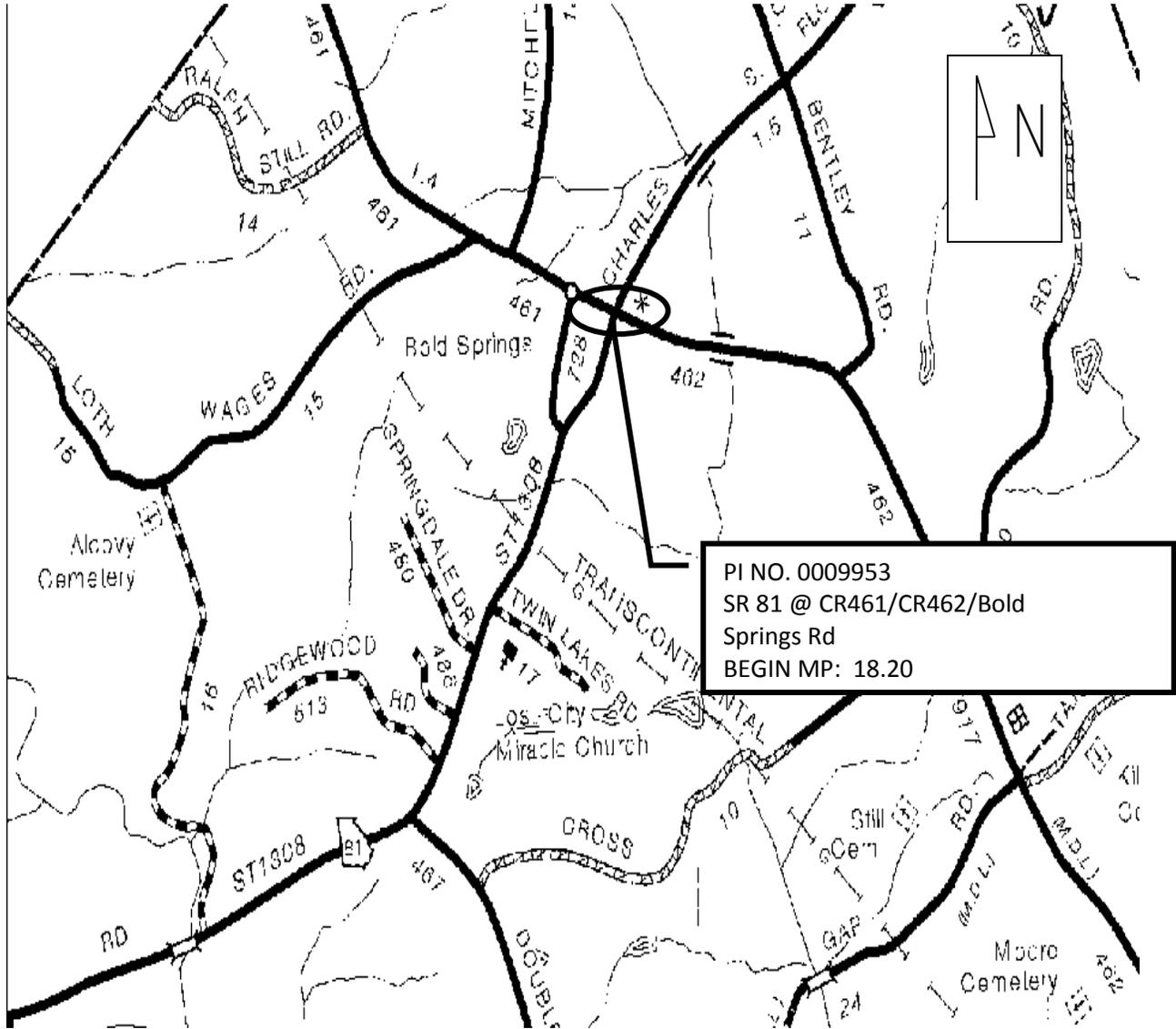
* <u>Ben Rabun</u>	<u>2/17/2013</u>
Program Control Administrator State Bridge Engineer	DATE
* <u>Glenn Bowman</u> <u>[Signature]</u>	<u>2/27/2013</u>
State Environmental Administrator	DATE
* <u>Kathy Zahul</u> <u>[Signature]</u>	<u>2/19/2013</u>
State Traffic Engineer	DATE
* <u>Lisa Myers</u> <u>[Signature]</u>	<u>2/15/2013</u>
Project Review Engineer	DATE
* <u>Patrick Allen</u> <u>[Signature]</u>	<u>2/18/2013</u>
for State Utilities Engineer	DATE
* <u>Jason Dykes</u> <u>[Signature]</u>	<u>2/14/2013</u>
for District 1 Engineer	DATE
_____ 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 D. Buske</u>	<u>2-15-13</u>
State Transportation Planning Administrator	DATE

* Recommendations on file - [Signature]

PROJECT LOCATION



Location Map for PI 0009953, Walton County, SR 81 @ CR 461/CR 462/Bold Springs Road

PLANNING & BACKGROUND DATA

Project Justification Statement: This project proposes to improve the operation of the existing intersection of State Route 81(SR 81) and CR 461/CR 462/Bold Springs Road while reducing the frequency and severity of crashes at the intersection. 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 often result in serious injuries or fatalities.

SR 81 and Bold Springs Road are both two lane rural major collectors with a posted speed limit of 45 mph and an AADT of 7,660 and 3810 vehicles per day, in respective order. Currently, the intersection is stop controlled with a right turn lane on the southbound leg of SR 81.

Crash data from 2005-2011 indicated that 56 crashes occurred at this intersection resulting in 15 total injuries. Of those crashes 64% were angle collisions accounting for 67% of the injuries.

Description of the proposed project: This project proposes to construct a roundabout at the intersection of SR 81 and CR 461/CR 462/Bold Springs Road, which is located in the community of Bold Springs which is 8.2 miles northeast of the city of Loganville in Walton County, Georgia. The proposed project length is approximately 0.26 miles.

Federal Oversight: Full Oversight Exempt State Funded Other

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

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

Congressional District(s): 10

Projected Traffic: ADT

Current Year (2011): 9,700 Open Year (2017): 10,350 Design Year (2037): 18,650

Functional Classification (SR 81): Rural Major Collector

Functional Classification (Bold Springs Road): Rural Major Collector

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

Is this project on a designated Bike Route, Pedestrian Plan, or Transit Network?

None Bike Route Pedestrian Plan Transit Network

CONTEXT SENSITIVE SOLUTIONS

Issues of Concern: None

Context Sensitive Solutions: N/A

DESIGN AND STRUCTURAL DATA

Mainline Design Features: Roadway Name: State Route 81 & CR 461/CR 462/Bold Springs Road

Feature	Existing	Standard*	Proposed
Typical Section			
- Number of Lanes	2	2	2
- Lane Width(s)	12	12	12
- Median Width & Type	None	None	None
- Outside Shoulder or Border Area Width	2-ft paved	10 – 16 ft	12-ft*
- Outside Shoulder Slope	6%	6%	6%
- Inside Shoulder Width	N/A	N/A	N/A
- Sidewalks	N/A	5-ft.	5-ft.*
- Auxiliary Lanes	N/A	N/A	N/A
- Bike Lanes	N/A	N/A	N/A
Posted Speed	45-mph		45-mph
Design Speed	Unknown	45-mph	25-mph**
Min Horizontal Curve Radius	Unknown	675-ft	675-ft
Superelevation Rate	Unknown	4%	4%*
Grade	Unknown	8%	8%
Access Control	Permitted	Permitted	Permitted
Right-of-Way Width	60-ft – 80 ft	Varies	100 – 150 ft
Maximum Grade – Crossroad	Unknown	2%	2%
Design Vehicle	Unknown	WB-67	WB-67

*The listed design features only apply to the urban section of the intersection.

**Proposed reduction in speed design is for the intersection approaches to the roundabout.

Major Structures: N/A

Major Interchanges/Intersections: SR 81 at SR 316

Utility Involvements:

City of Buford – Gas
 Windstream – Communication
 Walton EMC – Electric
 Walton County Public Works – Water and Sewer
 Comcast – Cable

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: No Yes Undetermined
 Easements anticipated: None Temporary Permanent Utility Other

Anticipated number of impacted parcels: 10
 Displacements anticipated: Total: 0
 Businesses:

Residences:
 Other:

Location and Design approval: Not Required Required

Off-site Detours Anticipated: No Yes Undetermined

Transportation Management Plan [TMP] Required: No Yes
 Project classified as: Non-Significant Significant
 TMP Components Anticipated: TTC TO PI

*Note: Special Provision 150 will serve as the TTC component of the TMP

Design Exceptions to FHWA/AASHTO controlling criteria anticipated:

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

Design Variances to GDOT Standard Criteria anticipated:

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

VE Study anticipated: No Yes Completed – Date:

Highway Safety Manual Analysis

The Highway Safety Manual (HSM) only provides analysis methods for some urban or suburban arterial intersection types being converted to a roundabout. The intersection on this project is classified by the HSM as a rural intersection thus no HSM analysis is available.

ENVIRONMENTAL DATA

Anticipated Environmental Document:

GEPA: **NEPA:** CE EA/FONSI EIS

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

(The proposed project is exempt from conformity due to its potential to reduce crash frequency and severity.)

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 type="checkbox"/>	To be determined
4. Tennessee Valley Authority Permit	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
5. Buffer Variance	<input type="checkbox"/>	<input type="checkbox"/>	To be determined
6. Coastal Zone Management Coordination	<input type="checkbox"/>	<input checked="" type="checkbox"/>	
7. NPDES	<input type="checkbox"/>	<input type="checkbox"/>	To be determined
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: A CE will be required for this project. The CE has not yet been approved at this time.

Ecology: No known concerns at this time.

History: No known concerns at this time.

Archeology: No known archaeological concerns at this time.

Air & Noise: Air and noise has been approved.

Public Involvement: A Public Involvement Open House (PIOH) is anticipated.

Major stakeholders: Traveling public, gas station owner, utility owners and other adjacent property owners.

ROUNDBABOUTS.

Lighting agreement/commitment letter received: No Yes

Planning Level assessment: See Attached Roundabout Feasibility Study

Feasibility Study: The findings of the feasibility study indicates that a single lane roundabout with a hybrid footprint will be the most feasible option to reduce crash frequency and severity and provide functional capacity at this intersection in build and design years based on the projected traffic volumes.

Peer Review required: No Yes Completed – Date: 10/4/2012

CONSTRUCTION

Issues potentially affecting constructability/construction schedule: None

Early Completion Incentives recommended for consideration: No Yes

PROJECT RESPONSIBILITIES

Project Activities:

Project Activity	Party Responsible for Performing Task(s)
Concept Development	GDOT Roadway Design
Design	GDOT Roadway Design
Right-of-Way Acquisition	GDOT District 1 R/W
Utility Relocation	Utility Owners
Letting to Contract	GDOT Bidding Administration
Construction Supervision	District 1 Construction
Providing Material Pits	Contractor
Providing Detours	N/A
Environmental Studies, Documents, & Permits	GDOT Office of Environmental Services
Environmental Mitigation	GDOT Office of Environmental Services
Construction Inspection & Materials Testing	GDOT District 1 Construction

Lighting required: No Yes

GDOT will install the lighting during the construction phase. The local government will be responsible for the cost of electric energy and future maintenance of the lighting.

Concept Meeting: This meeting was held on November 14, 2012. (See Attachments for Minutes)

Other projects in the area:

0008429 – New Bridge Construction at SR 316/US 29 @ SR 81

0010555 – New Interchange Construction at West Winder Bypass @ SR 316

Other coordination to date:

Initial Scoping Kick-Off Meeting held March 26, 2012.

Project Cost Estimate and Funding Responsibilities:

	Breakdown of PE	ROW	Reimbursable Utility	CST*	Environmental Mitigation	Total Cost
By Whom	GDOT	GDOT	GDOT	GDOT	N/A	
\$ Amount	\$250,000.00	\$423,000.00	\$539,500.00	\$1,996,935.63		\$3,209,435.63
Date of Estimate	3/4/2010	12/5/2012	12/4/2012	3/19/2013		

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

ALTERNATIVES DISCUSSION

Alternative selection:

Preferred Alternative: Single Lane Roundabout with Hybrid Footprint			
Estimated Property Impacts:	10 parcels	Estimated Total Cost:	\$3,209,435.63
Estimated ROW Cost:	\$423,000.00	Estimated CST Time:	24 months
Rationale: As shown in the attached Feasibility Study it is expected with the given traffic volumes that a single lane roundabout would function within an acceptable level of service for 16 years after the build year. However, after that time it is expected that the LOS for a single-lane roundabout would drop to a LOS F for the design year. This alternative would install a single lane roundabout with a footprint large enough to accommodate a hybrid roundabout with the same geometry as that described in alternative 2. Should actual traffic volumes follow predicted models and exceed the capacity of the roundabout this option would allow for an increase in capacity with minimal additional costs. Additionally, it is expected that this option will reduce the crash frequency and severity occurring at the intersection. With the current configuration, the average number of injury and PDO crashes shown at this intersection exceeds the regional average. Most of the crashes occurring are angle type crashes which can be corrected by implementing a roundabout.			

Alternative 2: Hybrid Roundabout with Dual Entry on North Leg			
Estimated Property Impacts:	10 parcels	Estimated Total Cost:	\$3,367,799.23
Estimated ROW Cost:	\$423,000.00	Estimated CST Time:	24 months
Rationale: Alternate 2 proposes a hybrid roundabout with dual entry lanes on the north leg and single entry lanes on the remaining legs. It would construct two circulating lanes on the west leg which would allow for the heavy southbound movements from the east and north. The south leg would have two exit lanes with a lane drop after the intersection. This alternate would have significant right of way impacts; however it would potentially reduce the frequency and severity of crashes occurring at the intersection. This alternate would also accommodate the projected traffic volumes in both the build and design year and function at an acceptable level of service A. However, the current traffic volumes do not warrant this configuration in the opening year.			

Alternative 3: All Way Stop Controlled (AWSC) with Right Turns			
Estimated Property Impacts:	None	Estimated Total Cost:	\$492,981.35
Estimated ROW Cost:	None	Estimated CST Time:	9 months
Rationale: This alternate would add right turn lanes to the existing configuration which would reduce some of the queue by allowing free flowing right turns. This alternate would have little to no impacts on right of way. This alternate is not feasible, however, because the LOS for the build and design year is D and F, respectively, which does not meet GDOT’s desired level of service.			

Alternative 4: Traffic Signal with Turn Lanes			
Estimated Property Impacts:	5 parcels	Estimated Total Cost:	\$1,339,760.93
Estimated ROW Cost:	\$190,000.000	Estimated CST Time:	9 months
Rationale: This alternate would add right and left turn lanes to the existing configuration on all approaches, which would expand the size of the intersection. This alternate would have minor impacts on right of way. The traffic signal will function at a LOS B for both the build and design year. This alternate is not feasible because it does not meet any of the signal warrant requirements.			

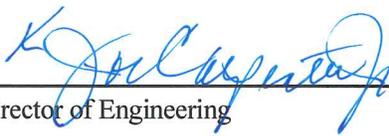
No-Build Alternative: All Way Stop Controlled			
Estimated Property Impacts:	None	Estimated Total Cost:	\$0.00
Estimated ROW Cost:	None	Estimated CST Time:	N/A
Rationale: This alternate would maintain the existing configuration and allow for no construction or right of way cost. The intersection currently operates at a LOS C, but will fail in both the build and design year due to capacity, with a LOS E and LOS F. This alternate is not ideal because it does not meet GDOT's desired level of service in either the design or build years.			

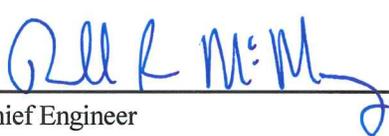
Comments: None

Attachments:

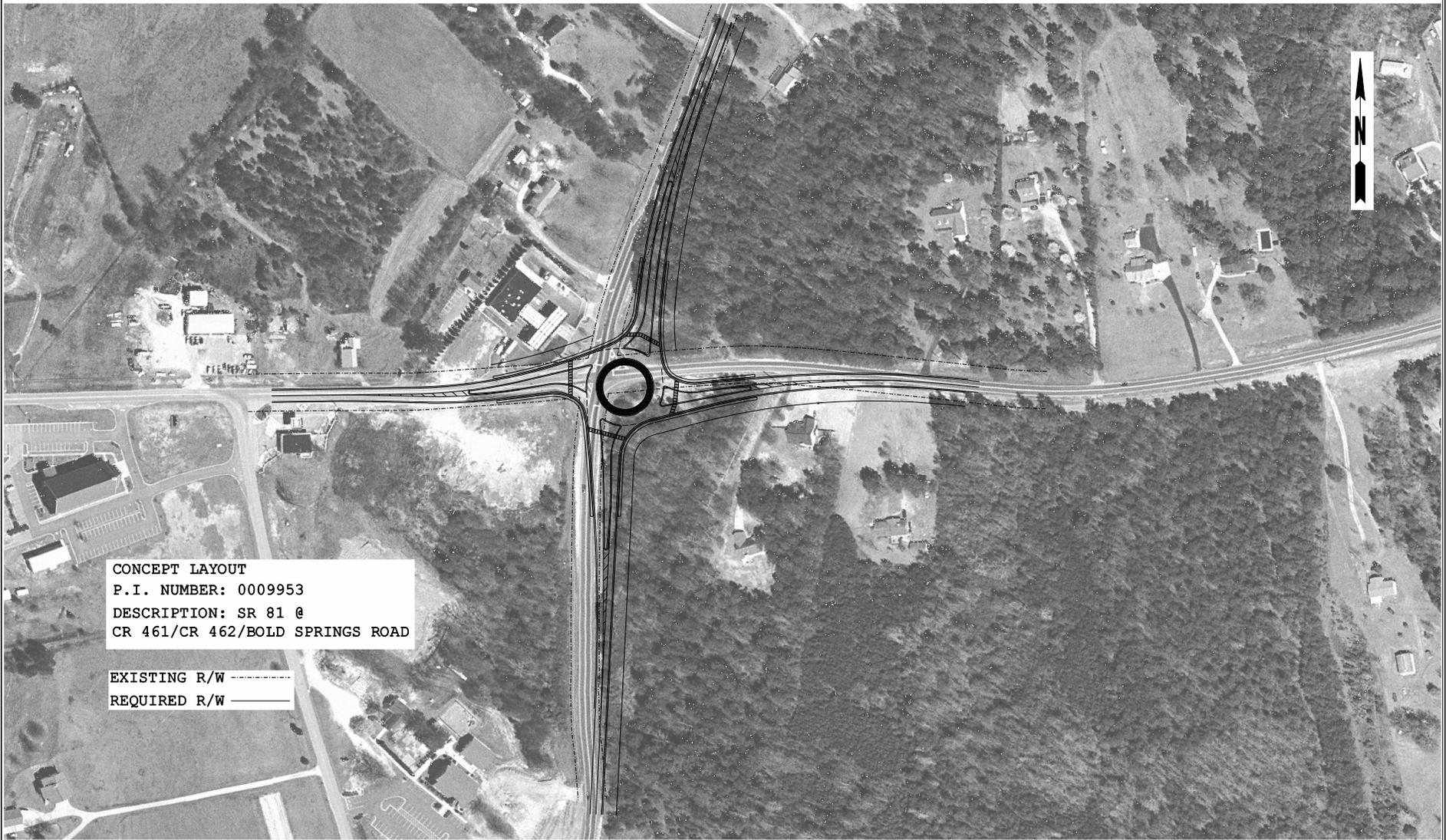
1. Concept Layout
2. Typical sections
3. Detailed Cost Estimates:
 - a. Construction including Engineering and Inspection
 - b. Completed Fuel & Asphalt Price Adjustment forms
 - c. Right-of-Way
 - d. Utilities
4. Crash Summaries
5. Traffic Diagrams
6. Capacity Analysis Summary
7. Summary of TE Study and Signal Warrant Analysis
8. Roundabout Data
 - a. Planning level assessment
 - b. Roundabout feasibility study
 - c. Lighting agreement or commitment letter
9. Minutes of Concept Team Meeting

APPROVALS

Concur:  3/28/2013
 Director of Engineering

Approve:  4/8/13 _____
 Chief Engineer Date

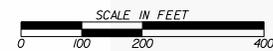
1/17/2013 USER: rsobern	11:05:41 AM D:\PLOT\Y8 gplotborder\81-P0_1a1	M:\0009953\0001\Conceptual Design\roundabout with stage 0009953.dgn	STATE GA	PROJECT NUMBER 0009953	SHEET NO.	TOTAL SHEETS
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CONCEPT LAYOUT
 P. I. NUMBER: 0009953
 DESCRIPTION: SR 81 @
 CR 461/CR 462/BOLD SPRINGS ROAD

