

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

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

FILE P.I. # 0009938

Dawson County

GDOT District 1 - Gainesville

SR 53 @ SR 183 Roundabout

OFFICE Design Policy & Support

DATE May 29, 2013

FROM  for Brent Story, State Design Policy Engineer

TO SEE DISTRIBUTION

SUBJECT APPROVED CONCEPT REPORT

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

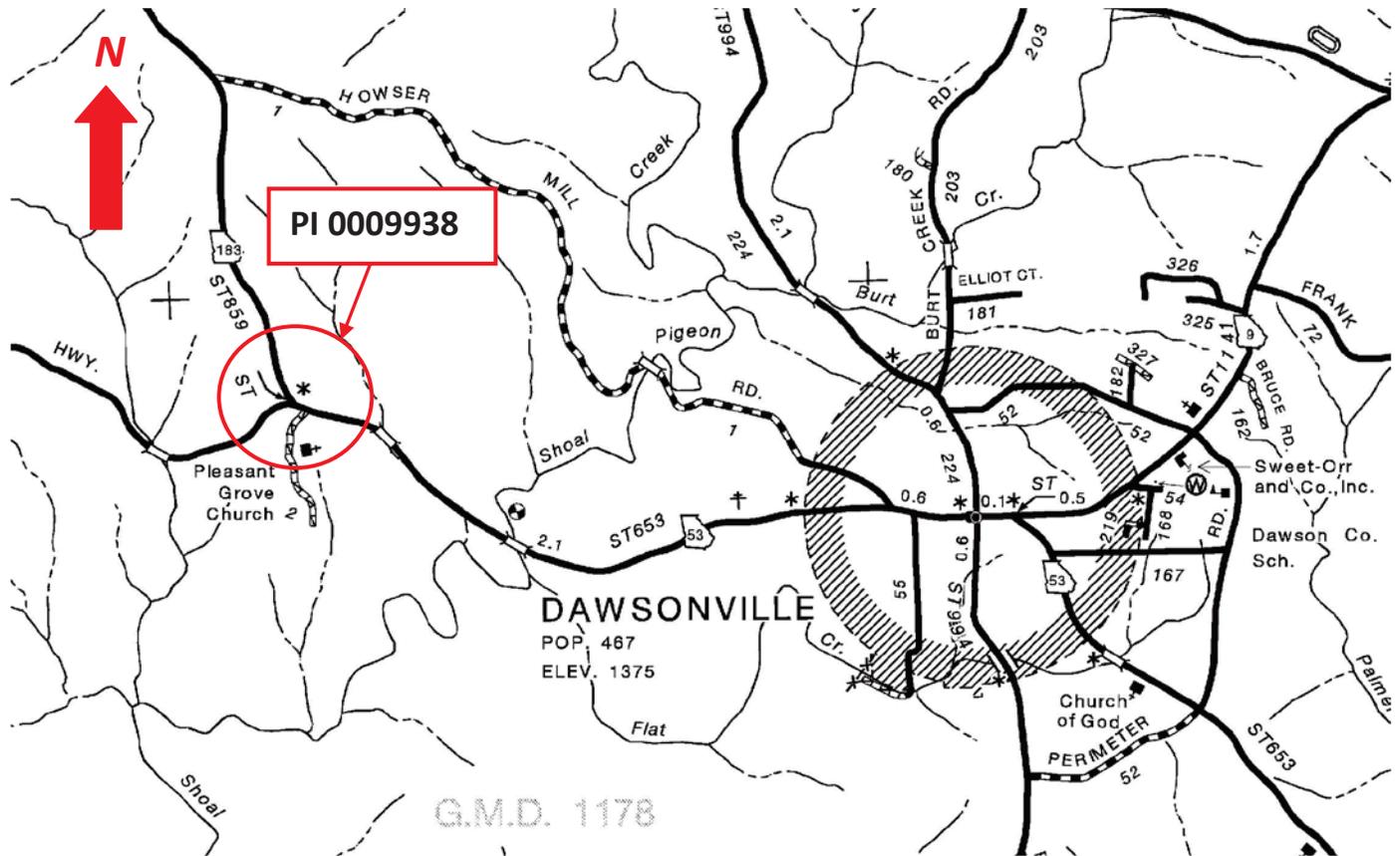
Attachment

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Andy Casey, State Roadway Design Engineer
Attn: Fletcher Miller, Design Group Manager
Bayne Smith, District Engineer
Brent Cook, District Preconstruction Engineer
Neil Kantner, District Utilities Engineer
Derrick Brown, Project Manager
BOARD MEMBER - 9th Congressional District

County: Dawson

PROJECT LOCATION



County: Dawson

PLANNING & BACKGROUND DATA

Project Justification Statement: The proposed project will reduce crash frequency and severity and improve operational efficiency at the intersection of SR 53 at SR 183 in Dawson County, GA. In Georgia, nearly a third of fatal crashes occur at intersections making intersection safety a focus area for the Georgia Department of Transportation. Nationally intersection crashes account for 40% of all reported crashes and approximately 20% of traffic fatalities. Of those fatalities, nearly 50% are the result of angle collisions. Angle collisions are often high speed, high impact crashes which often result in serious injuries or fatalities.

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

In the project area, SR 53 is a two lane rural principal arterial with a posted speed limit of 55 mph and an AADT of 4,510 vehicles per day. SR 183 is a two lane rural major collector with a posted speed limit of 55 mph and an AADT of 1,980 vehicles per day. Currently, the T-intersection is free flowing movements for SR 53 and has stop control for both approaches of SR 183.

Crash data from 2004-2008 indicated that 23 crashes occurred at this intersections resulting in 17 total injuries. Of those crashes 39% were angle collisions accounting for 53% of the injuries. Studies have shown that the installation of a roundabout results in nearly 80% reduction in fatal and serious injury crashes and nearly 40% reduction in property damage crashes.