EXISTING R/W -----
 REQUIRED R/W _____

GEORGIA
 DEPARTMENT
 OF
 TRANSPORTATION



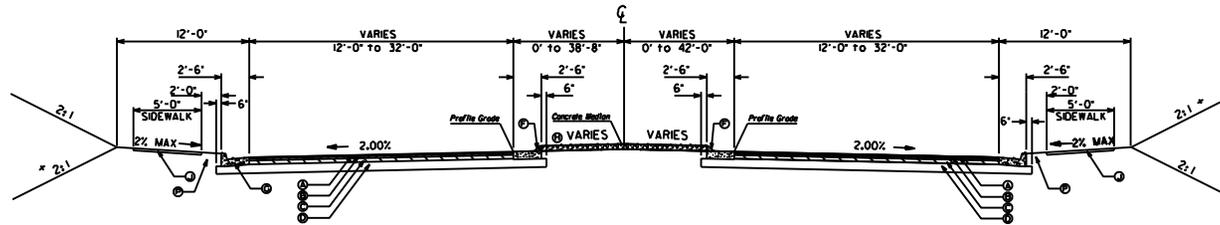
REVISION DATES	

STATE OF GEORGIA
 DEPARTMENT OF TRANSPORTATION
 OFFICE: ROADWAY DESIGN
 CONCEPT LAYOUT
 WALTON COUNTY

DRAWING No.
11-001

DATE## #USER#	TIME## #PWF#	#PENTABLE##	#DC##	STATE GA	PROJECT NUMBER 0009953	SHEET NO.	TOTAL SHEETS
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TYPICAL SECTION NO. 2 SR 81 @ CR 461/CR 462/BOLD SPRINGS RD



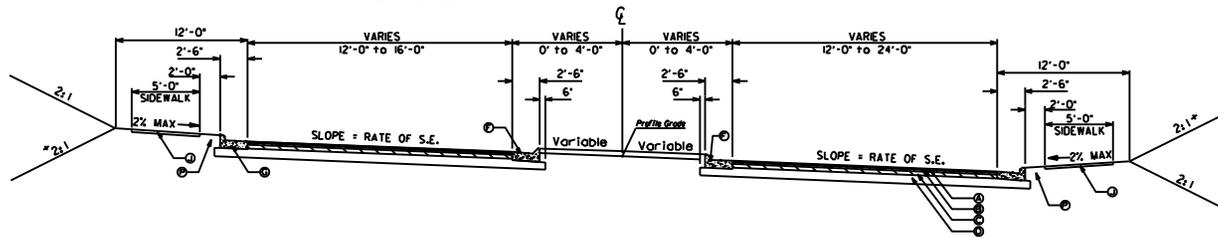
TS-2A
TANGENT SECTION

SLOPE CONTROLS		
SLOPE	CUT	FILL
4:1	0'-5"	0'-10"
3:1	5'-10"	-
2:1	OVER 10'	OVER 10'

*REQUIRES GUARDRAIL

- REQUIRED PAVEMENT**
- Ⓐ ASPHALTIC CONCRETE 12.5 mm, SUPERPAVE, 165 1b/sy, GP 1 OR 2, INCL BITUM MATL & H LINE
 - Ⓑ ASPHALTIC CONCRETE 19 mm, SUPERPAVE, 220 1b/sy, GP 1 OR 2, INCL BITUM MATL & H LINE
 - Ⓒ ASPHALTIC CONCRETE 25 mm, SUPERPAVE, 330 1b/sy, GP 1 OR 2, INCL BITUM MATL & H LINE
 - Ⓓ GRADED AGGREGATE BASE, 12 1/4", INCL MATL
 - Ⓔ GRADED AGGREGATE BASE & SHOULDER BASE COURSE, 6 1/4", INCL MATL
 - Ⓕ 8" x 30" CONCL. CURB & GUTTER, GA. STD. 9032 B, TYPE 2
 - Ⓖ CONCRETE MEDIAN, 7 1/4"
 - Ⓗ 4" CONG SIDEWALK
 - Ⓘ BLOCK SOD

- NOTE: FOR METHOD OF SUPERELEVATION SEE CONSTRUCTION PLAN SHEETS CURVE DATA. LOCATIONS OF NORMAL CROWN, OR SUPER, REVERSE CROWN, AND FULL S.E. NOTED ON CONSTRUCTION CENTERLINE.
- *NOTE: SLOPES MAY VARY FLATTER THAN 2:1 TO FIT FIELD CONDITIONS. SEE EARTHWORK X-SEC.
- Δ NOTE: THE ALGEBRAIC DIFFERENCE IN PAVING SLOPE AND SHOULDER SLOPE SHALL NOT EXCEED 8.0%
- NOTE: THE 2'-0" AREA BETWEEN THE SIDEWALK AND THE CURB AND GUTTER SHALL BE SOD.



TS-2B
SUPERELEVATED SECTION

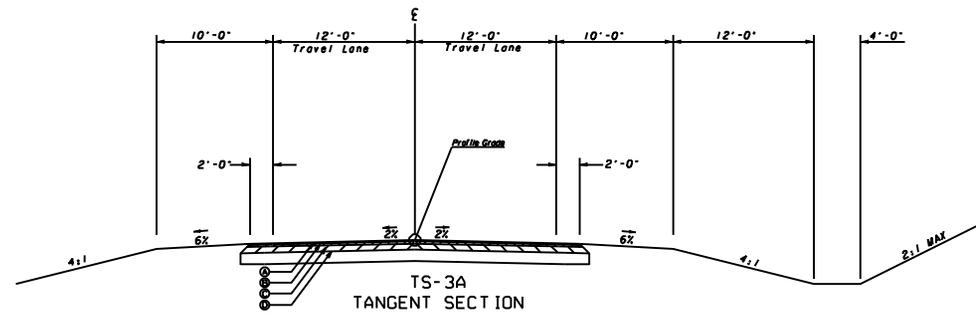
N.T.S.

GEORGIA
DEPARTMENT
OF
TRANSPORTATION

REVISION DATES		STATE OF GEORGIA DEPARTMENT OF TRANSPORTATION	
		OFFICE: ROADWAY DESIGN	
		TYPICAL SECTIONS	
		WALTON COUNTY	
		SR 81 @ BOLD SPRINGS RD	
			DRAWING NO. 05-002

DATE### #USER#	TIME### #PWF#	###	STATE	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
			GA	0009953		

TYPICAL SECTION NO. 3 CR 461/CR 462/BOLD SPRINGS RD



SLOPE CONTROLS		
SLOPE	CUT	FILL
4:1	0'-6"	0'-10"
3:1	6'-10"	--
2:1	OVER 10' - OVER 10'	--

*REQUIRES GUARDRAIL

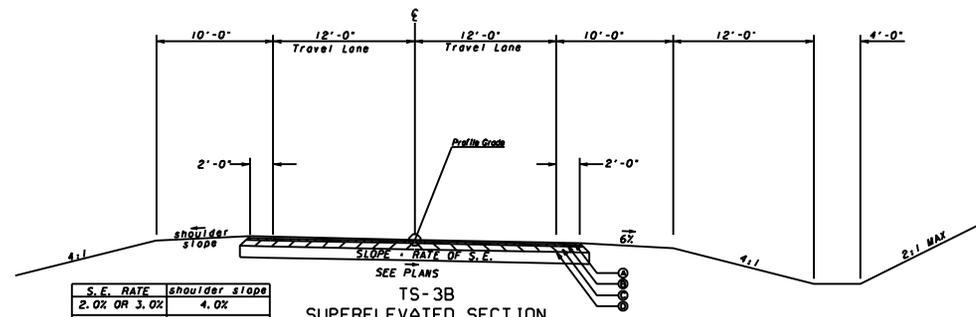
- REQUIRED PAVEMENT
- Ⓐ ASPHALTIC CONCRETE 12.5 mm. SUPERPAVE. 165 lb/sy. GP 1 OR 2. INCL BITUM MATL & H LIME
 - Ⓑ ASPHALTIC CONCRETE 19 mm. SUPERPAVE. 220 lb/sy. GP 1 OR 2. INCL BITUM MATL & H LIME
 - Ⓒ ASPHALTIC CONCRETE 25 mm. SUPERPAVE. 1210 lb/sy. GP 1 OR 2. INCL BITUM MATL & H LIME
 - Ⓓ GRADED AGGREGATE BASE. 12 in. INCL MATL
 - Ⓔ GRADED AGGREGATE BASE & SHOULDER BASE COURSE. 6 in. INCL MATL

NOTE: FOR METHOD OF SUPERELEVATION SEE CONSTRUCTION PLAN SHEETS CURVE DATA, LOCATIONS OF NORMAL CROWN, OR SUPER, REVERSE CROWN, AND FULL S. E. NOTED ON CONSTRUCTION CENTERLINE.

*NOTE: SLOPES MAY VARY FLATTER THAN 5:1 TO FIT FIELD CONDITIONS. SEE EARTHWORK X-SEC.

Δ NOTE: THE ALGEBRAIC DIFFERENCE IN PAVING SLOPE AND SHOULDER SLOPE SHALL NOT EXCEED 8.0%.

NOTE: THE 2'-0" AREA BETWEEN THE SIDEWALK AND THE CURB AND GUTTER SHALL BE 500.



S. E. RATE	shoulder slope
2.0% OR 3.0%	4.0%
4.0% OR 5.0%	2.0%
6.0% OR 7.0%	1.0%
8.0% +	0.0%

GEORGIA
DEPARTMENT
OF
TRANSPORTATION

REVISION DATES	STATE OF GEORGIA DEPARTMENT OF TRANSPORTATION OFFICE: ROADWAY DESIGN TYPICAL SECTIONS

WALTON COUNTY
SR 81 @ BOLD SPRINGS RD

DRAWING NO.
5-003

DETAILED COST ESTIMATE



Job: 0009953-ALT 2

JOB NUMBER 0009953-ALT 2

FED/STATE PROJECT NUMBER

SPEC YEAR: 01

DESCRIPTION: SINGLE LANE WITH HYBRID FOOTPRINT

ITEMS FOR JOB 0009953-ALT 2

0010 - ROADWAY ITEMS

Line Number	ITEM	QUANTITY	UNITS	PRICE	DESCRIPTION	AMOUNT
0030	150-1000	1.000	LS	\$50,000.00000	TRAFFIC CONTROL - 0009953	\$50,000.00
0035	210-0100	1.000	LS	\$300,000.00000	GRADING COMPLETE - 0009953	\$300,000.00
0024	310-5120	8169.000	SY	\$30.69683	GR AGGR BS CRS 12IN INCL MATL	\$250,762.40
0005	402-3113	1923.000	TN	\$68.03859	RECYL AC 12.5MM SP,GP1/2,BM&HL	\$130,838.21
0015	402-3121	5325.000	TN	\$59.68254	RECYL AC 25MM SP,GP1/2,BM&HL	\$317,809.53
0010	402-3190	2564.000	TN	\$62.32374	RECYL AC 19 MM SP,GP 1 OR 2 ,INC BM&HL	\$159,798.07
0025	413-1000	1452.000	GL	\$2.27047	BITUM TACK COAT	\$3,296.72
0220	439-0022	440.000	SY	\$76.31000	PLN PC CONC PVMT CL3 10" THK	\$33,576.40
0345	441-0018	914.000	SY	\$37.82185	DRIVEWAY CONCRETE, 8 IN TK	\$34,569.17
0225	441-0104	1480.000	SY	\$31.10908	CONC SIDEWALK, 4 IN	\$46,041.44
0210	441-0754	1678.000	SY	\$41.72547	CONC MEDIAN, 7 1/2 IN	\$70,015.34
0265	441-4030	125.000	SY	\$43.55971	CONC VALLEY GUTTER, 8 IN	\$5,444.96
0215	441-5008	365.000	LF	\$11.78161	CONC HEADER CURB, 6 IN, TP 7	\$4,300.29
0205	441-5025	440.000	LF	\$14.00000	CONC HEADER CURB, 4", TP 9	\$6,160.00
0099	441-6222	2664.000	LF	\$17.68203	CONC CURB & GUTTER/ 8"X30"TP2	\$47,104.93
0037	641-1200	450.000	LF	\$18.88513	GUARDRAIL, TP W	\$8,498.31
0038	641-5001	1.000	EA	\$640.99133	GUARDRAIL ANCHORAGE, TP 1	\$640.99
0039	641-5012	1.000	EA	\$1,719.76471	GUARDRAIL ANCHORAGE, TP 12	\$1,719.76
SUBTOTAL FOR ROADWAY ITEMS:						\$1,470,576.52

0020 - EROSION CONTROL

Line Number	ITEM	QUANTITY	UNITS	PRICE	DESCRIPTION	AMOUNT
0305	163-0232	1.000	AC	\$208.33271	TEMPORARY GRASSING	\$208.33
0310	163-0240	6.000	TN	\$332.98671	MULCH	\$1,997.92
0340	163-0528	310.000	LF	\$3.56600	CONSTR AND REM FAB CK DAM -TP C SLT FN	\$1,105.46
0315	163-0550	7.000	EA	\$154.45594	CONS & REM INLET SEDIMENT TRAP	\$1,081.19
0070	165-0030	4193.000	LF	\$0.87982	MAINT OF TEMP SILT FENCE, TP C	\$3,689.09
0335	165-0041	620.000	LF	\$1.19384	MAINT OF CHECK DAMS - ALL TYPES	\$740.18
0320	165-0105	7.000	EA	\$57.17691	MAINT OF INLET SEDIMENT TRAP	\$400.24
0270	167-1000	2.000	EA	\$646.66667	WATER QUALITY MONITORING AND SAMPLING	\$1,293.33
0275	167-1500	12.000	MO	\$647.09994	WATER QUALITY INSPECTIONS	\$7,765.20
0075	171-0030	8386.000	LF	\$3.22964	TEMPORARY SILT FENCE, TYPE C	\$27,083.76
0285	700-6910	2.000	AC	\$501.07707	PERMANENT GRASSING	\$1,002.15
0290	700-7000	2.000	TN	\$2.00000	AGRICULTURAL LIME	\$4.00
0295	700-8000	2.000	TN	\$391.35826	FERTILIZER MIXED GRADE	\$782.72
0300	700-8100	67.000	LB	\$2.37431	FERTILIZER NITROGEN CONTENT	\$159.08
0280	716-2000	3050.000	SY	\$0.99491	EROSION CONTROL MATS, SLOPES	\$3,034.48
SUBTOTAL FOR EROSION CONTROL:						\$50,347.13

DETAILED COST ESTIMATE



Job: 0009953-ALT 2

0030 - SIGNING AND MARKING

Line Number	ITEM	QUANTITY	UNITS	PRICE	DESCRIPTION	AMOUNT
0085	636-1020	136.000	SF	\$14.48072	HWY SGN,TP1MAT,REFL SH TP3	\$1,969.38
0080	636-1033	108.000	SF	\$21.25320	HWY SIGNS, TP1MAT,REFL SH TP 9	\$2,295.35
0090	636-2070	468.000	LF	\$8.64718	GALV STEEL POSTS, TP 7	\$4,046.88
0040	653-0110	4.000	EA	\$67.29799	THERM PVMT MARK, ARROW, TP 1	\$269.19
0044	653-0130	12.000	EA	\$77.76883	THERM PVMT MARK, ARROW, TP 3	\$933.23
0045	653-1501	9906.000	LF	\$0.25000	THERMO SOLID TRAF ST 5 IN, WHI	\$2,476.50
0050	653-1502	4916.000	LF	\$0.25000	THERMO SOLID TRAF ST, 5 IN YEL	\$1,229.00
0060	653-1804	240.000	LF	\$2.04506	THERM SOLID TRAF STRIPE, 8",WH	\$490.81
0048	653-1810	400.000	LF	\$2.73449	THER SLD TRAF STRIPE, 10 IN, W	\$1,093.80
0055	653-3501	4920.000	GLF	\$0.21486	THERMO SKIP TRAF ST, 5 IN, WHI	\$1,057.11
0049	653-3810	200.000	GLF	\$0.70000	THER SKIP TRAF ST, 10 IN, WHT	\$140.00
0059	653-6006	442.000	SY	\$2.95678	THERM TRAF STRIPING, YELLOW	\$1,306.90
SUBTOTAL FOR SIGNING AND MARKING:						\$17,308.15

0040 - LANDSCAPING

Line Number	ITEM	QUANTITY	UNITS	PRICE	DESCRIPTION	AMOUNT
0105	700-9300	2212.000	SY	\$27.00000	SOD	\$59,724.00
0110	702-0212	3.000	EA	\$291.00000	CRATAEGUS VIRIDIS - 0009953	\$873.00
0115	702-0469	132.000	EA	\$33.00000	ILEX VOMITORIA SCHILLINGS - 0009953	\$4,356.00
0120	702-9005	8.000	LB	\$80.00000	SPRING APPLICATION FERTILIZER	\$640.00
0325	702-9025	185.000	SY	\$5.75315	LANDSCAPE MULCH	\$1,064.33
SUBTOTAL FOR LANDSCAPING :						\$66,657.33

0050 - LIGHTING

Line Number	ITEM	QUANTITY	UNITS	PRICE	DESCRIPTION	AMOUNT
0130	500-3101	13.000	CY	\$358.08031	CLASS A CONCRETE	\$4,655.04
0135	511-1000	2600.000	LB	\$1.00206	BAR REINF STEEL	\$2,605.36
0140	615-1200	380.000	LF	\$14.85101	DIRECTIONAL BORE - 0009953	\$5,643.38
0145	647-2130	5.000	EA	\$391.00000	PULL BOX, PB-3	\$1,955.00
0150	647-2140	1.000	EA	\$1,402.61586	PULL BOX, PB-4	\$1,402.62
0155	681-4220	20.000	EA	\$3,113.33333	LT STD, 40' MH, POST TOP	\$62,266.67
0160	681-6315	8.000	EA	\$975.00000	LUMINAIRE, TP 3, 105 W, LED	\$7,800.00
0165	681-6316	1.000	EA	\$1,050.00000	LUMINAIRE, TP 3, 130 W, LED	\$1,050.00
0170	681-6318	3.000	EA	\$350.00000	LUMINAIRE, TP 3, 150 W, LED	\$1,050.00
0175	681-6410	1.000	EA	\$975.00000	LUMINAIRE, TP 4, 105 W, LED	\$975.00
0180	682-1504	9335.000	LF	\$0.80000	CABLE, TP RHH/RHW, AWG NO 10	\$7,468.00
0185	682-6219	2454.000	LF	\$4.36617	CONDUIT, NONMETL, TP 2, 1 IN	\$10,714.58
0190	682-6222	21.000	LF	\$9.69197	CONDUIT, NONMETL, TP 2, 2 IN	\$203.53
0195	682-9000	1.000	LS	\$12,500.00000	MAIN SVC PICK UP POINT	\$12,500.00
0200	999-3600	2.000	EA	\$4,000.00000	TUBULAR EXTENSION	\$8,000.00
SUBTOTAL FOR LIGHTING :						\$128,289.18

0060 - DRAINAGE ITEMS

Line Number	ITEM	QUANTITY	UNITS	PRICE	DESCRIPTION	AMOUNT
0230	550-1180	381.000	LF	\$34.25914	STM DR PIPE 18",H 1-10	\$13,052.73
0240	550-2180	151.000	LF	\$27.82834	SIDE DR PIPE 18",H 1-10	\$4,202.08
0260	550-4118	3.000	EA	\$409.24631	FLARED END SECT 18 IN, SIDE DR	\$1,227.74
0250	550-4218	4.000	EA	\$553.53092	FLARED END SECT 18 IN, ST DR	\$2,214.12
0235	668-1100	8.000	EA	\$2,533.67933	CATCH BASIN, GP 1	\$20,269.43
SUBTOTAL FOR DRAINAGE ITEMS:						\$40,966.10

TOTALS FOR JOB 0009953-ALT 2

ITEMS COST:	\$1,774,144.41
COST GROUP COST:	\$0.00
ESTIMATED COST:	\$1,739,575.24
CONTINGENCY PERCENT:	0.00
ENGINEERING AND INSPECTION:	0.05
ESTIMATED COST WITH CONTINGENCY AND E&I:	\$1,826,554.00

PROJ. NO.: Single Lane with Hybrid Footprint

P.I. NO. 0009953

DATE: 3/19/2013

Base Construction Cost		\$	1,739,575.24
E & I	5%	\$	86,978.76
Construction Contingency		\$	-
Subtotal Construction Cost		\$	<u>1,826,554.00</u>
Liquid AC Adjustment (50 % cap)		\$	<u>170,381.63</u>
Total Construction Cost		\$	<u>1,996,935.63</u>

PROJ. NO.

Single Lane with Hybrid Footprint

CALL NO.

P.I. NO.

0009953

DATE

3/19/2013

INDEX (TYPE)

REG. UNLEADED

Feb-13

\$ 3.683

DIESEL

\$ 4.092

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)

166902.12

\$

166,902.12

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)

490.6

ASPHALT	Tons	%AC	AC ton
Leveling		5.0%	0
12.5 OGFC		5.0%	0
12.5 mm	1923	5.0%	96.15
9.5 mm SP		5.0%	0
25 mm SP	5325	5.0%	266.25
19 mm SP	2564	5.0%	128.2
	9812		490.6

BITUMINOUS TACK COAT

Price Adjustment (PA)

\$ 2,121.65

\$

2,121.65

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)

6.236486539

Bitum Tack

Gals	gals/ton	tons
1452	232.8234	6.23648654

PROJ. NO.

Single Lane with Hybrid Footprint

CALL NO.

P.I. NO.

0009953

DATE

3/19/2013

BITUMINOUS TACK COAT (surface treatment)

Price Adjustment (PA)					1357.857741	\$	1,357.86
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)					3.991351385		

Bitum Tack	SY	Gals/SY	Gals	gals/ton	tons
Single Surf. Trmt.	1452	0.20	290.4	232.8234	1.247297308
Double Surf.Trmt.	1452	0.44	638.88	232.8234	2.744054077
Triple Surf. Trmt		0.71	0	232.8234	0
					3.991351385

TOTAL LIQUID AC ADJUSTMENT						\$	170,381.63
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**GEORGIA DEPARTMENT OF TRANSPORTATION
PRELIMINARY ROW COST ESTIMATE SUMMARY**

Attachment # 3c

Date: 12/5/2012 Project: 0009953
 Revised: County: Walton
 PI: 0009953

Description: SR81 @ CR 461 /CR 462 /Bold Spring
 Project Termini: SR81 @ CR 461 /CR 462 /Bold Spring

Existing ROW: Varies
 Required ROW: Varies
 Parcels: 10

Land and Improvements _____ \$216,225.00

Proximity Damage	\$0.00
Consequential Damage	\$0.00
Cost to Cures	\$0.00
Trade Fixtures	\$0.00
Improvements	\$30,000.00

Valuation Services _____ \$17,500.00

Legal Services _____ \$81,750.00

Relocation _____ \$20,000.00

Demolition _____ \$0.00

Administrative _____ \$87,500.00

TOTAL ESTIMATED COSTS _____ \$422,975.00

TOTAL ESTIMATED COSTS (ROUNDED) _____ \$423,000.00

Preparation Credits	Hours	Signature

Prepared By: Lashore Alexander CG#: 286999 12/05/2012
 Approved By: Lashore Alexander CG#: 286999 12/05/2012

NOTE: No Market Appreciation is included in this Preliminary Cost Estimate

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

INTERDEPARTMENT CORRESPONDENCE

FILE 0009953, Walton Co. **OFFICE** Gainesville
P.I. No. 0009953
SR 81 at CR 461/CR462/Bold Springs Rd **DATE** December 4, 2012

FROM Neil Kantner, P.E. *(NAK)*
District Utilities Engineer

TO Charles A. Robinson, Project Manager, Office of Program Delivery

SUBJECT PRELIMINARY UTILITY COST (ESTIMATE)

As requested by your office, we are furnishing you with a Preliminary Utility Cost estimate for the subject project.

FACILITY OWNER	NON-REIMBURSABLE	REIMBURSABLE
Walton EMC	\$20,000.00	\$ 0.00
City of Buford-Gas	\$71,750.00	\$284,500.00
Walton County- Water	\$ 0.00	\$ 0.00
Windstream Communications	\$52,000.00	\$255,000.00
Comcast CATV	\$16,500.00	\$ 0.00
TOTAL	\$140,250.00	\$539,500.00

If you have any questions, please contact Neil Kantner at 770-532-5510.

NAK

C: Jeff Baker, State Utilities Engineer
Angie Robinson, Office of Financial Management
Dana Garrison, Area Engineer
File

Walton County

P.I. Number: 0009953

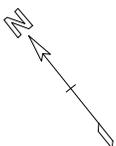
Crash Summaries

Crash History:

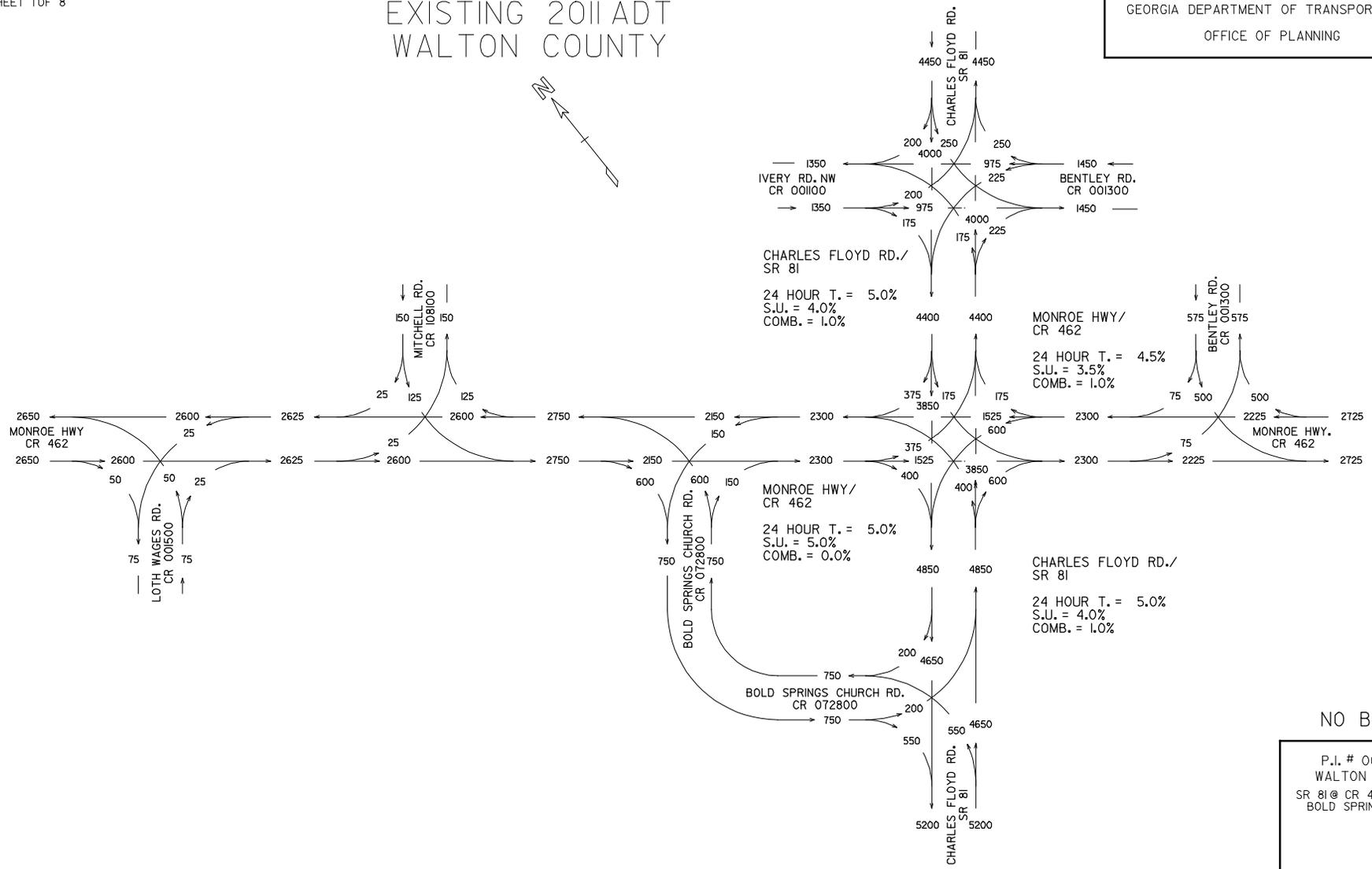
Year	Total Crashes	Crash Types						Severity		
		Angle	Rear End	Head On	Fixed Object	Sideswipe Same	Other	PDO	Injury	Fatal
2005	4	3	0	0	1	0	0	2	2	0
2006	17	10	5	1	1	0	0	13	4	0
2007	9	8	0	0	1	0	0	7	2	0
2008	3	1	1	0	0	1	0	3	0	0
2009	5	2	2	0	1	0	0	3	2	0
2010	11	8	3	0	0	0	0	6	5	0
2011	7	4	0	1	0	0	2	7	0	0
Total	56	36	11	2	4	1	2	41	15	0

SHEET 1 OF 8

EXISTING 2011 ADT WALTON COUNTY



GEORGIA DEPARTMENT OF TRANSPORTATION
OFFICE OF PLANNING



NO BUILD

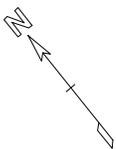
P.L. # 0009953
WALTON COUNTY
SR 81 @ CR 461/CR 462/
BOLD SPRINGS ROAD.

NOT TO SCALE

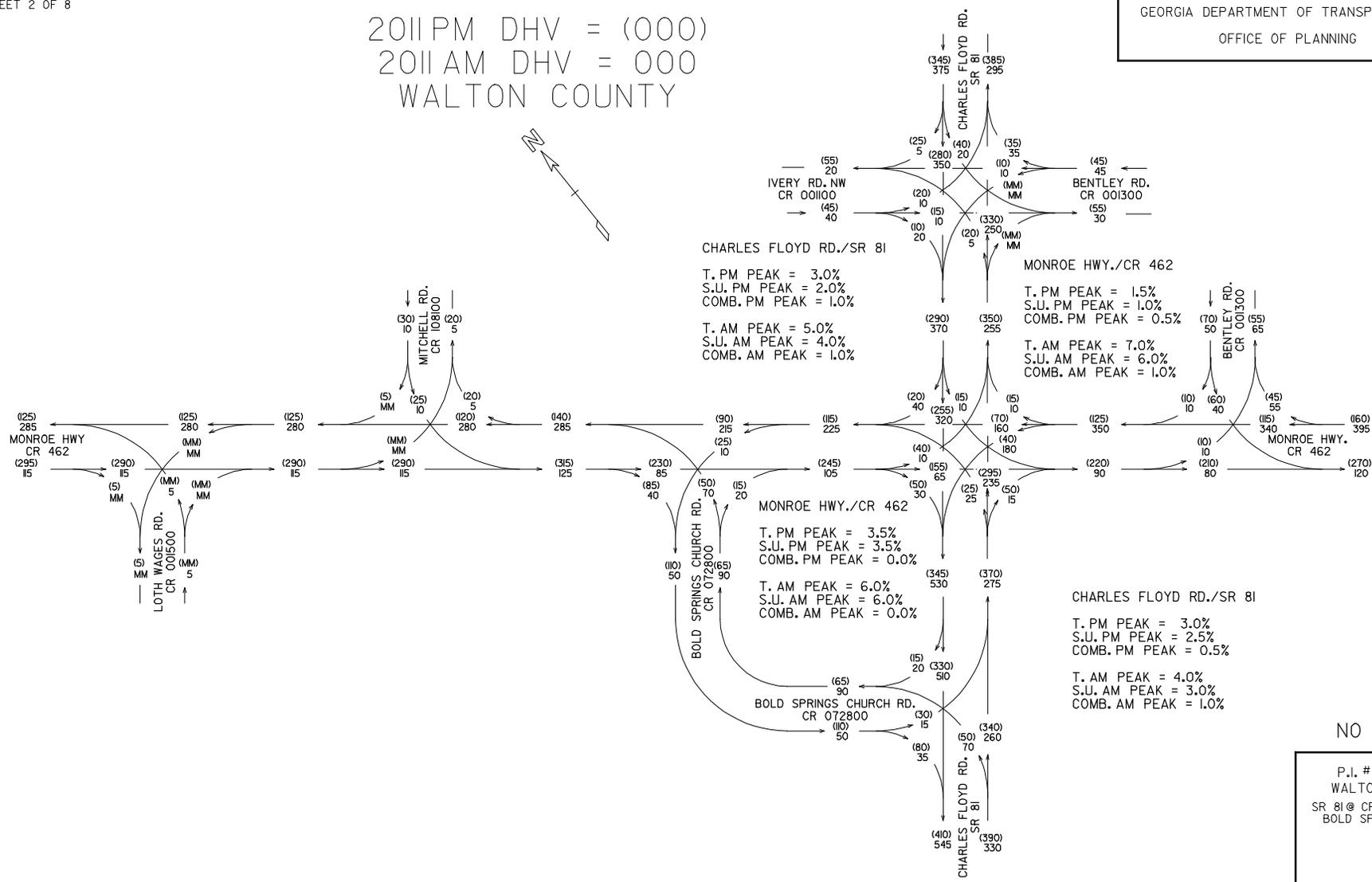
MTW
11/11

SHEET 2 OF 8

2011 PM DHV = (000)
 2011 AM DHV = 000
 WALTON COUNTY



GEORGIA DEPARTMENT OF TRANSPORTATION
 OFFICE OF PLANNING



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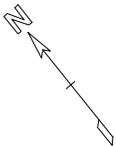
P.I. # 0009953
 WALTON COUNTY
 SR 81 @ CR 461/CR 462/
 BOLD SPRINGS ROAD.

NOT TO SCALE

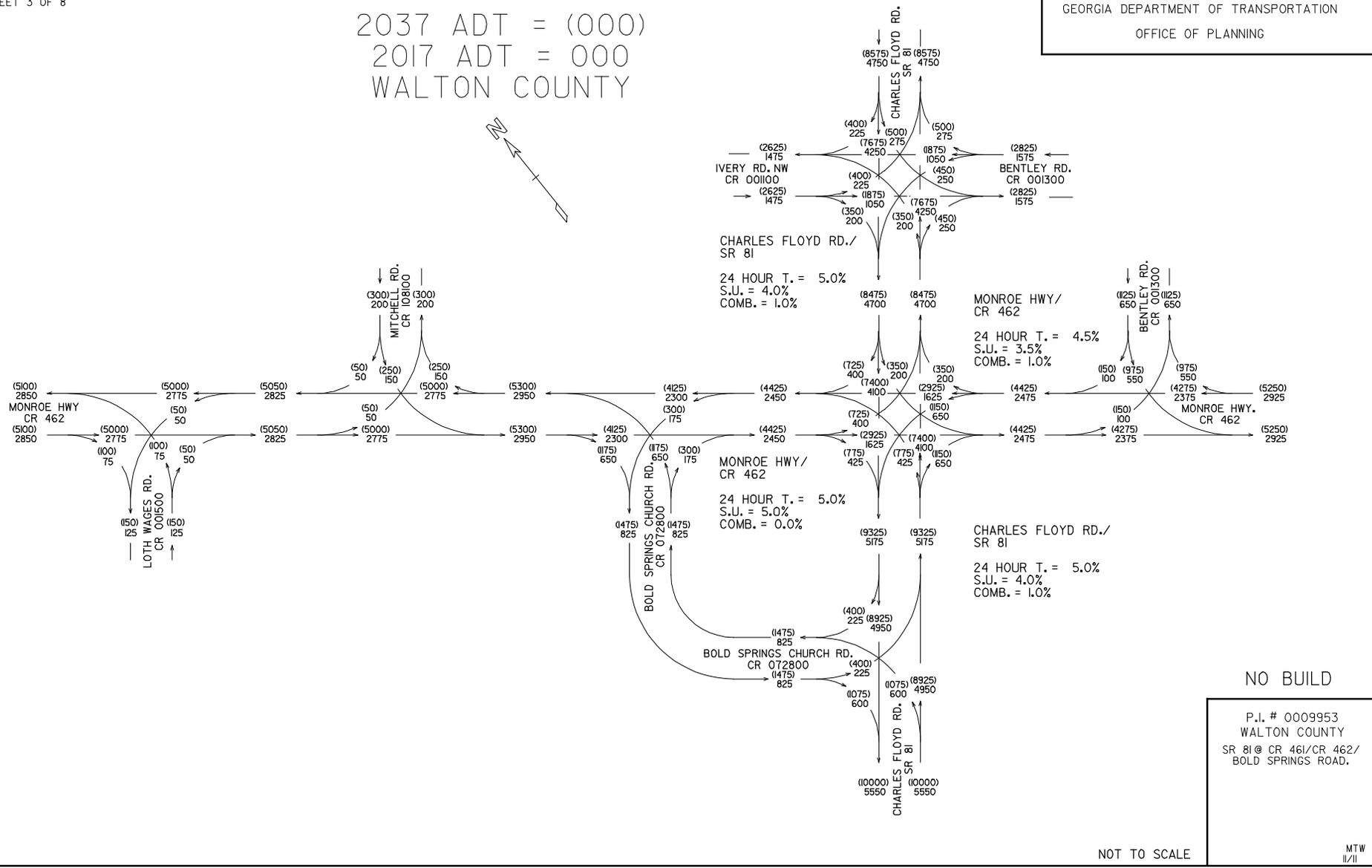
MTW
 11/11

SHEET 3 OF 8

2037 ADT = (000)
 2017 ADT = 000
 WALTON COUNTY



GEORGIA DEPARTMENT OF TRANSPORTATION
 OFFICE OF PLANNING



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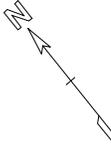
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 WALTON COUNTY
 SR 81 @ CR 461/CR 462/
 BOLD SPRINGS ROAD.

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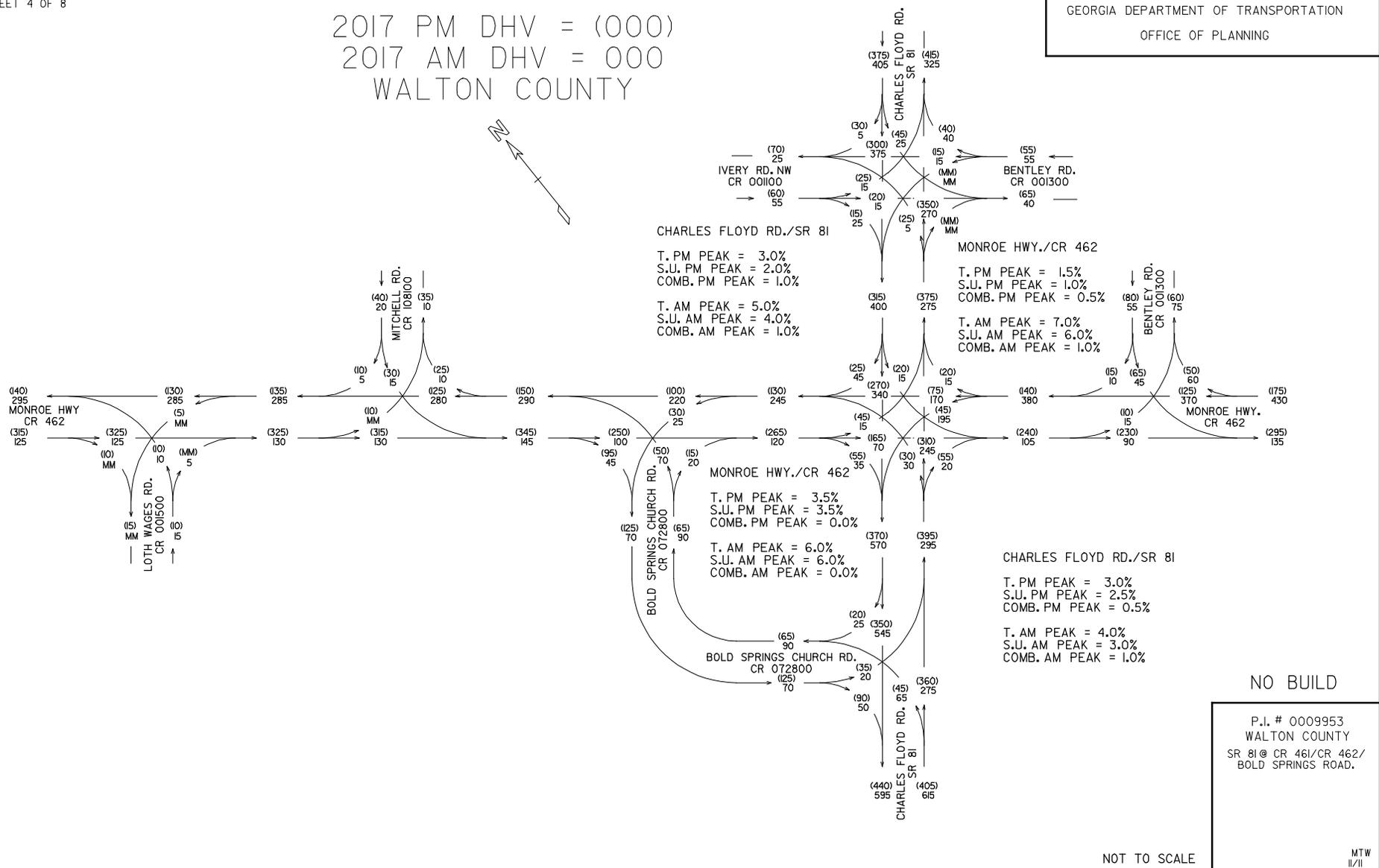
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SHEET 4 OF 8