Description of the proposed project: The proposed project would reconstruct the existing, at-grade intersection of SR 53 at SR 183 in Dawson County, Georgia, to a three-legged one-lane roundabout. The total project length is estimated to be 0.56 mile. The typical section for the approaches consists of 12-ft to 20-ft wide lanes with a raised splitter island, 10-ft rural shoulder beyond the inscribed circle, and 12-ft urban shoulder within the inscribed circle which includes curb and gutter and 5-ft sidewalk. The proposed design speed remains 55 mph for all approaches. Entry speeds at the entrances of the roundabout are kept at a maximum of 26 mph (per Fastest Paths and Entry Speeds as shown in the Roundabout Feasibility Study) with the usage of 90-ft entry radii.

Federal Oversight: Full Oversight Exempt State Funded Other

Regional Commission: Georgia Mountains Regional Commission

RC Project ID

County: Dawson

Congressional District(s): 9

Projected Traffic: ADT

Current Year (2011): 5900 Open Year (2017): 7050

Design Year (2037): 11200

Traffic Projections Performed by: *Office of Planning*

Functional Classification (Mainline): Rural Principal Arterial

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: Public perception of the roundabout.

Context Sensitive Solutions: Public meeting(s) with local government support to explain the history of crash reductions with roundabouts.

DESIGN AND STRUCTURAL DATA

Mainline Design Features: SR 53

Feature	Existing	Standard*	Proposed
Typical Section			
- Number of Lanes	2	N/A	2
- Lane Width(s)	TBD	12'	12' – 20'
- Median Width & Type	N/A	N/A	Varies, Raised
- Outside Shoulder or Border Area Width	TBD	10'	10' – 12'
- Outside Shoulder Slope	6%	6%	6%
- Inside Shoulder Width	N/A	N/A	N/A
- Sidewalks	N/A	5'	5'
- Auxiliary Lanes	N/A	N/A	N/A
- Bike Lanes	N/A	N/A	N/A
Posted Speed	55 mph		55 mph
Design Speed	55 mph	55 mph	55 mph
Min Horizontal Curve Radius	1060'	1060'	1060'
Superelevation Rate	TBD	6% max.	6% max.
Grade	5.6%	6%	TBD
Access Control	Permitted	Permitted	Permitted
Right-of-Way Width	80'	varies	100'
Maximum Grade – Crossroad	11%	9%	TBD
Design Vehicle	N/A	WB-67	WB-67