2017 PM DHV = (000)
 2017 AM DHV = 000
 WALTON COUNTY



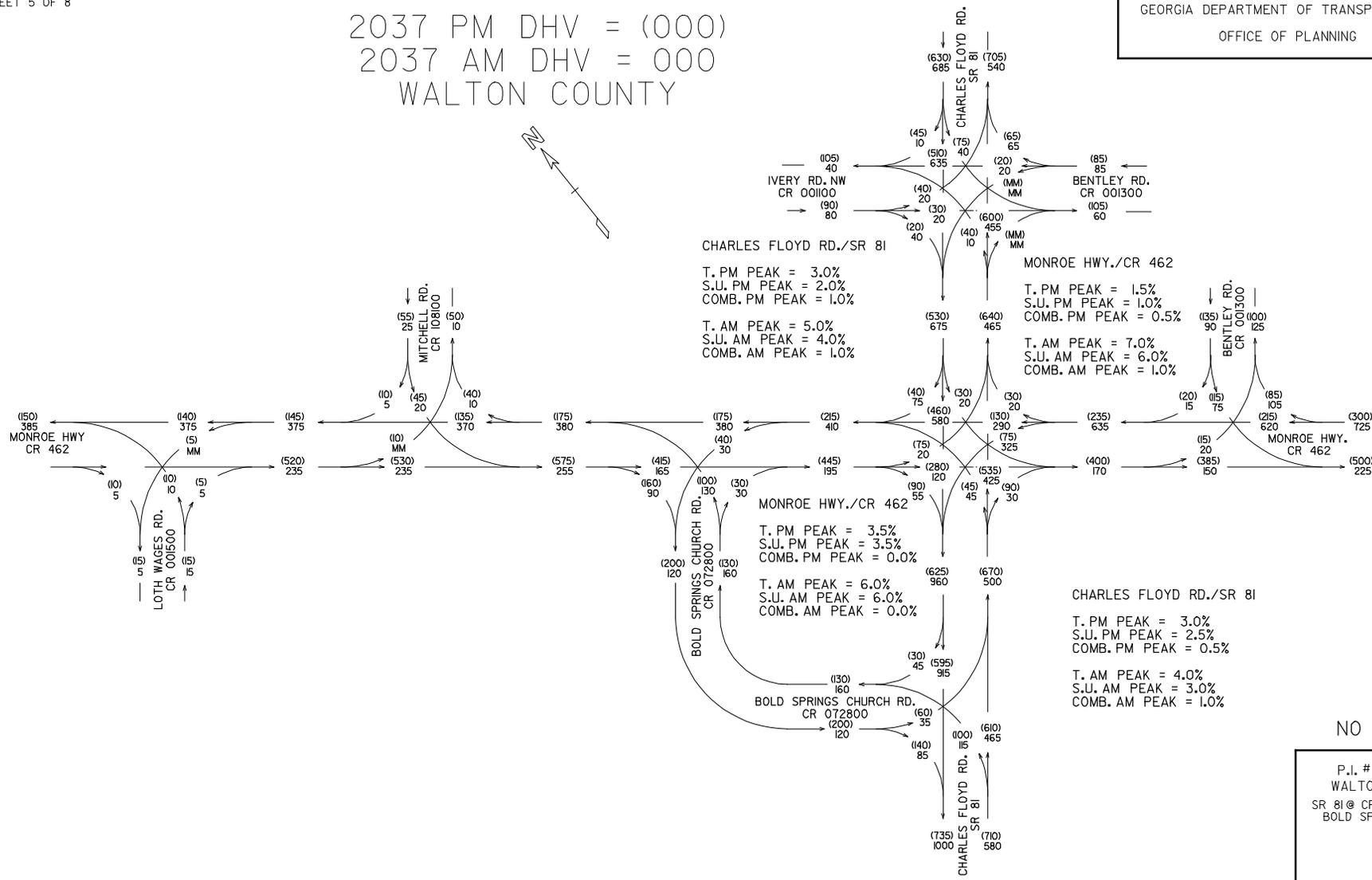
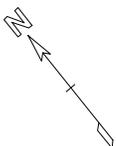
GEORGIA DEPARTMENT OF TRANSPORTATION
 OFFICE OF PLANNING



SHEET 5 OF 8

2037 PM DHV = (000)
 2037 AM DHV = 000
 WALTON COUNTY

GEORGIA DEPARTMENT OF TRANSPORTATION
 OFFICE OF PLANNING



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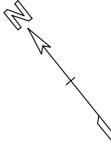
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 WALTON COUNTY
 SR 81 @ CR 461/CR 462/
 BOLD SPRINGS ROAD.

NOT TO SCALE

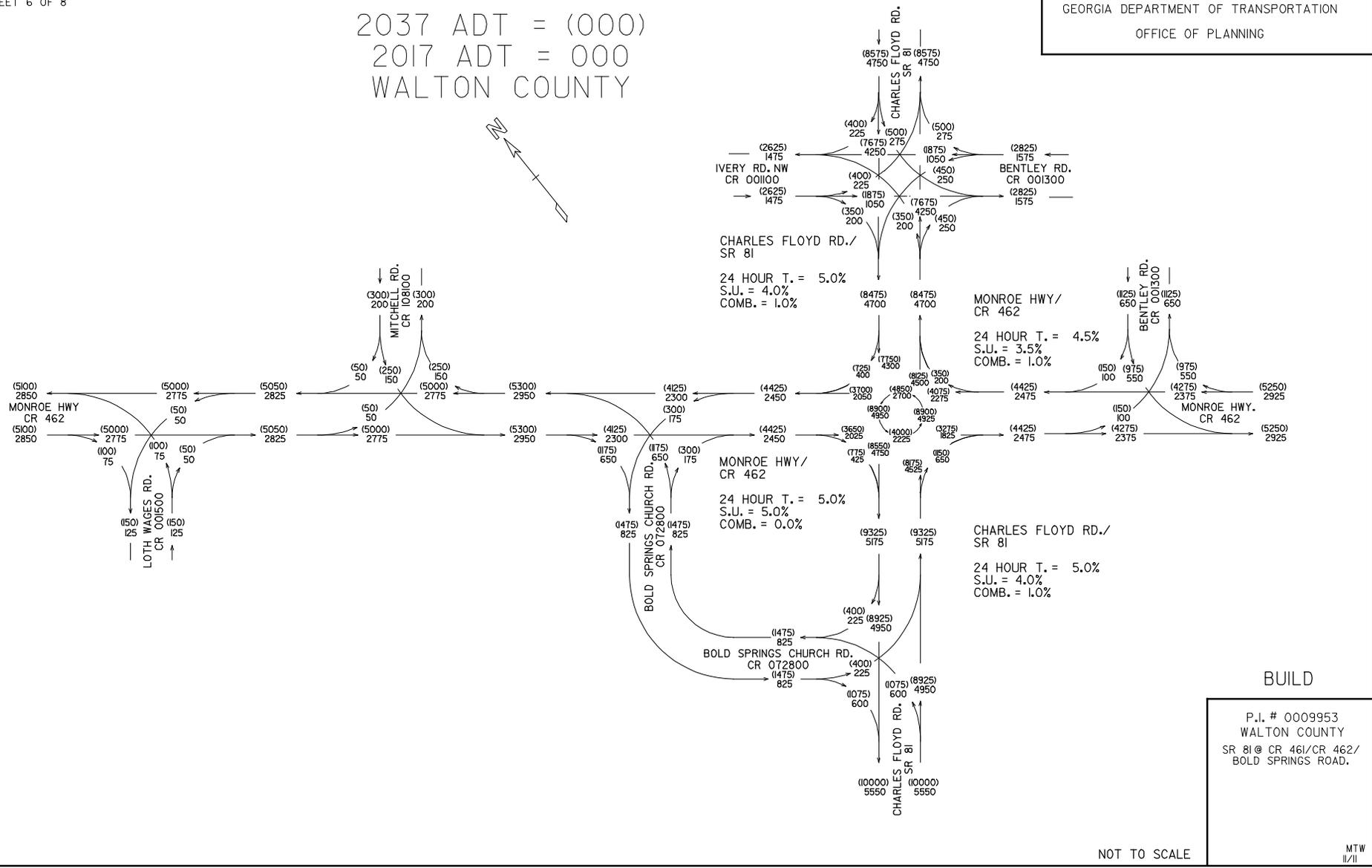
MTW
 11/11

SHEET 6 OF 8

2037 ADT = (000)
 2017 ADT = 000
 WALTON COUNTY



GEORGIA DEPARTMENT OF TRANSPORTATION
 OFFICE OF PLANNING



BUILD

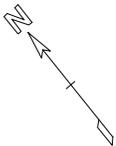
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 WALTON COUNTY
 SR 81 @ CR 461/CR 462/
 BOLD SPRINGS ROAD.

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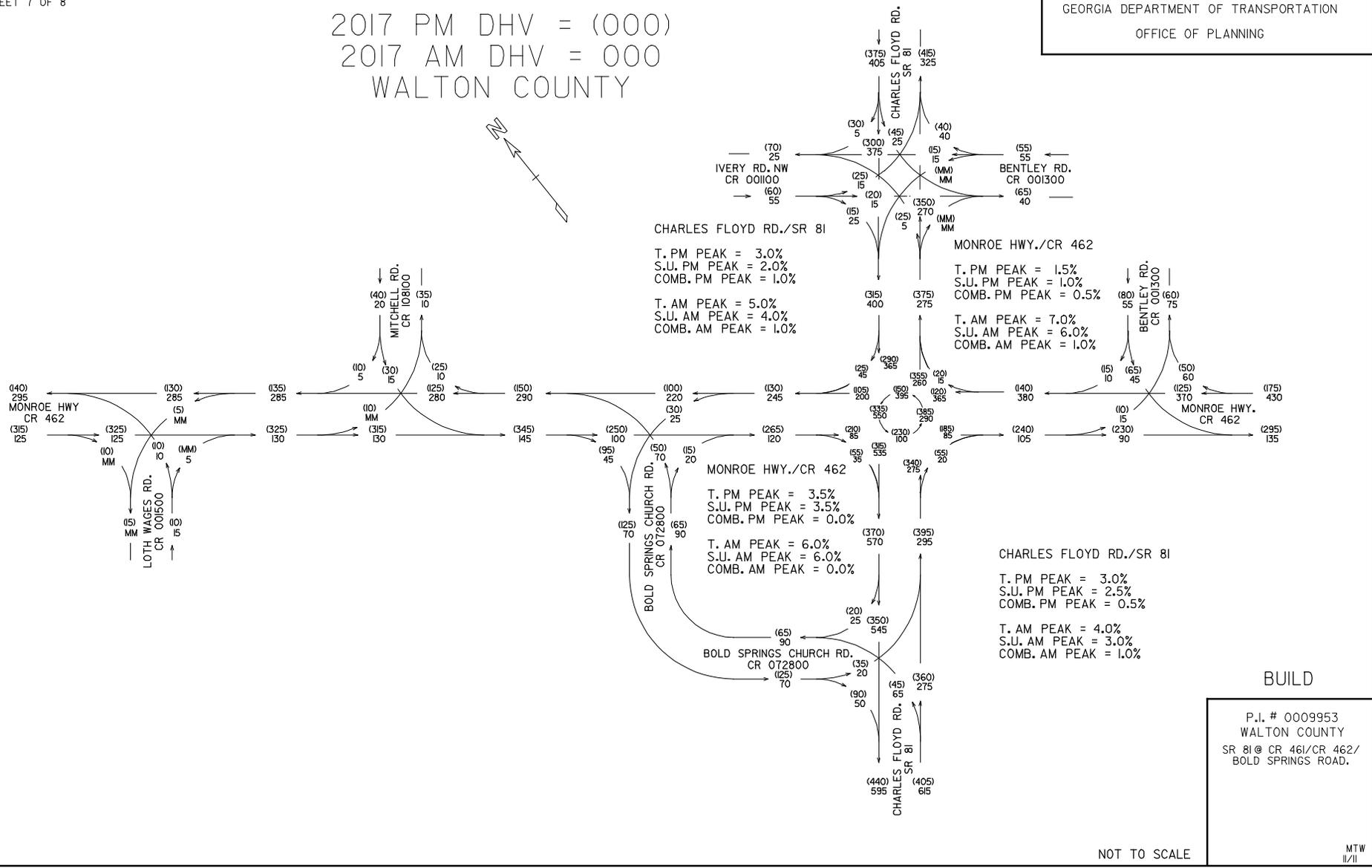
MTW
 11/11

SHEET 7 OF 8

2017 PM DHV = (000)
 2017 AM DHV = 000
 WALTON COUNTY



GEORGIA DEPARTMENT OF TRANSPORTATION
 OFFICE OF PLANNING



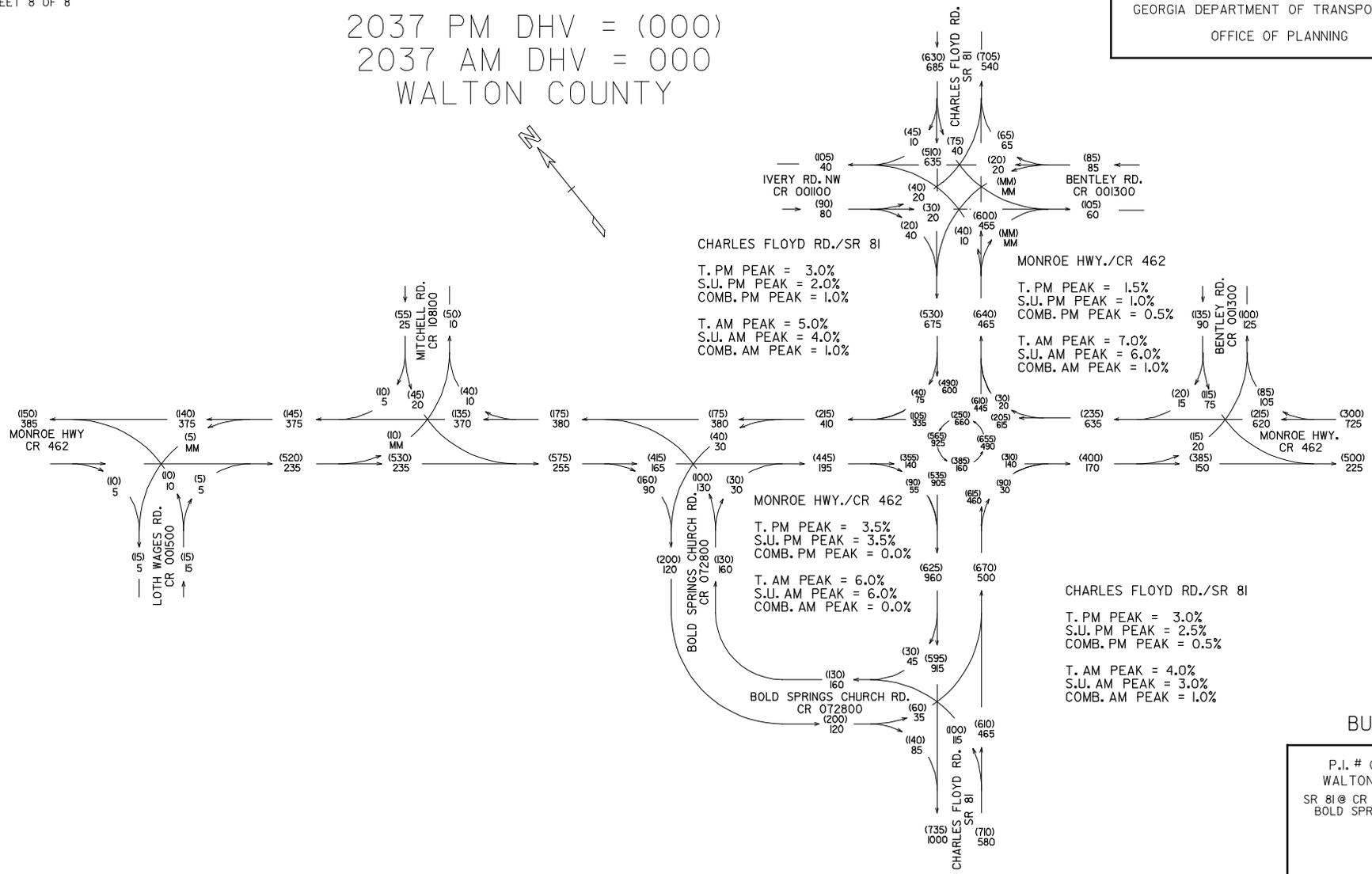
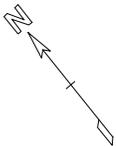
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MTW
 11/11

SHEET 8 OF 8

2037 PM DHV = (000)
 2037 AM DHV = 000
 WALTON COUNTY

GEORGIA DEPARTMENT OF TRANSPORTATION
 OFFICE OF PLANNING



BUILD

P.I. # 0009953
 WALTON COUNTY
 SR 81 @ CR 461/CR 462/
 BOLD SPRINGS ROAD.

NOT TO SCALE

MTW
 11/11

LANE SUMMARY**Site: 2017 AM Peak Single Lane**

SR 81 at Bold Springs Road
 MUTCD (FHWA 2009) example number: 2B-22
 Roundabout Guide (TRB 2010) example number: A-1

Roundabout

Lane Use and Performance																
	Demand Flows			Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue		Lane Length ft	SL Type	Cap. Adj. %	Prob. Block. %
	L veh/h	T veh/h	R veh/h								Vehicles veh	Distance ft				
South: SR 81																
Lane 1	34	278	23	335	4.0	1244	0.269	100	6.6	LOS A	1.4	37.2	1600	-	0.0	0.0
Approach	34	278	23	335	4.0		0.269		6.6	LOS A	1.4	37.2				
East: Bold Springs Road																
Lane 1	222	193	17	432	7.0	993	0.435	100	12.0	LOS B	2.5	66.8	1600	-	0.0	0.0
Approach	222	193	17	432	7.0		0.435		12.0	LOS B	2.5	66.8				
North: SR 81																
Lane 1	17	386	51	455	5.0	892	0.510	100	9.1	LOS A	3.6	94.6	1600	-	0.0	0.0
Approach	17	386	51	455	5.0		0.510		9.1	LOS A	3.6	94.6				
West: Bold Springs Road																
Lane 1	17	80	40	136	6.0	762	0.179	100	10.2	LOS B	1.0	25.4	1600	-	0.0	0.0
Approach	17	80	40	136	6.0		0.179		10.2	LOS B	1.0	25.4				
Intersection				1358	5.5		0.510		9.5	LOS A	3.6	94.6				

Level of Service (LOS) Method: Delay (HCM 2000).

Roundabout LOS Method: Same as Sign Control.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model used.

LANE SUMMARY**Site: 2037 AM Peak Single Lane**

SR 81 at Bold Springs Road
 Roundabout with 1-lane approaches and circulating road
 MUTCD (FHWA 2009) example number: 2B-22
 Roundabout Guide (TRB 2010) example number: A-1

Roundabout

Lane Use and Performance																
	Demand Flows						Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue		Lane Length ft	SL Type	Cap. Adj. %	Prob. Block. %
	L veh/h	T veh/h	R veh/h	Total veh/h	HV %	Cap. veh/h					Vehicles veh	Distance ft				
South: SR 81																
Lane 1	51	483	34	568	4.0	1261	0.450	100	7.4	LOS A	2.8	72.8	1600	-	0.0	0.0
Approach	51	483	34	568	4.0		0.450		7.4	LOS A	2.8	72.8				
East: Bold Springs Road																
Lane 1	369	330	23	722	7.0	856	0.843	100	26.4	LOS D	9.0	237.4	1600	-	0.0	0.0
Approach	369	330	23	722	7.0		0.843		26.4	LOS D	9.0	237.4				
North: SR 81																
Lane 1	23	659	85	767	5.0	623	1.232	100	139.9	LOS F	56.0	1455.1	1600	-	0.0	2.3
Approach	23	659	85	767	5.0		1.232		139.9	LOS F	56.0	1455.1				
West: Bold Springs Road																
Lane 1	23	136	63	222	6.0	577	0.384	100	12.0	LOS A	1.6	42.5	1600	-	0.0	0.0
Approach	23	136	63	222	6.0		0.384		12.0	LOS A	1.6	42.5				
Intersection				2278	5.5		1.232		58.5	LOS F	56.0	1455.1				

Level of Service (LOS) Method: Degree of Saturation (SIDRA METHOD).

Roundabout LOS Method: Same as Sign Control.

Lane LOS values are based on degree of saturation per lane.

Intersection and Approach LOS values are based on worst degree of saturation for any lane.

Roundabout Capacity Model: SIDRA Standard.

HCM Delay Model used. Geometric Delay not included.

LANE SUMMARY

Site: 2017 AM PEAK Hybrid- North
Leg Only

SR 81 at Bold Springs Road
Roundabout with 1-lane approaches and circulating road
MUTCD (FHWA 2009) example number: 2B-22
Roundabout Guide (TRB 2010) example number: A-1

Roundabout

Lane Use and Performance																	
	Demand Flows						Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Length	SL Type	Cap. Adj.	Prob. Block.	
	L	T	R	Total	HV %	Cap. veh/h					Vehicles	Distance					
	veh/h	veh/h	veh/h	veh/h	%	veh/h	v/c	%	sec			veh	ft	ft		%	%
South: SR 81																	
Lane 1	34	278	23	335	4.0	1279	0.262	100	0.9	LOS A	1.4	34.9	1600	-	0.0	0.0	
Approach	34	278	23	335	4.0		0.262		0.9	LOS A	1.4	34.9					
East: Bold Springs Road																	
Lane 1	222	193	17	432	7.0	1024	0.422	100	4.1	LOS A	2.4	64.2	1600	-	0.0	0.0	
Approach	222	193	17	432	7.0		0.422		4.1	LOS A	2.4	64.2					
North: SR 81																	
Lane 1	17	239	0	256	5.0	1184	0.217	100	1.9	LOS A	1.3	32.6	1600	-	0.0	0.0	
Lane 2	0	147	51	198	5.0	962	0.206	95 ⁶	2.1	LOS A	1.1	28.7	1600	-	0.0	0.0	
Approach	17	386	51	455	5.0		0.217		2.0	LOS A	1.3	32.6					
West: Bold Springs Road																	
Lane 1	17	80	40	136	6.0	774	0.176	100	2.7	LOS A	0.6	17.0	1600	-	0.0	0.0	
Approach	17	80	40	136	6.0		0.176		2.7	LOS A	0.6	17.0					
Intersection				1358	5.5		0.422		2.5	LOS A	2.4	64.2					

Level of Service (LOS) Method: Delay (HCM 2000).

Roundabout LOS Method: Same as Sign Control.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model used.

6 Lane underutilisation due to downstream effects

LANE SUMMARY

SR 81 at Bold Springs Road
 Roundabout with 1-lane approaches and circulating road
 MUTCD (FHWA 2009) example number: 2B-22
 Roundabout Guide (TRB 2010) example number: A-1

Roundabout

Lane Use and Performance																
	Demand Flows						Deg. Satn	Lane Util.	Average Delay	Level of Service	95% Back of Queue		Lane Length	SL Type	Cap. Adj.	Prob. Block.
	L	T	R	Total	HV %	Cap. veh/h					Vehicles	Distance				
	veh/h	veh/h	veh/h	veh/h	%	veh/h	v/c	%	sec		veh	ft	ft		%	%
South: SR 81																
Lane 1	51	483	34	568	4.0	1314	0.432	100	1.2	LOS A	2.9	74.3	1600	-	0.0	0.0
Approach	51	483	34	568	4.0		0.432		1.2	LOS A	2.9	74.3				
East: Bold Springs Road																
Lane 1	369	330	23	722	7.0	951	0.759	100	10.3	LOS B	9.6	252.2	1600	-	0.0	0.0
Approach	369	330	23	722	7.0		0.759		10.3	LOS B	9.6	252.2				
North: SR 81																
Lane 1	23	429	0	452	5.0	916	0.494	100	4.7	LOS A	4.7	122.3	1600	-	0.0	0.0
Lane 2	0	230	85	315	5.0	672	0.469	95 ⁶	5.7	LOS A	3.8	98.9	1600	-	0.0	0.0
Approach	23	659	85	767	5.0		0.494		5.1	LOS A	4.7	122.3				
West: Bold Springs Road																
Lane 1	23	136	63	222	6.0	604	0.367	100	5.1	LOS A	2.0	51.2	1600	-	0.0	0.0
Approach	23	136	63	222	6.0		0.367		5.1	LOS A	2.0	51.2				
Intersection				2278	5.5		0.759		5.8	LOS A	9.6	252.2				

Level of Service (LOS) Method: Delay (HCM 2000).

Roundabout LOS Method: Same as Sign Control.

Lane LOS values are based on average delay per lane.

Intersection and Approach LOS values are based on average delay for all lanes.

Roundabout Capacity Model: SIDRA Standard.

SIDRA Standard Delay Model used.

6 Lane underutilisation due to downstream effects

ALL-WAY STOP CONTROL ANALYSIS									
General Information					Site Information				
Analyst	LAKESHIA OSBORN				Intersection	SR 81 @ BOLD SPRINGS ROAD			
Agency/Co.	GDOT				Jurisdiction	WALTON COUNTY			
Date Performed	12/6/2011				Analysis Year	2017			
Analysis Time Period	AM PEAK								
Project ID P# 0009953									
East/West Street: BOLD SPRINGS ROAD					North/South Street: SR 81				
Volume Adjustments and Site Characteristics									
Approach	Eastbound					Westbound			
Movement	L	T	R	L	T	R			
Volume (veh/h)	15	70	35	195	170	15			
%Thrus Left Lane									
Approach	Northbound					Southbound			
Movement	L	T	R	L	T	R			
Volume (veh/h)	30	245	20	15	340	45			
%Thrus Left Lane									
	Eastbound		Westbound		Northbound		Southbound		
	L1	L2	L1	L2	L1	L2	L1	L2	
Configuration	LT	R	LT	R	LT	R	LT	R	
PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	
Flow Rate (veh/h)	96	39	414	17	312	22	403	51	
% Heavy Vehicles	6	6	7	7	4	4	5	5	
No. Lanes	2		2		2		2		
Geometry Group	5		5		5		5		
Duration, T	0.25								
Saturation Headway Adjustment Worksheet									
Prop. Left-Turns	0.2	0.0	0.5	0.0	0.1	0.0	0.0	0.0	
Prop. Right-Turns	0.0	1.0	0.0	1.0	0.0	1.0	0.0	1.0	
Prop. Heavy Vehicle	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	
hLT-adj	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
hRT-adj	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	
hadj, computed	0.2	-0.6	0.4	-0.6	0.1	-0.6	0.1	-0.6	
Departure Headway and Service Time									
hd, initial value (s)	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	
x, initial	0.09	0.03	0.37	0.02	0.28	0.02	0.36	0.05	
hd, final value (s)	8.43	7.64	7.74	6.77	7.69	6.93	7.45	6.73	
x, final value	0.22	0.08	0.89	0.03	0.67	0.04	0.83	0.10	
Move-up time, m (s)	2.3		2.3		2.3		2.3		
Service Time, t _s (s)	6.1	5.3	5.4	4.5	5.4	4.6	5.2	4.4	
Capacity and Level of Service									
	Eastbound		Westbound		Northbound		Southbound		
	L1	L2	L1	L2	L1	L2	L1	L2	
Capacity (veh/h)	346	289	460	267	453	272	476	301	
Delay (s/veh)	13.55	11.03	46.63	9.70	24.43	9.94	37.59	10.14	
LOS	B	B	E	A	C	A	E	B	
Approach: Delay (s/veh)	12.82		45.17		23.48		34.50		
LOS	B		E		C		D		
Intersection Delay (s/veh)	33.02								
Intersection LOS	D								

ALL-WAY STOP CONTROL ANALYSIS									
General Information					Site Information				
Analyst	LAKESHIA OSBORN				Intersection	SR 81 @ BOLD SPRINGS ROAD			
Agency/Co.	GDOT				Jurisdiction	WALTON COUNTY			
Date Performed	12/6/2011				Analysis Year	2037			
Analysis Time Period									
Project ID P# 0009953									
East/West Street: BOLD SPRINGS ROAD					North/South Street: SR 81				
Volume Adjustments and Site Characteristics									
Approach	Eastbound			Westbound			Southbound		
Movement	L	T	R	L	T	R	L	R	
Volume (veh/h)	20	120	55	325	290	20			
% Thrus Left Lane									
Approach	Northbound			Southbound					
Movement	L	T	R	L	T	R			
Volume (veh/h)	45	425	30	20	580	75			
% Thrus Left Lane									
	Eastbound		Westbound		Northbound		Southbound		
	L1	L2	L1	L2	L1	L2	L1	L2	
Configuration	LT	R	LT	R	LT	R	LT	R	
PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	
Flow Rate (veh/h)	158	62	698	22	533	34	681	85	
% Heavy Vehicles	6	6	7	7	4	4	5	5	
No. Lanes	2		2		2		2		
Geometry Group	5		5		5		5		
Duration, T	0.25								
Saturation Headway Adjustment Worksheet									
Prop. Left-Turns	0.1	0.0	0.5	0.0	0.1	0.0	0.0	0.0	
Prop. Right-Turns	0.0	1.0	0.0	1.0	0.0	1.0	0.0	1.0	
Prop. Heavy Vehicle	0.1	0.1	0.1	0.1	0.0	0.0	0.0	0.0	
hLT-adj	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	
hRT-adj	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	-0.7	
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	
hadj, computed	0.2	-0.6	0.4	-0.6	0.1	-0.6	0.1	-0.6	
Departure Headway and Service Time									
hd, initial value (s)	3.20	3.20	3.20	3.20	3.20	3.20	3.20	3.20	
x, initial	0.14	0.06	0.62	0.02	0.47	0.03	0.61	0.08	
hd, final value (s)	9.45	8.68	8.78	7.82	8.51	7.76	8.48	7.76	
x, final value	0.41	0.15	1.70	0.05	1.26	0.07	1.60	0.18	
Move-up time, m (s)	2.3		2.3		2.3		2.3		
Service Time, t _s (s)	7.2	6.4	6.5	5.5	6.2	5.5	6.2	5.5	
Capacity and Level of Service									
	Eastbound		Westbound		Northbound		Southbound		
	L1	L2	L1	L2	L1	L2	L1	L2	
Capacity (veh/h)	381	312	698	272	533	284	681	335	
Delay (s/veh)	18.69	12.90	347.72	10.91	160.39	11.07	303.67	12.19	
LOS	C	B	F	B	F	B	F	B	
Approach: Delay (s/veh)	17.06		337.42		151.44		271.33		
LOS	C		F		F		F		
Intersection Delay (s/veh)	237.75								
Intersection LOS	F								

Alternate 4: 2017 AM Peak Traffic Signal

3: Int

1/15/2013

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		250	200		250	150		300	150		300
Storage Lanes	1		1	1		1	1		1	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1703	1792	1524	1687	1776	1509	1736	1827	1553	1719	1810	1538
Flt Permitted	0.636			0.571			0.385			0.518		
Satd. Flow (perm)	1140	1792	1524	1014	1776	1509	703	1827	1553	937	1810	1538
Right Turn on Red			Yes			Yes		Yes			Yes	
Satd. Flow (RTOR)			40			17		23			51	
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		4080			4784			4608			4256	
Travel Time (s)		92.7			108.7			104.7			96.7	
Volume (vph)	45	70	35	195	170	15	30	245	20	15	340	45
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	6%	6%	6%	7%	7%	7%	4%	4%	4%	5%	5%	5%
Adj. Flow (vph)	51	80	40	222	193	17	34	278	23	17	386	51
Lane Group Flow (vph)	51	80	40	222	193	17	34	278	23	17	386	51
Turn Type	Perm		Perm	pm+pt		Perm	Perm		Perm	Perm		Perm
Protected Phases		4		3	8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phases	4	4	4	3	8	8	2	2	2	6	6	6
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0	21.0	21.0	8.5	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	21.0	21.0	21.0	10.0	31.0	31.0	24.0	24.0	24.0	24.0	24.0	24.0
Total Split (%)	38%	38%	38%	18%	56%	56%	44%	44%	44%	44%	44%	44%
Maximum Green (s)	16.0	16.0	16.0	5.5	26.0	26.0	19.0	19.0	19.0	19.0	19.0	19.0
Yellow Time (s)	4.0	4.0	4.0	3.5	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?	Yes	Yes	Yes	Yes								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	Coord	Coord	Coord	Coord	Coord	Coord
Walk Time (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0		0	0	0	0	0	0	0	0
Act Effct Green (s)	8.9	8.9	8.9	17.0	17.0	17.0	30.0	30.0	30.0	30.0	30.0	30.0
Actuated g/C Ratio	0.16	0.16	0.16	0.31	0.31	0.31	0.55	0.55	0.55	0.55	0.55	0.55
v/c Ratio	0.28	0.28	0.14	0.57	0.35	0.04	0.09	0.28	0.03	0.03	0.39	0.06
Uniform Delay, d1	21.2	21.2	0.0	14.3	14.0	0.0	6.4	7.2	0.0	6.2	7.8	0.0
Delay	19.6	19.6	7.4	14.1	13.4	5.7	8.3	8.4	4.0	7.9	9.0	3.0
LOS	B	B	A	B	B	A	A	A	A	A	A	A

Turn Lanes on All Approaches

Synchro 5 Report

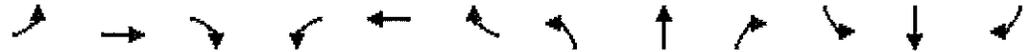
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GEORGILVL7-AA51

Alternate 4: 2017 AM Peak Traffic Signal

3: Int

1/15/2013



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		16.7			13.4			8.1			8.3	
Approach LOS		B			B			A			A	
Queue Length 50th (ft)	15	23	0	54	46	0	5	47	0	2	70	0
Queue Length 95th (ft)	37	50	19	89	77	9	19	96	0	11	138	0
Internal Link Dist (ft)		4000			4704			4528			4176	
50th Up Block Time (%)												
95th Up Block Time (%)												
Turn Bay Length (ft)	200		250	200		250	150		300	150		300
50th Bay Block Time %												
95th Bay Block Time %											7%	
Queuing Penalty (veh)												

Intersection Summary

Area Type: Other
 Cycle Length: 55
 Actuated Cycle Length: 55
 Offset: 8 (15%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green
 Natural Cycle: 55
 Control Type: Actuated-Coordinated
 Maximum v/c Ratio: 0.57
 Intersection Signal Delay: 10.9
 Intersection Capacity Utilization 45.9%
 Intersection LOS: B
 ICU Level of Service A

Splits and Phases: 3: Int

ø2	ø3	ø4
24 s	10 s	21 s
ø6	ø8	
24 s	31 s	

Alternate 4: 2037 AM Peak Signal

3: Int

1/15/2013



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗	↘	↖	↗	↘	↖	↗	↘	↖	↗	↘
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	200		0	150		300	150		300
Storage Lanes	1		1	1		1	1		1	1		1
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Leading Detector (ft)	50	50	50	50	50	50	50	50	50	50	50	50
Trailing Detector (ft)	0	0	0	0	0	0	0	0	0	0	0	0
Turning Speed (mph)	15		9	15		9	15		9	15		9
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1703	1792	1524	1687	1776	1509	1736	1827	1553	1719	1810	1538
Flt Permitted	0.561			0.542			0.160			0.315		
Satd. Flow (perm)	1006	1792	1524	962	1776	1509	292	1827	1553	570	1810	1538
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			62			23			34			85
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		4080			4784			4608			4256	
Travel Time (s)		92.7			108.7			104.7			96.7	
Volume (vph)	20	120	55	325	290	20	45	425	30	20	580	75
Peak Hour Factor	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Heavy Vehicles (%)	6%	6%	6%	7%	7%	7%	4%	4%	4%	5%	5%	5%
Adj. Flow (vph)	23	136	62	369	330	23	51	483	34	23	659	85
Lane Group Flow (vph)	23	136	62	369	330	23	51	483	34	23	659	85
Turn Type	Perm		Perm	pm+pt		Perm	Perm		Perm	Perm		Perm
Protected Phases		4		3	8			2			6	
Permitted Phases	4		4	8		8	2		2	6		6
Detector Phases	4	4	4	3	8	8	2	2	2	6	6	6
Minimum Initial (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
Minimum Split (s)	21.0	21.0	21.0	9.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	21.0	21.0	21.0	10.0	31.0	31.0	29.0	29.0	29.0	29.0	29.0	29.0
Total Split (%)	35%	35%	35%	17%	52%	52%	48%	48%	48%	48%	48%	48%
Maximum Green (s)	16.0	16.0	16.0	5.0	26.0	26.0	24.0	24.0	24.0	24.0	24.0	24.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
Lead/Lag	Lag	Lag	Lag	Lead								
Lead-Lag Optimize?	Yes	Yes	Yes	Yes								
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None	Min	Min	Min	Min	Min	Min
Walk Time (s)	5.0	5.0	5.0		5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Flash Dont Walk (s)	11.0	11.0	11.0		11.0	11.0	11.0	11.0	11.0	11.0	11.0	11.0
Pedestrian Calls (#/hr)	0	0	0		0	0	0	0	0	0	0	0
Act Effct Green (s)	10.1	10.1	10.1	18.1	18.1	18.1	22.1	22.1	22.1	22.1	22.1	22.1
Actuated g/C Ratio	0.20	0.20	0.20	0.37	0.37	0.37	0.45	0.45	0.45	0.45	0.45	0.45
v/c Ratio	0.12	0.38	0.18	0.80	0.50	0.04	0.38	0.58	0.05	0.09	0.80	0.11
Uniform Delay, d1	17.4	18.4	0.0	11.8	11.2	0.0	9.2	10.3	0.0	7.9	11.9	0.0
Delay	17.5	18.6	6.0	17.9	12.3	4.9	12.6	11.3	3.9	9.4	17.2	2.9
LOS	B	B	A	B	B	A	B	B	A	A	B	A

Turn Lanes on All Approaches

Synchro 5 Report

Page 1

GEORGILVL7-AA51

Alternate 4: 2037 AM Peak Signal

3: Int

1/15/2013



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		15.0			14.9			11.0			15.4	
Approach LOS		B			B			B			B	
Queue Length 50th (ft)	6	38	0	89	76	0	10	102	0	4	161	0
Queue Length 95th (ft)	21	76	23	#182	130	10	41	197	0	16	#355	0
Internal Link Dist (ft)		4000			4704			4528			4176	
50th Up Block Time (%)												
95th Up Block Time (%)												
Turn Bay Length (ft)				200			150		300	150		300
50th Bay Block Time %											14%	
95th Bay Block Time %				6%				21%			38%	
Queuing Penalty (veh)				9				5			6	

Intersection Summary

Area Type: Other
 Cycle Length: 60
 Actuated Cycle Length: 48.7
 Natural Cycle: 60
 Control Type: Actuated-Uncoordinated
 Maximum v/c Ratio: 0.80
 Intersection Signal Delay: 14.1
 Intersection LOS: B
 Intersection Capacity Utilization 72.3%
 ICU Level of Service C
 # 95th percentile volume exceeds capacity, queue may be longer.
 Queue shown is maximum after two cycles.