County: Dawson

Major Structures: N/A

Major Intersections: SR 53 at SR 183

Utility Involvements: *Amicalola EMC and Windstream may require relocations. No impacts to the electrical transmission line that crosses SR 183 just north of the tie-in point are expected.*

Public Interest Determination Policy and Procedure recommended (Utilities)? No Yes

SUE Required: No Yes

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

Location and Design approval: Not Required Required

Off-site Detours Anticipated: No Undetermined Yes

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

Design Exceptions to FHWA/AASHTO controlling criteria anticipated:

FHWA/AASHTO Controlling Criteria	No	Undeter -mined	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 type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
8. Grade	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	
9. Stopping Sight Distance	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

County: Dawson

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"/>	

Information on grades and vertical alignment are yet to be determined at this stage in design.

Design Variances to GDOT Standard Criteria anticipated:

GDOT Standard Criteria	Reviewing Office	No	Undeter-mined	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:

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

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

County: Dawson

Environmental Permits/Variations/Commitments/Coordination anticipated:

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

Is a PAR required? No Yes Completed – Date:

NEPA/GEPA:

The expected level of documentation is a Categorical Exclusion (CE).

Ecology:

A bat survey with mist netting will be required.

History:

TBD

Archeology:

TBD

Air & Noise:

Type I noise study is expected; no air study will be required.

Public Involvement:

A Public Information Open House (PIOH) will be required for this project.

Major stakeholders:

Property owners, road users such as logging trucks and Amicalola Falls State Park visitors.

ROUNDBABOUTS

Roundabout Lighting agreement/commitment letter received: No Yes
 See attached commitment letter

County: Dawson

Planning Level assessment: District Traffic Operations conducted a Traffic Engineering study for the intersection of SR 53 at SR 183 to evaluate the feasibility of using all way stop conditions at the intersection. Since this intersection would have to be controlled by three all way stops for it to operate as an all-way stop, all vehicles traveling through the intersection would be required to stop twice. Thus it is concluded that the use of all-way stop is not the preferred alternative due to the delay it would introduce and that a roundabout is the recommended alternative for this location.

Feasibility Study: From the study's findings, a roundabout is the most feasible choice for the intersection location at SR 53 and SR 183. There is a history of crash rates higher than the state averages at this location. The roundabout will introduce lower travel speeds and less conflict points through this intersection. Stopping sight distance and intersection sight distance will also be improved.

Peer Review required: No Yes Completed – Date: 12/19/2012
See attached Peer Review Notes

CONSTRUCTION

Issues potentially affecting constructability/construction schedule: Temporary pavement will be required during construction. No offsite detour is expected to be needed.

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 Right of Way
Utility Relocation	Utility Owners or Contractor
Letting to Contract	GDOT
Construction Supervision	GDOT District 1 Construction
Providing Material Pits	N/A
Providing Detours	N/A
Environmental Studies, Documents, and Permits	GDOT Environmental Services
Environmental Mitigation	GDOT Environmental Services
Construction Inspection & Materials Testing	GDOT District 1 Construction

Lighting required: No Yes

The Georgia DOT will be responsible for initial equipment installation while the local government, i.e., Dawson County will be responsible for maintenance and operation costs.