Splits and Phases: 3: Int

ø2	ø3	ø4
29 s	10 s	21 s
ø6	ø8	
29 s	31 s	

ALL-WAY STOP CONTROL ANALYSIS									
General Information					Site Information				
Analyst	LAKESHIA OSBORN				Intersection	SR 81 @ BOLD SPRINGS ROAD			
Agency/Co.	GDOT				Jurisdiction	WALTON COUNTY			
Date Performed	12/6/2011				Analysis Year	2017			
Analysis Time Period	AM PEAK								
Project ID P/# 0009953									
East/West Street: BOLD SPRINGS ROAD					North/South Street: SR 81				
Volume Adjustments and Site Characteristics									
Approach	Eastbound					Westbound			
Movement	L	T	R	L	T	R			
Volume (veh/h)	15	70	35	195	170	15			
%Thrus Left Lane									
Approach	Northbound					Southbound			
Movement	L	T	R	L	T	R			
Volume (veh/h)	30	245	20	15	340	45			
%Thrus Left Lane									
	Eastbound		Westbound		Northbound		Southbound		
	L1	L2	L1	L2	L1	L2	L1	L2	
Configuration	LTR		LTR		LTR		LT		R
PHF	0.88		0.88		0.88		0.88		0.88
Flow Rate (veh/h)	135		431		334		403		51
% Heavy Vehicles	6		7		4		5		5
No. Lanes	1		1		1		2		
Geometry Group	2		2		4a		5		
Duration, T	0.25								
Saturation Headway Adjustment Worksheet									
Prop. Left-Turns	0.1		0.5		0.1		0.0	0.0	
Prop. Right-Turns	0.3		0.0		0.1		0.0	1.0	
Prop. Heavy Vehicle	0.1		0.1		0.0		0.0	0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.5	0.5	
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.7	-0.7	
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	
hadj, computed	-0.0		0.2		0.0		0.1	-0.6	
Departure Headway and Service Time									
hd, initial value (s)	3.20		3.20		3.20		3.20	3.20	
x, initial	0.12		0.38		0.30		0.36	0.05	
hd, final value (s)	8.43		7.43		7.68		7.83	7.09	
x, final value	0.32		0.89		0.71		0.88	0.10	
Move-up time, m (s)	2.0		2.0		2.0		2.3		
Service Time, t _s (s)	6.4		5.4		5.7		5.5	4.8	
Capacity and Level of Service									
	Eastbound		Westbound		Northbound		Southbound		
	L1	L2	L1	L2	L1	L2	L1	L2	
Capacity (veh/h)	378		475		442		451		301
Delay (s/veh)	15.28		45.53		27.48		44.91		10.58
LOS	C		E		D		E		B
Approach: Delay (s/veh)	15.28		45.53		27.48		41.05		
LOS	C		E		D		E		
Intersection Delay (s/veh)	36.56								
Intersection LOS	E								

ALL-WAY STOP CONTROL ANALYSIS								
General Information					Site Information			
Analyst	LAKESHIA OSBORN				Intersection	SR 81 @ BOLD SPRINGS ROAD		
Agency/Co.	GDOT				Jurisdiction	WALTON COUNTY		
Date Performed	12/6/2011				Analysis Year	2037		
Analysis Time Period								
Project ID PI# 0009953								
East/West Street: BOLD SPRINGS ROAD					North/South Street: SR 81			
Volume Adjustments and Site Characteristics								
Approach	Eastbound			Westbound				
Movement	L	T	R	L	T	R		
Volume (veh/h)	20	120	55	325	290	20		
%Thrus Left Lane								
Approach	Northbound			Southbound				
Movement	L	T	R	L	T	R		
Volume (veh/h)	45	425	30	20	580	75		
%Thrus Left Lane								
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Configuration	LTR		LTR		LTR		LT R	
PHF	0.88		0.88		0.88		0.88 0.88	
Flow Rate (veh/h)	220		720		567		681 85	
% Heavy Vehicles	6		7		4		5 5	
No. Lanes	1		1		1		2	
Geometry Group	2		2		4a		5	
Duration, T	0.25							
Saturation Headway Adjustment Worksheet								
Prop. Left-Turns	0.1		0.5		0.1		0.0	0.0
Prop. Right-Turns	0.3		0.0		0.1		0.0	1.0
Prop. Heavy Vehicle	0.1		0.1		0.0		0.0	0.0
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.5	0.5
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.7	-0.7
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7
hadj, computed	-0.0		0.2		0.1		0.1	-0.6
Departure Headway and Service Time								
hd, initial value (s)	3.20		3.20		3.20		3.20 3.20	
x, initial	0.20		0.64		0.50		0.61 0.08	
hd, final value (s)	9.74		8.91		8.90		9.16 8.41	
x, final value	0.60		1.78		1.40		1.73 0.20	
Move-up time, m (s)	2.0		2.0		2.0		2.3	
Service Time, t _s (s)	7.7		6.9		6.9		6.9 6.1	
Capacity and Level of Service								
	Eastbound		Westbound		Northbound		Southbound	
	L1	L2	L1	L2	L1	L2	L1	L2
Capacity (veh/h)	370		720		567		681 335	
Delay (s/veh)	26.10		382.68		219.88		361.85 13.18	
LOS	D		F		F		F B	
Approach: Delay (s/veh)	26.10		382.68		219.88		323.16	
LOS	D		F		F		F	
Intersection Delay (s/veh)	287.50							
Intersection LOS	F							

Rec'd
2-25-11

DOT 66

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

INTERDEPARTMENT CORRESPONDENCE

DATE February 14, 2011
FROM ^{BEC} Brent E. Cook P.E., District Traffic Engineer
TO Kathy Zahul P.E., State Traffic Engineer
Attn. Anita Withers
SUBJECT **Traffic Engineering Study**
State Route Number 81
Intersection of Bold Springs Road
MP 18.40 Walton County

Attached is a Traffic Engineering Study with traffic count sheets and signed roadabout support letter. If you have any questions, please call our office at (770)532-5532.

BEC: MDJ

Attachments

TRAFFIC ENGINEERING REPORT

January 26, 2011

FILE: State Route 81 at Bold Springs Rd.

COUNTY: Walton

REASON FOR INVESTIGATION:

Scott Zehngraff, Traffic Operations Manager, requested that the intersection of State Route 81 at Bold Springs Rd. be investigated for a roundabout.

TOPOGRAPHY:

SR 81 is a two-lane roadway that connects the City of Loganville in Walton County to the City of Winder in Barrow County.

Bold Springs Rd is a two-lane roadway which extends from SR 11 (Monroe Hwy) in Walton County to Harbins Road in Gwinnett County. This intersection is situated approximately half way between the Cities of Loganville and Winder.

VEHICLE VOLUMES:

The most current data reflects the average daily traffic for State Route 81 is 10150 vehicles per day. Bold Springs Rd. (CR 461) has an ADT of 5800 vehicles per day. A peak hour turning movement count was conducted January 25, 2011 to determine existing traffic patterns. For SR 81 there were 334 vehicles that approached this intersection southbound with 297 thru movements, 22 right turns and 15 left turns. Northbound SR 81 there were a total of 411 vehicles that approached this intersection with 326 thru movements, 19 right turns and 66 left turns. Bold Springs Rd. westbound there were 128 vehicles that approached this intersection with 82 thru movements, 12 right turns and 34 left turns. Eastbound Bold Springs Rd. there were 257 vehicles that approached the intersection with 170 thru movements, 56 right turns and 31 left turns.

EXISTING TRAFFIC CONTROL:

This intersection is 4-way stopped controlled. Also, there are advance stop ahead warning signs installed on both approaches on SR 81 as you approach Bold Springs Rd. Bold Springs Rd. has advanced stop ahead warning signs on each approach.

PEDESTRIAN MOVEMENTS:

There were no pedestrians observed at this time.

SPEED LIMITS:

The posted speed limit on SR 81 is 45 MPH and 45 MPH on Bold Springs Rd.

ACCIDENT HISTORY:

The most current crash data indicates that there have been seven crashes reported at this intersection from March 1, 2008 to October 22 2009. Three were rear end crashes, three were angle crashes and one was a sideswipe same direction. One injury and no fatalities were reported.

OTHER INFORMATION:

An All Way Stop Control Analysis was performed at the intersection using 5 year projected vehicle volumes based on a 3% increase per year. Analyses were performed on the PM peak hours to determine the level of service (LOS). A capacity analysis reflects the intersection's ability to accommodate a moving stream of people or vehicles. It is a measure of the supply side of transportation facilities. It is also a measure of the quality of service provided by an existing facility during peak periods, and how much traffic increase can be tolerated. (See attached All Way Stop Control Analysis for PM Level of Services).

CONCLUSIONS:

After reviewing the data collected for this intersection it was determined that this intersection would perform at a level (LOS) of "C" and (LOS) "of "D" with the projected 5 year volumes.

RECOMMENDATIONS:

It is recommended to change the existing four way stop condition at the intersection of SR 81 @ Bold Springs Rd. to a roundabout intersection.

RECOMMENDED BY:

RT Ell ✓ DATE 2-18-11
DISTRICT TRAFFIC ENGINEER

RECOMMENDED BY:

STATE TRAFFIC ENGINEER

TRAFFIC COUNT INTERVAL SHEET

County: Walton
 City: _____
 Location: SR 81 at Bold Springs Road PM peak
 Speed Limit: 45
 Mile Log: 18.4

Date: 1/25/2011
 Day: Wednesday
 Ave. Daily Traffic: _____
 Compiled By: MOJ

Interval->	Count #1 -									Count #2 -									Count #3 -								
	1	2	3	4	5	6	7	8	Totals	1	2	3	4	5	6	7	8	Totals	1	2	3	4	5	6	7	8	Totals
1																											
2 ↙	5	7	7	3				22																			
3 ↓	84	68	83	62				297																			
4 ↘	5	5	3	2				15																			
5																											
6 ↗	2	1	4	5				12																			
7 ←	15	19	22	26				82																			
8 ↓	12	12	5	5				34																			
9																											
10 ↗	13	23	14	16				66																			
11 ↗	100	94	65	67				326																			
12 ↙	5	5	4	5				19																			
13																											
14 ↓	16	11	21	8				56																			
15 →	46	44	33	47*				170																			
16 ↗	5	11	9	6				31																			

The diagrams illustrate the traffic flow at the intersection of SR 81 and Bold Springs Road. Each diagram shows the following counts:

- SR 81 SB:** 22, 297, 15
- SR 81 NB:** 19, 326, 66
- Bold Springs EB:** 31, 170, 56
- Bold Springs WB:** 12, 82, 34

PROJECTED TRAFFIC COUNT INTERVAL SHEET

County: Barrow
 City: Winder
 Location: SR 11 at SR 211 and Rockwell Church Rd
 Speed Limit: 55 (SR 11)
 Mile Log: SR 11 (10.52)

Num. Years to Project: 5
 Growth Rate: 3.0%
 Projected Traffic Year: 2016

Interval-->	Count #1 -								Count #2 -								Count #3 -									
	1	2	3	4	5	6	7	8	Totals	1	2	3	4	5	6	7	8	Totals	1	2	3	4	5	6	7	8
1																										
2 ↙	6	8	8	3					25																	
3 ↓	97	79	96	72					344																	
4 ↘	6	6	3	2					17																	
5																										
6 ↑	2	1	5	6					14																	
7 ←	17	22	26	30					95																	
8 ↓	14	14	6	6					40																	
9																										
10 →	15	27	16	19					77																	
11 ↑	116	109	75	78					378																	
12 ↙	6	6	5	6					23																	
13																										
14 ↓	19	13	24	9					65																	
15 →	53	51	38	54					196																	
16 ↗	6	13	10	7					36																	

<p>SR 81 SB</p> <p>Bold Springs EB</p> <p>Bold Springs WB</p>	<p>SR 81 SB</p> <p>Bold Springs EB</p> <p>Bold Springs WB</p>	<p>SR 81 SB</p> <p>Bold Springs EB</p> <p>Bold Springs WB</p>
<p>SR 81 NB</p> <p>Bold Springs EB</p> <p>Bold Springs WB</p>	<p>SR 81 NB</p> <p>Bold Springs EB</p> <p>Bold Springs WB</p>	<p>SR 81 NB</p> <p>Bold Springs EB</p> <p>Bold Springs WB</p>

ALL-WAY STOP CONTROL ANALYSIS									
General Information					Site Information				
Analyst	MDJ				Intersection	SR 81 at Bold Springs Rd			
Agency/Co.	GDOT				Jurisdiction				
Date Performed	1/27/2011				Analysis Year	2011			
Analysis Time Period	PM Peak 3% growth rate 5 yrs								
Project ID									
East/West Street: Bold Springs Rd					North/South Street: SR 81				
Volume Adjustments and Site Characteristics									
Approach	Eastbound					Westbound			
Movement	L	T	R	L	R	L	T	R	
Volume (veh/h)	36	196	65	40		95		14	
%Thrus Left Lane									
Approach	Northbound					Southbound			
Movement	L	T	R	L	T	R	L	T	R
Volume (veh/h)	23	378	77	17		344		25	
%Thrus Left Lane									
	Eastbound		Westbound		Northbound		Southbound		
	L1	L2	L1	L2	L1	L2	L1	L2	
Configuration	LTR		LTR		LTR		LT	R	
PHF	1.00		1.00		1.00		1.00	1.00	
Flow Rate (veh/h)	297		149		478		361	25	
% Heavy Vehicles	0		0		0		0	0	
No. Lanes	1		1		1		2		
Geometry Group	2		2		4a		5		
Duration, T	0.25								
Saturation Headway Adjustment Worksheet									
Prop. Left-Turns	0.1		0.3		0.0		0.0	0.0	
Prop. Right-Turns	0.2		0.1		0.2		0.0	1.0	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.5	0.5	
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.7	-0.7	
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	
hadj, computed	-0.1		-0.0		-0.1		0.0	-0.7	
Departure Headway and Service Time									
hd, initial value (s)	3.20		3.20		3.20		3.20	3.20	
x, initial	0.26		0.13		0.42		0.32	0.02	
hd, final value (s)	7.18		7.87		6.63		7.29	6.55	
x, final value	0.59		0.33		0.88		0.73	0.05	
Move-up time, m (s)	2.0		2.0		2.0		2.3		
Service Time, t _s (s)	5.2		5.9		4.6		5.0	4.2	
Capacity and Level of Service									
	Eastbound		Westbound		Northbound		Southbound		
	L1	L2	L1	L2	L1	L2	L1	L2	
Capacity (veh/h)	463		396		533		473	275	
Delay (s/veh)	20.06		14.63		40.53		27.31	9.56	
LOS	C		B		E		D	A	
Approach: Delay (s/veh)	20.06		14.63		40.53		26.16		
LOS	C		B		E		D		
Intersection Delay (s/veh)	28.71								
Intersection LOS	D								

ALL-WAY STOP CONTROL ANALYSIS									
General Information					Site Information				
Analyst	MDJ				Intersection	SR 81 at Bold Springs Road			
Agency/Co.	GDOT				Jurisdiction				
Date Performed	1/27/2011				Analysis Year	2011			
Analysis Time Period	Wednesday PM peak 5:40 to 6:40								
Project ID									
East/West Street: Bold Springs Road					North/South Street: SR 81				
Volume Adjustments and Site Characteristics									
Approach	Eastbound				Westbound				
Movement	L	T	R		L	T	R		
Volume (veh/h)	31	170	56		34	82	12		
%Thrus Left Lane									
Approach	Northbound				Southbound				
Movement	L	T	R		L	T	R		
Volume (veh/h)	19	326	66		15	297	22		
%Thrus Left Lane									
	Eastbound		Westbound		Northbound		Southbound		
	L1	L2	L1	L2	L1	L2	L1	L2	
Configuration	LTR		LTR		LTR		LT		R
PHF	1.00		1.00		1.00		1.00		1.00
Flow Rate (veh/h)	257		128		411		312		22
% Heavy Vehicles	0		0		0		0		0
No. Lanes	1		1		1		2		
Geometry Group	2		2		4a		5		
Duration, T	0.25								
Saturation Headway Adjustment Worksheet									
Prop. Left-Turns	0.1		0.3		0.0		0.0	0.0	
Prop. Right-Turns	0.2		0.1		0.2		0.0	1.0	
Prop. Heavy Vehicle	0.0		0.0		0.0		0.0	0.0	
hLT-adj	0.2	0.2	0.2	0.2	0.2	0.2	0.5	0.5	
hRT-adj	-0.6	-0.6	-0.6	-0.6	-0.6	-0.6	-0.7	-0.7	
hHV-adj	1.7	1.7	1.7	1.7	1.7	1.7	1.7	1.7	
hadj, computed	-0.1		-0.0		-0.1		0.0	-0.7	
Departure Headway and Service Time									
hd, initial value (s)	3.20		3.20		3.20		3.20		3.20
x, initial	0.23		0.11		0.37		0.28		0.02
hd, final value (s)	6.36		6.84		5.92		6.53		5.80
x, final value	0.45		0.24		0.68		0.57		0.04
Move-up time, m (s)	2.0		2.0		2.0		2.3		
Service Time, t _s (s)	4.4		4.8		3.9		4.2		3.5
Capacity and Level of Service									
	Eastbound		Westbound		Northbound		Southbound		
	L1	L2	L1	L2	L1	L2	L1	L2	
Capacity (veh/h)	507		378		585		523		272
Delay (s/veh)	14.53		12.02		20.33		17.42		8.71
LOS	B		B		C		C		A
Approach: Delay (s/veh)	14.53		12.02		20.33		16.85		
LOS	B		B		C		C		
Intersection Delay (s/veh)	17.04								
Intersection LOS	C								

TRAFFIC COUNT INTERVAL SHEET

County: Walton
 City: _____
 Location: SR 81 at Bold Springs Road PM peak
 Speed Limit: 45
 M/Loc: 18.4

Date: 1/25/2011
 Day: Wednesday
 Ave: Daily Traffic
 Completed By: NDJ

Directions:
 1. Click pink 'Reset Sheet' button to clear data from sheet.
 2. Fill in intersection data at top of sheet.
 3. Fill in traffic count data (see volume note below).
 4. View results (see results note below).

Results Note:
 Peak hour summaries will be shown on the 3 sheets following this one (see tabs at bottom of sheet). Left turn products are shown on the summary sheets with number of lefts and products that meet policy shown in bold Italics.

Volume Note:
 -If the electronic counter was used click the green button for easier input. A box will open showing the same format that the counter uses.
 -If the electronic counter was not used enter the hourly counts directly into this sheet for each movement (1-16), see diagrams at bottom for illustration of movements.

-Columns 1-8 are used for the electronic counter which totals counts at 15 min intervals. If counts are already shown in peak hours, just enter the peak hour data here to calculate left turn products.
 -Peak Hour for each count is shaded in gray. -If this doesn't make sense just enter the counts however you want and check the left turn products yourself. Remember to not include the opposing right turn volume if there is a right turn lane.

Interval →	Count #1 -								Count #2 -								Count #3 -																
	1	2	3	4	5	6	7	8	Totals	1	2	3	4	5	6	7	8	Totals	1	2	3	4	5	6	7	8	Totals						
1																																	
2 ←	5	7	7	3																													
3 ↓	84	68	83	62																													
4 →	5	5	3	2																													
5																																	
6 ↗	2	1	4	5																													
7 ←	15	19	22	26																													
8 ↓	12	12	5	5																													
9																																	
10 ↘	13	23	14	19																													
11 ↑	100	94	65	67																													
12 ↖	5	5	4	5																													
13																																	
14 ↘	16	11	21	8																													
15 →	46	44	33	47																													
16 ↗	5	11	9	6																													

PROJECTED TRAFFIC COUNT INTERVAL SHEET

County: Barrow
 City: Winder
 Location: SR 11 at SR 211 and Rockwell Church Rd
 Speed Limit: 55 (SR 11)
 Mile Log: SR 11 (10.52)

Num. Years to Project: 5
 Growth Rate: 3.0%
 Projected Traffic Year: 2016

Attachment # 7a

Directions:
 1. Enter the number of years to project.
 2. Enter the growth rate.

Interval ->	Count #1 -									Count #2 -									Count #3 -								
	1	2	3	4	5	6	7	8	Totals	1	2	3	4	5	6	7	8	Totals	1	2	3	4	5	6	7	8	Totals
1																											
2 ←	6	8	8	3					25																		
3 ↓	97	79	95	72					344																		
4 →	6	6	3	2					17																		
5																											
6 ↑	2	1	5	6					14																		
7 ←	17	22	26	30					95																		
8 ↓	14	14	6	6					40																		
9																											
10 →	15	27	16	19					77																		
11 ↑	116	109	75	78					378																		
12 ←	6	6	5	6					23																		
13																											
14 ↓	19	13	24	9					65																		
15 →	53	51	38	54					196																		
16 ↑	6	13	10	7					36																		

Georgia DOT

District One

SR 81@ Bold Springs Rd, Walton County

PI # 0009953

Utilizing 5.6% for highest peak hour and 100% right turn reduction on minor street

Signal Warrants - Summary

Major Street Approaches

Northbound: SR 81

Number of Lanes: 1

Approach Speed: 45

Total Approach Volume: 2,168

Southbound: SR 81

Number of Lanes: 1

Approach Speed: 45

Total Approach Volume: 1,968

Minor Street Approaches

Eastbound: Bold Springs Road

Number of Lanes: 1

Total Approach Volume: 848

Westbound: Bold Springs Road

Number of Lanes: 1

Total Approach Volume: 952

Warrant Summary (Urban values apply.)

Warrant 1 - Eight Hour Vehicular Volumes	Not Satisfied
Warrant 1A - Minimum Vehicular Volume Not Satisfied	
Required volumes reached for 0 hours, 8 are needed	
Warrant 1B - Interruption of Continuous Traffic Not Satisfied	
Required volumes reached for 0 hours, 8 are needed	
Warrant 1 A&B - Combination of Warrants Not Satisfied	
Required volumes reached for 0 hours, 8 are needed	
Warrant 2 - Four Hour Volumes	Not Satisfied
Number of hours (0) volumes exceed minimum < minimum required (4).	
Warrant 3 - Peak Hour	Not Evaluated
Warrant 3A - Peak Hour Delay Not Evaluated	
Warrant 3B - Peak Hour Volumes Not Evaluated	
Warrant 4 - Pedestrian Volumes	Not Evaluated
Warrant 5 - School Crossing	Not Evaluated
Warrant 6 - Coordinated Signal System	Not Evaluated
Warrant 7 - Crash Experience	Not Evaluated
Warrant 8 - Roadway Network	Not Evaluated

Georgia DOT

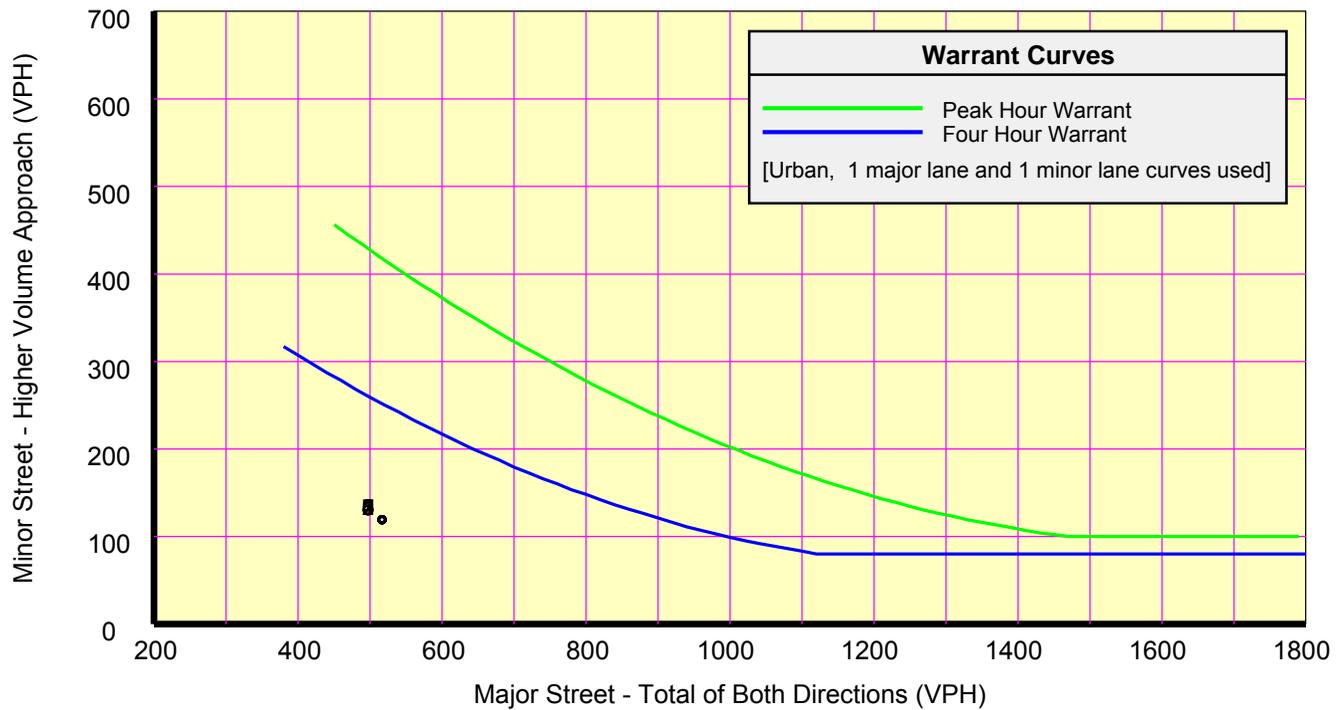
District One

SR 81@ Bold Springs Rd, Walton County

PI # 0009953

Utilizing 5.6% for highest peak hour and 100% right turn reduction on minor street

Signal Warrants - Summary



Analysis of 8-Hour Volume Warrants:

Hour Begin	Major Total	Higher Minor Vol	Dir	War-1A			War-1B			War-1A&B		
				Major Crit	Minor Crit	Meets?	Major Crit	Minor Crit	Meets?	Major Crit	Minor Crit	Meets?
00:00	517	119	WB	500-Yes	150-No	Major	750-No	75-Yes	Minor	600-No	120-No	---
01:00	517	119	WB	500-Yes	150-No	Major	750-No	75-Yes	Minor	600-No	120-No	---
02:00	517	119	WB	500-Yes	150-No	Major	750-No	75-Yes	Minor	600-No	120-No	---
03:00	517	119	WB	500-Yes	150-No	Major	750-No	75-Yes	Minor	600-No	120-No	---
04:00	517	119	WB	500-Yes	150-No	Major	750-No	75-Yes	Minor	600-No	120-No	---
05:00	517	119	WB	500-Yes	150-No	Major	750-No	75-Yes	Minor	600-No	120-No	---
06:00	517	119	WB	500-Yes	150-No	Major	750-No	75-Yes	Minor	600-No	120-No	---
07:00	517	119	WB	500-Yes	150-No	Major	750-No	75-Yes	Minor	600-No	120-No	---
08:00	0	0	EB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
09:00	0	0	EB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
10:00	0	0	EB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
11:00	0	0	EB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
12:00	0	0	EB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
13:00	0	0	EB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
14:00	0	0	EB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
15:00	0	0	EB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
16:00	0	0	EB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
17:00	0	0	EB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
18:00	0	0	EB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
19:00	0	0	EB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
20:00	0	0	EB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
21:00	0	0	EB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
22:00	0	0	EB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
23:00	0	0	EB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---

1. Operations - Planning Level Assessment - See DPM Section 8.2.1

P.I. Number: 0009953	County: Walton
Design Phase Leader: Chris Rudd	Design Office: GDOT Roadway Design
Description: SR 81 @ CR 461/CR 462/Bold Springs Road	

No.	Completed	Action By	Item	Commentary	Additional Commentary
	10/4/12		Vicinity Map	Map showing roadways within approximately 1 mile +/- of each direction from the roundabout.	Location map has been included in the report.
	10/4/12		Intersection Layout	Show layout of existing intersection including site constraints such as property, access buildings. A recent aerial photo from any source is sufficient.	Aerial photo will be provided.
	10/4/12		Letter of support from local government	Letter of support is required from local government for project to proceed as a roundabout - See DPM figure 8.1.	Letter of support received from the district as well as T.E. study.
	10/4/12		Crash history	Send request to Norm Cressman of GDOT Crash Reporting Unit.	Crash history requested and received by Traffic Ops.
	10/4/12		Pedestrian and bike activity	Estimate level of activity. Sources may include site inspection, local GDOT and government offices.	There is currently no bike/ped traffic. This project is not on a bike route.
	10/4/12		Estimate current traffic volumes	Important if significant growth is anticipated.	Traffic Volumes for 2011/2017/2037 have been provided. G.R. of 3% assumed.
	10/4/12		Percent traffic on major roads	Traffic volume entering roundabout from the major road should be no more than 90% of total volume entering the roundabout.	Major road entering traffic less than 90%
	10/4/12		Number of circulatory lanes	Single lane - ADT < 25,000, Two-lane - ADT < 45,000. See exhibit 3-12 of NCHRP.	Design Year ADT > 25000, will function as single lane for 16 years
	10/4/12		Favorable conditions	See section 8.2.1 Planning Level Assessments for list of conditions where roundabouts tend to be advantageous.	Favorable conditions addressed in the report.
	10/4/12		Unfavorable conditions	See section 8.2.1 Planning Level Assessments for list of conditions which may be unfavorable for roundabouts.	Unfavorable conditions addressed in the report.
	10/4/12		Purpose of roundabout	Clearly define what "need" the roundabout addresses.	The roundabout will address the future capacity need.
			Roundabout sketch	Hand drawn sketch showing location and configuration envisioned.	

2. Design - Gather information for concept - for existing intersection and for base & design years

P.I. Number: 0009953	County: Walton
Design Phase Leader: Fletcher Miller	Design Office: GDOT Roadway Design
Description: SR 81 @ CR 461/CR 462/Bold Springs Road	

No.	Completed	Action By	Item	Commentary	Additional Commentary
	10/4/12		Vicinity Map	Map showing roadways within approximately 1 mile +/- of each direction from the roundabout.	Location map has been included in the report.
	10/4/12		Approach speeds	Identify posted speeds for approach roadways - Obtain from existing speed limit signs or GDOT Transportation Data Viewer. For county and local roads it is recommended to contact the local district traffic operations office to request from local enforcement agency.	Speeds received from Transportation Data Viewer and district.
	10/4/12		Grades	Generally not desirable to locate roundabouts with grades through the roundabout greater than 4%. Can continue with a roundabout but should consider truck volumes and potential for truck overturning.	Max grade will be 4% throughout the roundabout to accommodate the truck traffic.
	10/4/12		Functional classification	Generally not desirable to locate roundabouts with grades through the roundabout greater than 4%. Can continue with a roundabout but should consider truck volumes and potential for truck overturning.	Functional classification information received from Transportation Data Viewer
	10/4/12		Current year traffic volumes	Send email request to Office of Planning (ADT and am/pm DHV), attn Abby Ebodaghe.	This information has been received
	10/4/12		Base year traffic projections		This information has been received
	10/4/12		Design year traffic projections	Be sure to obtain growth rates for traffic projections where evaluating capacity during interim years may be required.	This information has been received
	10/4/12		Future projects	Identify any planned roadway project in vicinity.	Future maintenance projects have been identified along this route.
	10/4/12		Desirable LOS	Refer to DPM Section 6.14, Summary of Design Criteria for Cross Section Elements.	Desired level of service for this type of facility is a C

3. Design - Roundabout Feasibility Study, Part 1 - Alternate comparison and selection

P.I. Number: 0009953	County: Walton
Design Phase Leader: Chris Rudd	Design Office: GDOT Roadway Design
Description: SR 81 @ CR 461/CR 462/Bold Springs Road	

No.	Completed	Action By	Item	Commentary	Additional Commentary
	10/4/12		Intersection base map	Show layout of existing intersection including site constraints such as right-of-way, access, buildings, and environmental resources. A recent aerial photo from any source is sufficient.	Aerial photo accompanying layout shows the site constraints.
	10/4/12		Signal Warrant Study	This will define whether or not a signal is a possible alternate and will be prepared by the local District Traffic Operations Office.	Signal warrant study completed by the district. Intersection did not qualify.
	10/4/12		Identify/sketch alternative intersection forms	See DPM Section 8.2.2 - bullet for Section 3. Sketch to the level at which alternates can be adequately compared. May include single and multilane roundabout layouts.	Intersection alternates have been drafted.
	10/4/12		Safety assessment	See DPM Section 8.2.2 - bullet for Section 2.	Done
	10/4/12		Number of entry lanes for each approach leg	May use turning movements to estimate of lane requirements at each entry. See exhibits 3-14 and 4-3 of NCHRP 672.	Done
	10/4/12		Operational Analyses	See DPM Section 8.2.2 - bullet for Section 4.	Done
	10/4/12		Cost Comparison	See DPM Section 8.2.2 - bullet for Section 5. Not required if roundabout is to address severe crash history.	Done
	10/4/12		Select most favorable alternate	See DPM Section 8.2.2 - bullet for Section 6. A tabulated comparison of alternates recommended.	Done

4. Design - Roundabout Feasibility Study, Part 2 - Roundabout layout (as required to define the footprint)

P.I. Number: 0009953	County: Walton
Design Phase Leader: Fletcher Miller	Design Office: GDOT Roadway Design
Description: SR 81 @ CR 461/CR 462/Bold Springs Road	

No.	Completed	Action By	Item	Commentary	Additional Commentary
	10/4/12		Design alternate roundabout layouts	The identification of the most favorable layout may require the development and consideration of multiple roundabout layouts/locations.	A single lane roundabout with a hybrid footprint has been found to be the most favorable alternate.
	10/4/12		Design alternate roundabout layouts	Identify potential conflicts with underground utilities and likely property and environmental resource impacts, etc.	There are utility and r/w conflicts in both the NW and SE quadrants.
	10/22/12		Fastest paths	Document fastest paths on concept layouts, indicate speeds and speed differentials. (May require update during preliminary design for requirements to layout.)	
	10/22/12		Design vehicle	See DPM Section 8.3.2, Design Vehicle and Section 3.2. Greater consideration should be given to selecting a larger design vehicle - even if roundabout may be infrequently used by that size vehicle.	WB-67 is the department's standard.
	10/22/12		Design vehicle swept path	Document all movements. (May require update during preliminary design for requirements to layout.)	
			Stopping sight distance	Evaluate stopping sight distance to roundabout yield line, for each approach.	
			Staging improvements	If multilane is required in the design year evaluate whether or not a single-lane will be adequate through the base plan 10 years. If so, construct as a single lane which allows for future expansion to a multilane footprint without reconstruction.	The single lane will be adequate for 16 years so the design will include a multilane footprint for expansion.
			Finalize concept layout	Prepare a concept layout of the proposed roundabout. May be CAD or hand drawn, but should be to scale. Should show central island, splitter islands, sidewalks, crosswalks and truck apron. Note or list dimensions for ICD, circulatory roadway width, truck apron widths, angles between approach centerlines. Will be helpful to include preliminary striping for multilane roundabouts. Show scale and North arrow.	Concept layout was drafted to include central island, splitter islands and truck apron. Sidewalks, crosswalks and dimensions will be added during preliminary design once actual alignment is set.

5. Design - Other information - required for concept report

P.I. Number: 0009953	County: Walton
Design Phase Leader: Fletcher Miller	Design Office: GDOT Roadway Design
Description: SR 81 @ CR 461/CR 462/Bold Springs Road	

No.	Completed	Action By	Item	Commentary	Additional Commentary
	10/9/12		Typical section	Required for concept reports.	Typical section has been included in the report.
			Construction sequencing	Briefly describe expected staging for construction, e.g. built under traffic, off-site detour, new location...	Staging has not been determined.
	10/16/12		Lighting	Include in cost estimate. Define if need is to address high speeds on approaches, pedestrian activity and if approaches are lighted.	Lighting cost estimate included in total cost.
	10/25/12		Landscaping requirements	Include in cost estimate. Will normally be required. This is particularly the case for high speed approaches to enhance visibility of the roundabout from a distance.	Landscaping cost estimate included in total cost.
	10/9/2012		Pavement Type	Will normally match major road pavement. Asphalt commonly provides for easier staging for construction at existing intersections.	Pavement will match existing pavement type.
6. Design - Implement program of local government coordination and public involvement					
			Presentation layouts	Prepare exhibits for meetings.	
			Meeting with local officials	An initial meeting with local government officials (and their support of the roundabout) will be helpful in gaining support at a PIOH.	
			Public outreach	Required in most cases, often in the form of a PIOH. See DPM Section 8.2.5 Public Involvement for helpful advice regarding visual aids. This should occur after the feasibility study is complete.	
7. Complete quality assurance reviews - occurs at various points in the process					
			QA review by design process	Feasibility studies should be reviewed within the originating design office, in accordance with the Department's QC/QA manual (located on ROADS).	
			Informal review by GDOT roundabout SME	Upon request, a GDOT SME will, (prior to peer review), perform an informal review of a feasibility study or any in-progress work products. Contact either Scott Zehngraff (szehngraff@dot.ga.gov) of the Office of Traffic Operations or Daniel Pass (dpass@dot.ga.gov) of the Office of Design Policy and Support.	
			Peer Review by Consultant peer reviewer	See Daniel Pass for a list of approved roundabout peer reviewers and a scope of work for a peer review task order. Peer review can be accomplished either in discrete events or incrementally from start of concept to letting. Should be completed prior to the concept team meeting where a complex roundabout is proposed. See DPM Section 8.2.3. Review of Feasibility Studies.	

DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA

INTERDEPARTMENT CORRESPONDENCE

FILE: PI 0009953, SR 81 at Bold Springs Rd
Walton County

OFFICE: Roadway Design
DATE: January 17, 2013

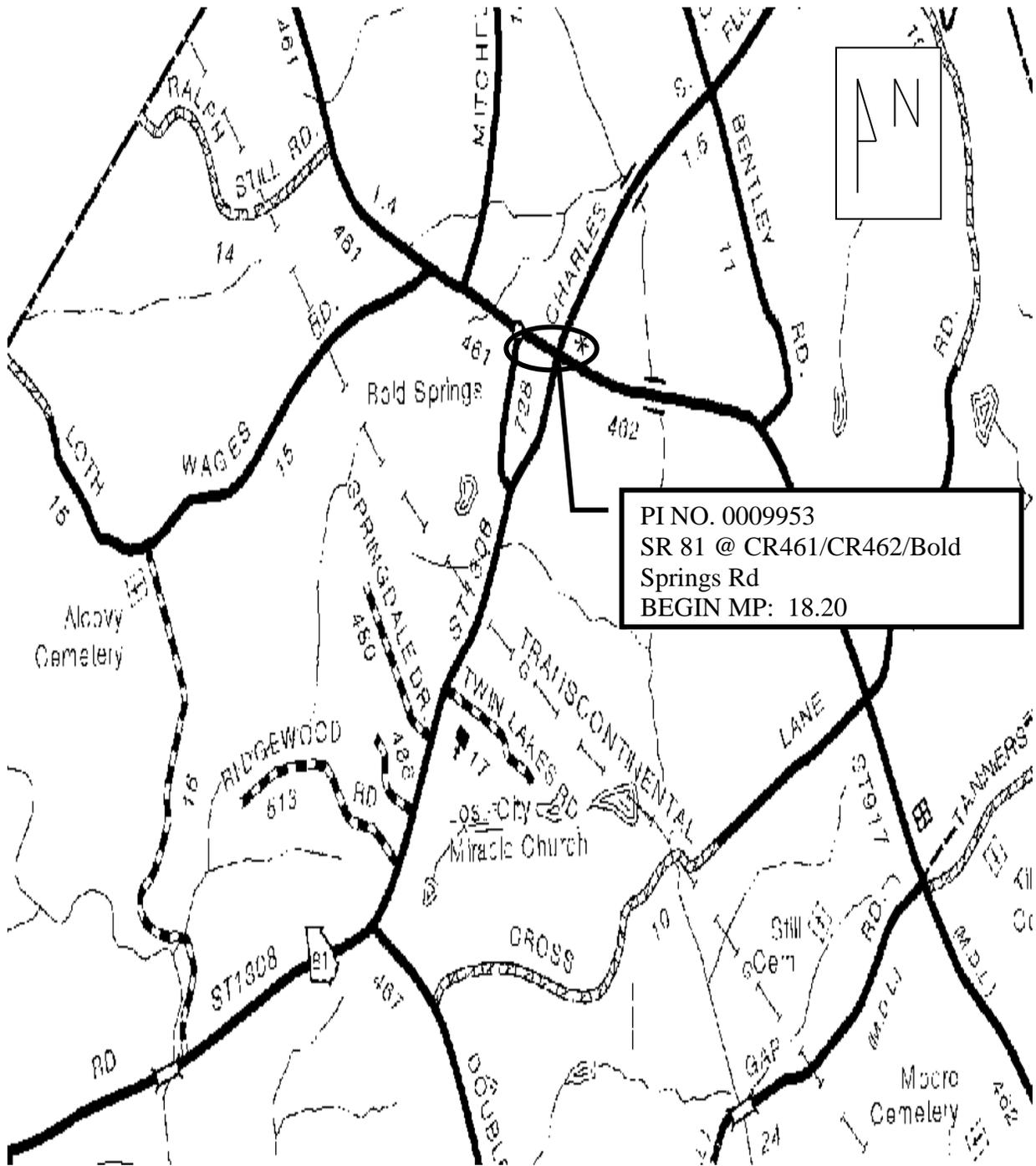
FROM: Andy Casey, P.E., State Roadway Design Engineer

TO: Kathy Zahul, P.E., State Traffic Engineer
Attn: Paul Denard

SUBJECT: Roundabout Feasibility Study for SR 81 at CR 461/CR 462/Bold Springs Road

The purpose of this study is to identify the most favorable intersection improvement at the location of SR 81 and CR 461/CR 462/Bold Springs Road, which is located in the community of Bold Springs which is 8.2 miles northeast of the city of Loganville in Walton County, Georgia.

The intersection currently operates as a four-way stop controlled intersection. The alternates considered included no build conditions, all-way stop with right turn lanes, a single lane roundabout, hybrid roundabout and signalization.



Project Location Map: SR 81 @ CR 461/CR 462/Bold Springs Rd

SR 81 at Bold Springs Road Intersection – Bold Springs, Georgia

1. Project Background & Site Conditions

This project proposes to improve the operation of the existing intersection of State Route 81(SR 81) and CR 461/CR 462/Bold Springs Road while reducing the frequency and severity of crashes at the intersection. The proposed project length is approximately 0.26 miles.

Both roadways are two-lane rural major collectors. The intersection is currently stop controlled on all approaches. The posted and design speed for SR 81 and Bold Springs Road is 45 mph. No pedestrian or bicycle traffic was observed at this location. This location is not on the state or local pedestrian/bicycle plan.