County: Dawson

Initial Concept Meeting: 09/21/11

During the initial concept meeting, it was recommended that a Y shaped roundabout with an inscribed circle diameter of 140-ft would be an appropriate option for this location. A bypass lane may be considered for a grade climb. Existing driveways will function well with a roundabout intersection. See attached minutes for further discussion details.

Concept Meeting: 01/24/13

The conceptual roundabout design was presented at the concept team meeting. Concerns were raised about the steep slopes and the implications they may have on construction limits and local impacts. Concerns were also raised about the fastest paths and the speeds associated with them. Dawson County also expressed that a multi-use path was not in the county's interest. Nonetheless, the concept team members agreed that the design in concept phase appears feasible and that the roundabout project should move forward. See attached minutes for further discussion details.

Other projects in the area: Project PI 0007934 will widen SR 53 from CR 294/Steve Tate Road to SR 183.

Project Cost Estimate and Funding Responsibilities:

	Breakdown of PE	ROW	Reimbursable Utility	CST*	Environmental Mitigation	Total Cost
By Whom	GDOT	GDOT	GDOT	GDOT		
\$ Amount	\$450,000	\$842,000	\$18,000	\$1,466,528	TBD	\$2,776,528
Date of Estimate	3/4/2010	8/30/2012	2/28/2013	4/23/2013		

*CST Cost includes: Construction, Engineering and Inspection, and Liquid AC Cost Adjustment. CES estimates will need updated unit costs from Engineering Services.

ALTERNATIVES DISCUSSION**Alternative selection:**

Preferred Alternative: <i>Y-roundabout</i>			
Estimated Property Impacts:	10	Estimated Total Cost:	\$2,776,528
Estimated ROW Cost:	\$842,000	Estimated CST Time:	18 months
Rationale: <i>This alternative is selected because it has less right of way impacts than the other roundabout options. It also will provide traffic operation improvements and reduce conflict points from the no-build scenario.</i>			

No-Build Alternative:			
Estimated Property Impacts:	0	Estimated Total Cost:	0
Estimated ROW Cost:	0	Estimated CST Time:	0
Rationale: <i>This alternative is not selected because there is a high crash history at the location and improvements should be implemented to reduce crash frequency and severity.</i>			

County: Dawson

Alternative 2: T-roundabout SR 53 – SR 183			
Estimated Property Impacts:	11	Estimated Total Cost:	\$3,017,087
Estimated ROW Cost:	\$1,082,559	Estimated CST Time:	18 months
Rationale: <i>This alternative is not selected because it has more right of way impacts than the Y-roundabout. The improved continuity along SR 53 is also not significant since the alignment still has to avoid the property on the south side.</i>			

Alternative 3: T-roundabout SR 53 WB – SR 183			
Estimated Property Impacts:	13	Estimated Total Cost:	\$4,195,887
Estimated ROW Cost:	\$2,261,359	Estimated CST Time:	18 months
Rationale: <i>This alternative is not selected because it has more right of way impacts than the Y-roundabout. There is also significant impedance to the prominent route as SR 53 East going West is required to make a larger left movement.</i>			

Alternative 4: T-roundabout SR 53 EB – SR 183			
Estimated Property Impacts:	13	Estimated Total Cost:	\$5,422,814
Estimated ROW Cost:	\$3,488,286	Estimated CST Time:	18 months
Rationale: <i>This alternative is not selected because it has more right of way impacts than the Y-roundabout. There is also significant impedance to the prominent route as SR 53 East going West is required to make a larger left movement.</i>			

Comments: See comparison matrixes in the attached Feasibility Study for further comparison details.