Because of the number of crashes at the intersection, various configurations of traffic operations through the intersection have been previously implemented. In 1997, after a continued increase in fatal crashes, the intersection was converted from a two-way stop with flashing beacons to the four-way stop controlled configuration that currently exists. To date, the four-way stop control configuration has produced a substantial reduction in crashes over other implemented configurations. Other configurations that have been applied or considered for the intersection include two-way stop and stop and go signal.

Land Use and Access

The land use in the vicinity of the intersection includes a gas station in the northwest quadrant with direct access to both roadways. On the west leg of the intersection, there is an animal clinic and church which are not anticipated to be impacted.

There is a natural gas facility and communication equipment in the southeast quadrant. All other surrounding properties can be classified as undeveloped commercial and residential. Based on potential right of way constraints with the developed commercial properties, the shifting of the intersection to the southeast quadrant should be considered in an effort to minimize impacts.

There has been some congestion observed with the existing configuration during peak hours. There is an elementary school approximately 3.5 miles from the intersection. There are not any businesses nearby that would cause significant traffic impacts. This is a designated truck route that is occasionally used by oversized vehicles.

2. Safety Assessment

From 2005 through 2011, there were a total of fifty-six crashes at this intersection, with none resulting in a fatality. An examination of the police crash reports reveals that approximately 64% of the crashes were angle crashes which caused 67% of the total injuries. The cause of the angle crashes was drivers failing to yield.

Year	Total Crashes	Crash Types						Severity		
		Angle	Rear End	Head On	Fixed Object	Sideswipe Same	Other	PDO	Injury	Fatal
2005	4	3	0	0	1	0	0	2	2	0
2006	17	10	5	1	1	0	0	13	4	0
2007	9	8	0	0	1	0	0	7	2	0
2008	3	1	1	0	0	1	0	3	0	0
2009	5	2	2	0	1	0	0	3	2	0
2010	11	8	3	0	0	0	0	6	5	0
2011	7	4	0	1	0	0	2	7	0	0
Total	56	36	11	2	4	1	2	41	15	0

Table 1: Crash Data Summary for SR 81 @ Bold Springs Road

An analysis was conducted on various intersections using crash data to obtain the average number of total crashes, fatal crashes, injury crashes and property damage only (PDO) crashes per intersection to determine the percentage of possible crash reduction. The average number of crashes at the intersection of SR 81 and Bold Springs Road resulting in injury or PDO are 2.16 and 6.5, in respective order, which exceeds the regional average of 1.474 and 4.801. By implementing a roundabout, there will be a reduction of injury and PDO crashes.

3. Alternate Sketches:

The following alternates were considered as solutions to improve this intersection.

Alternate 1: Single Lane Roundabout

Alternate 1 proposes a single lane roundabout with an ICD of 160-ft. An analysis of this option resulted in a LOS A in the build year and a LOS F in the design year. The single lane roundabout would function within an acceptable intersection level of service for 16 years before failing. For this reason, it is recommended that the geometric footprint of this roundabout should encompass the amount of right of way needed to expand to a hybrid roundabout should projected traffic materialize.

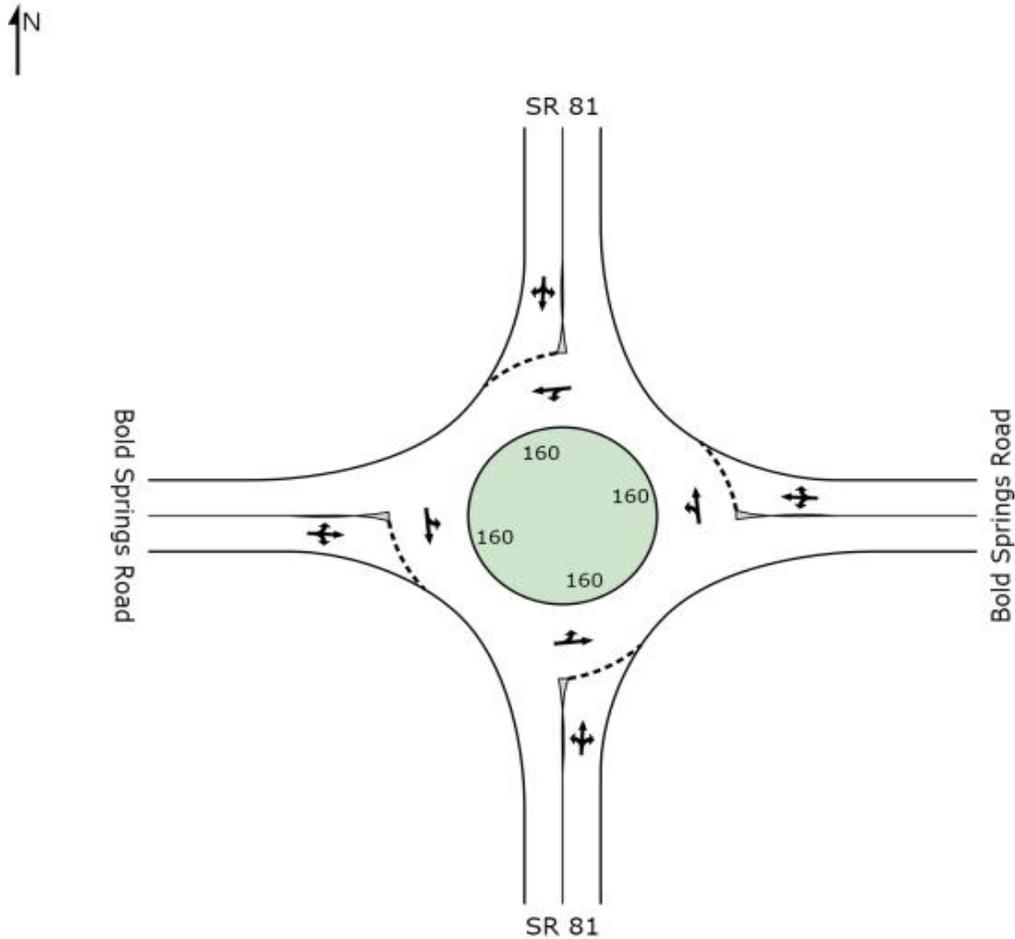


Figure 1: Alternate 1, Single Lane Roundabout

Alternate 2: Hybrid Roundabout with Dual Entry on North Leg

Alternate 2 proposes a 180-ft ICD hybrid roundabout with dual entry lanes on the north leg and single entry lanes on the remaining legs. There are two circulating lanes on the west leg which would allow for the heavy southbound movements from the east and north. The south leg will have two exit lanes with a lane drop 400-ft after the intersection. This design presented an acceptable level of service for both the build and design year. The SIDRA results yielded LOS A for both years. Therefore, this is a viable option for the intersection improvement, but may not need implementation until a later time.

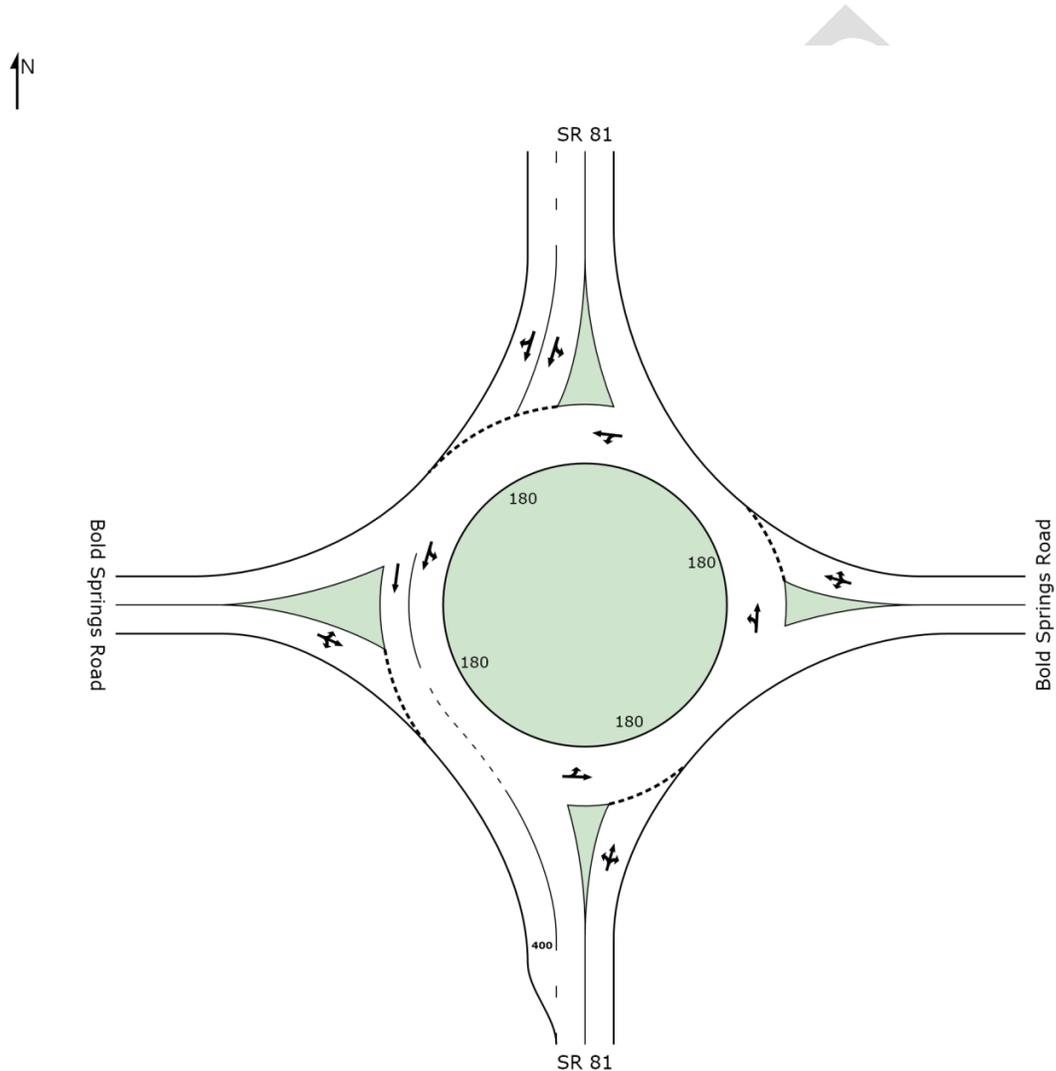


Figure 2: Alternate 2, Hybrid Roundabout with Dual Lanes on North Leg Only

Alternate 3: All Way Stop Controlled (AWSC) with Right Turns

Alternate 3 proposes an all way stop controlled intersection with right turn lanes on all legs. As an AWSC with right turn lanes, the intersection operates as a LOS D in the build year and LOS F in the design year. This alternate is not viable because it does not meet GDOT's desired level of service C for collector roadways in the build or design year.



Figure 3: Alternate 3, All-Way Stop Controlled with Right Turn Lanes

Alternate 4: Traffic Signal with Turn Lanes.

This alternate would add right and left turn lanes to the existing configuration along SR 81, which would expand the size of the intersection. This alternate would have minor impacts on right of way. This alternate is not feasible because it does not meet any of the signal warrant requirements, therefore, a signal would not be permitted.



Alternate 5: No Build, All Way Stop Controlled (AWSC)

Alternate 5, the No-Build alternate proposes no change to the existing intersection. As an AWSC, the intersection operates as a LOS E in the build year and LOS F in the design year. This alternate is not ideal because it does not meet GDOT’s desired level of service C for collector roadways in the build or design year.



Figure 5: Alternate 5, Existing Configuration, All-Way Stop Controlled

4. Operational Analyses

Detailed operational analyses were performed for Alternates 1 through 5 for the AM Peak for both the build year (2017) and design year (2037). An analysis of the PM Peak was not conducted for any of the alternates because the traffic volumes were less than or equal to the AM traffic volumes. The traffic projections used for these analyses are provided as an attachment.

An analysis of Alternates 1 and 2 was conducted using the SIDRA Intersection 5.1 software. The SIDRA method was used to analyze both alternates 1 and 2. The analysis of Alternates 3 and 4 was completed using HCS+V.5.21 and Synchro.

ALTERNATE	LOS 2017 AM PEAK	LOS 2037 AM PEAK	DESCRIPTION
1	A	F	Single Lane Roundabout
2	A	A	Hybrid Roundabout
3	D	F	AWSC with Right Turn Lanes
4	B	B	Traffic Signal with Turn Lanes
5	E	F	No Build

The minimum Level of Service that should be maintained on this facility type is LOS C. Based on the analysis tabulated above, alternates 2 and 4 meet this requirement for both the build and design years. Alternate 1 meets this requirement in the build year but fails

in the design year. This alternate was analyzed for each intermediate year to determine the year at which alternate 1 fails to meet a minimum LOS of C. Alternate 1 would cease to provide a minimum LOS C within 16 years of build (year 2033).

5. Cost Comparison

All of the alternates with the exception of the no build condition would require a larger footprint than what is currently in place. The size of the footprint will have a direct effect on the overall cost of the project as the cost of additional right of way would be the biggest contributing factor. Alternate 2, the hybrid roundabout would have the largest right of way and construction cost as it would require the largest footprint. Constructing a single lane roundabout within a hybrid roundabout footprint as the original design will be the most cost efficient for present and future years. Although additional right of way may be required, the potential impacts can be minimized by shifting the intersection. The table below represents cost for each alternate.

Feasible Alternates	Right of Way Cost	Construction Cost
Alternate 1 – Single Lane Roundabout w/ FP	\$423,000.00	\$1,580,333.98
Alternate 2 – Hybrid Roundabout	\$423,000.00	\$1,714,815.77
Alternate 3 – AWSC with Right Turn Lanes	\$0.00	\$242,981.35
Alternate 4 – Traffic Signal with Turn Lanes	\$190,000.00	\$360,260.93
Alternate 4 – No Build (AWSC)	\$0.00	\$0.00

6. Alternate Selection

Based on the results of the analyses, Alternate 1 has been selected as the recommended alternate. The roundabout is most feasible due to the following:

- **Improved Operations:**
 - A roundabout will always provide a higher capacity and lower delays than all-way stop-control (AWSC) operating with the same traffic volumes. This alternate will provide the best operating capacity in both the opening and design years.
- **Reduced Property Impacts:**
 - Although this alternate will require more right of way than an all-way stop controlled alternative, the intersection can be shifted southeast to minimize the potential impacts to the gas station located in the northwest quadrant.
- **Safety:**
 - This alternate will reduce the number of conflict points that exist within the current AWSC configuration of the intersection. It is expected that the selected alternate will reduce the number of angle and head-on crashes;

which currently accounts for 63% of the total number of crashes at the intersection.

- Research has shown a 35% reduction for all crashes and 75.8% for injury crashes occurs when an intersection is converted from a stop control to a roundabout. Also, because of the low circulating speed through the roundabout, the severity of crashes is expected to be minimized.

- **Unfavorable Conditions:**

- The foot print of a hybrid roundabout will cause a greater right of way impact at the center of the intersection.

7. Conceptual Roundabout Design

The design of the roundabout includes the following dimensional data:

- Inscribed Diameter – 180-ft. for single lane roundabout w/ footprint
180-ft. for hybrid/multilane roundabout
- Circulatory Width – 18-30 ft.
- Entry Lane Widths – 15-18 ft.
- Exit Lane Widths – 15-17 ft.

8. Conclusions and Recommendations

The results of this study indicates that a single lane roundabout with a hybrid footprint will be the most feasible solution to provide both safety and functional capacity at this intersection in build and design years based on the projected traffic volumes.

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

Walton County supports the consideration of a roundabout at the location specified below.

Local Street Names: _____ at _____

State/County Route Numbers: SR 81 at Bold Springs Road

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)

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 6 day of October, 2010

Attest:

Letab. Jaemal
Clerk

By: Ken W. Pitts

Title: Chairman Walton County

CONCEPT TEAM MEETING MINUTES

PROJECT: PI # 0009953, Walton County
SR 81 at CR 461/CR 462/Bold Springs Road

LOCATION: GDOT District 1 Office

MEETING DATE: November 14, 2012 at 1:00 PM

ATTENDEES:

Name	Company	Phone	Email
Lakeshia Osborn	GDOT Roadway Design	404-631-1655	losborn@dot.ga.gov
Winton Ward	GDOT Eng. Services	404-631-1766	wward@dot.ga.gov
Ken Werho	GDOT Traffic Ops	404-635-2859	kwerho@dot.ga.gov
Terry Allgood	Walton EMC	770-601-2795	tallgood@waltonemc.com
Nabil Raad	GDOT Traffic Ops	404-635-2854	nraad@dot.ga.gov
Kim Coley	GDOT D1 PPE	770-532-5330	kcoley@dot.ga.gov
Chris Rudd	GDOT Roadway Design	404-631-1661	crudd@dot.ga.gov
Neil Kantner	GDOT D1 Utility	770-718-5031	nkantner@dot.ga.gov
Jay Halgat	Windstream	770-267-6102	jay.halgat@windstream.com
Charles Robinson	GDOT Program Delivery	404-631-1439	chrobinson@dot.ga.gov
Steve Kelly	GDOT D1 Traffic Ops	770-532-6112	skelly@dot.ga.gov
Brent Cook	GDOT Preconstruction Eng.	770-532-5522	bcook@dot.ga.gov
Paul Denard	GDOT Traffic Ops	404-635-2843	pdenard@dot.ga.gov
Scott Zehngraft	GDOT D1 Traffic Ops	770-532-5563	szehngraft@dot.ga.gov

Charles Robinson, the Project Manager called the meeting to order giving an overview of the project and asked all attendees to introduce themselves.

Charles Robinson then reviewed the schedule. Ken Werho asked if the project was on schedule. Charles confirmed that the project was on schedule to Let in February 2015.

Chris Rudd reviewed the concept report and concept layout.

Ken Werho stated that outside shoulder should be extended for areas with curb and gutter. Chris Rudd advised that both urban and rural shoulders will be included in the design.

Ken Werho advised that the maximum SE for roundabouts should be shown as 4% with a 2% SE throughout the roundabout. Chris Rudd replied that a special notation will be made to distinguish between roundabout geometric features and mainline/sidestreet approach geometric features.

Neil Kantner stated that multiple utilities exist in the southeast quadrant of the intersection. Jay Halgat of Windstream stated that they have a permanent easement for their equipment and the GDOT would incur relocation cost.

Chris Rudd stated that the conceptual design for the roundabout posed a challenge when trying to avoid impacting the gas station in the northwest quadrant and utilities in the southeast quadrant. Chris stated that multiple iterations for the roundabout location had been completed and the design will be further refined in an effort to avoid or minimize impacts to adjacent parcels at the intersection when survey is received.

Terry Allgood stated that there are joint-use poles for Walton EMC and Comcast within GDOT right of way and relocation should not be a problem.

Charles Robinson asked if PID will be needed for the project, Neil Kantner stated that the PID decision will be further reviewed and evaluated with Charles Robinson.

Neil Kantner stated that the existing utilities for the project consist of Walton County Water & Sewer, Walton EMC, Comcast, Windstream, and City of Buford Gas.

Scott Zehngraff recommended constructing a single lane roundabout with the footprint of a hybrid/multilane roundabout whereas the single lane roundabout could be easily retrofitted to a hybrid roundabout design. This was based on the fact that the traffic suggested that the roundabout would operate at an acceptable level of service for at least ten years, but not past the design year.

Ken Werho suggested that a constructability review should be added to the schedule and held between PFPR and FFPR. Charles Robinson stated that a constructability review will be held. Winton Ward asked that Engineering Services be included in the constructability review.

Neil Kantner stated that adequate construction time may be needed to allow for utility adjustment schedules (UAS). Charles Robinson stated that 24 months could be a starting point for the time of completion.

Paul Denard stated he would like to review the traffic information included in the Roundabout Feasibility Study with the project designers.

Brent Cook confirmed that maintenance project # M003100 will go through the proposed project. Charles Robinson will coordinate with GDOT Office of Maintenance for plans.

Utility Comments:

City of Buford Gas – No representative was present, but a mark-up and cost estimate was provided.

Walton EMC – There are joint-use poles shared with Comcast within GDOT R/W.

Windstream – Reimbursable utilities on their permanent easement located in the southeast quadrant.

Action Items for Roadway Designers:

1. Add alternate for single lane roundabout with hybrid extension.
2. Complete a cost estimate for signal installation and add statement explaining the exclusion of signal as an alternate.
3. Updating typical sections to reflect the correct pavement types and material required.
4. Meet with Paul Denard to review traffic information

Action Items for Project Manager:

1. Request maintenance plans for future maintenance project within project limits
2. Coordinate with District Utilities Engineer for PID determination