Attachments:

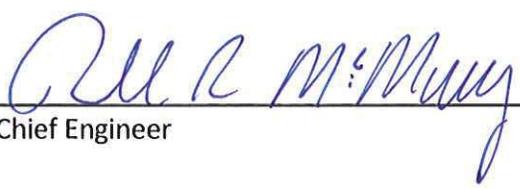
1. Concept Design
 - a. Layout
 - b. Typical sections
2. Detailed Cost Estimates:
 - a. Construction including Engineering and Inspection
 - b. Completed Fuel & Asphalt Price Adjustment forms
 - c. Right-of-Way
 - d. Utilities
3. Crash summaries
4. Traffic diagrams
5. Capacity analysis summary (*tabular format*)
6. Signal Warrant Analyses
7. Roundabout Data
 - a. Planning level assessment
 - b. Roundabout feasibility study
 - c. Lighting agreement or commitment letter
 - d. Peer Review and responses
8. Highway Safety Manual Crash Reduction Factor Calculations
9. Minutes of Concept meetings

County: Dawson

APPROVALS

Concur: 
Director of Engineering

5/21/13
Date

Approve: 
Chief Engineer

5/23/13
Date

ATTACHMENT 1a:
CONCEPT LAYOUT

ATTACHMENT 1b:
TYPICAL SECTIONS

ATTACHMENT 2:
DETAILED COST ESTIMATES

DETAILED COST ESTIMATE



Job: 0009938

JOB NUMBER 0009938

FED/STATE PROJECT NUMBER

SPEC YEAR: 01

DESCRIPTION: SR 53 AT SR 183 ROUNDABOUT

ITEMS FOR JOB 0009938

0010 - ROADWAY

Line Number	ITEM	QUANTITY	UNITS	PRICE	DESCRIPTION	AMOUNT
0035	150-1000	1.000	LS	\$50,000.00000	TRAFFIC CONTROL - LS	\$50,000.00
0040	210-0100	1.000	LS	\$50,000.00000	GRADING COMPLETE - LS	\$50,000.00
0020	310-1101	10006.000	TN	\$18.03276	GR AGGR BASE CRS, INCL MATL	\$180,435.80
0005	402-3113	1220.000	TN	\$65.98000	RECYL AC 12.5MM SP,GP1/2,BM&HL	\$80,495.60
0015	402-3121	4066.000	TN	\$61.39291	RECYL AC 25MM SP,GP1/2,BM&HL	\$249,623.57
0010	402-3190	1627.000	TN	\$66.93639	RECYL AC 19 MM SP,GP 1 OR 2 ,INC BM&HL	\$108,905.51
0025	413-1000	1773.000	GL	\$2.50714	BITUM TACK COAT	\$4,445.16
0230	441-0104	623.000	SY	\$37.79350	CONC SIDEWALK, 4 IN	\$23,545.35
0235	441-0748	1034.000	SY	\$35.71454	CONC MEDIAN, 6 IN	\$36,928.83
0054	441-5025	315.000	LF	\$16.10000	CONC HEADER CURB, 4", TP 9	\$5,071.50
0030	441-6222	1356.000	LF	\$13.12787	CONC CURB & GUTTER/ 8"X30"TP2	\$17,801.39
0050	632-0003	3.000	EA	\$4,198.47000	CHANGEABLE MESS SIGN,PORT,TP 3	\$12,595.41
0045	634-1200	28.000	EA	\$102.75191	RIGHT OF WAY MARKERS	\$2,877.05
SUBTOTAL FOR ROADWAY:						\$822,725.17

0020 - PERMANENT EROSION CONTROL

Line Number	ITEM	QUANTITY	UNITS	PRICE	DESCRIPTION	AMOUNT
0055	163-0240	886.000	TN	\$242.45037	MULCH	\$214,811.03
0060	700-6910	11.000	AC	\$643.85667	PERMANENT GRASSING	\$7,082.42
0065	700-7000	48.000	TN	\$32.38133	AGRICULTURAL LIME	\$1,554.30
0070	700-8000	14.000	TN	\$403.19649	FERTILIZER MIXED GRADE	\$5,644.75
0075	700-8100	1594.000	LB	\$1.78696	FERTILIZER NITROGEN CONTENT	\$2,848.41
0085	716-2000	9306.000	SY	\$0.97000	EROSION CONTROL MATS, SLOPES	\$9,026.82
SUBTOTAL FOR PERMANENT EROSION CONTROL:						\$240,967.73

DETAILED COST ESTIMATE



Job: 0009938

0030 - TEMPORARY EROSION CONTROL

Line Number	ITEM	QUANTITY	UNITS	PRICE	DESCRIPTION	AMOUNT
0090	163-0232	5.000	AC	\$64.41916	TEMPORARY GRASSING	\$322.10
0095	163-0300	3.000	EA	\$1,213.86821	CONSTRUCTION EXIT	\$3,641.60
0210	163-0502	2.000	EA	\$526.32000	CONSTR AND REMOVE SILT CONTROL GATE, TP 2	\$1,052.64
0215	163-0503	7.000	EA	\$379.53000	CONSTR AND REMOVE SILT CONTROL GATE, TP 3	\$2,656.71
0205	163-0527	35.000	EA	\$219.05000	CNST/REM RIP RAP CKDM, STN P RIPRAP/SN BG	\$7,666.75
0195	163-0528	70.000	LF	\$4.30000	CONSTR AND REM FAB CK DAM -TP C SLT FN	\$301.00
0100	165-0010	1258.000	LF	\$0.57937	MAINT OF TEMP SILT FENCE, TP A	\$728.85
0220	165-0041	420.000	LF	\$2.77000	MAINT OF CHECK DAMS - ALL TYPES	\$1,163.40
0185	165-0086	2.000	EA	\$79.14000	MAINT OF SILT CONTROL GATE, TP 2	\$158.28
0190	165-0087	7.000	EA	\$93.25000	MAINT OF SILT CONTROL GATE, TP 3	\$652.75
0105	165-0101	14.000	EA	\$472.40980	MAINT OF CONST EXIT	\$6,613.74
0180	167-1000	2.000	EA	\$309.15000	WATER QUALITY MONITORING AND SAMPLING	\$618.30
0110	171-0010	2515.000	LF	\$1.64162	TEMPORARY SILT FENCE, TYPE A	\$4,128.67
SUBTOTAL FOR TEMPORARY EROSION CONTROL:						\$29,704.79

0040 - SIGNING & MARKING

Line Number	ITEM	QUANTITY	UNITS	PRICE	DESCRIPTION	AMOUNT
0225	636-1020	200.000	SF	\$13.45305	HWY SGN, TP1MAT, REFL SH TP3	\$2,690.61
0115	653-1501	10910.000	LF	\$0.44101	THERMO SOLID TRAF ST 5 IN, WHI	\$4,811.42
0120	653-1502	8706.000	LF	\$0.42134	THERMO SOLID TRAF ST, 5 IN YEL	\$3,668.19
SUBTOTAL FOR SIGNING & MARKING:						\$11,170.22

0050 - LANDSCAPING

Line Number	ITEM	QUANTITY	UNITS	PRICE	DESCRIPTION	AMOUNT
0080	700-9300	260.000	SY	\$4.53000	SOD	\$1,177.80
0125	702-9005	100.000	LB	\$8.15818	SPRING APPLICATION FERTILIZER	\$815.82
0130	702-9025	136.000	SY	\$5.60705	LANDSCAPE MULCH	\$762.56
SUBTOTAL FOR LANDSCAPING:						\$2,756.18

0060 - LIGHTING

Line Number	ITEM	QUANTITY	UNITS	PRICE	DESCRIPTION	AMOUNT
0135	615-1200	660.000	LF	\$11.09930	DIRECTIONAL BORE - LF	\$7,325.54
0140	647-2120	24.000	EA	\$285.57467	PULL BOX, PB-2	\$6,853.79
0145	681-4230	12.000	EA	\$4,840.00000	LT STD, 50' MH, POST TOP	\$58,080.00
0150	681-6446	48.000	EA	\$727.52500	LUMINAIRE, TP 4, 250W, HP SODIUM	\$34,921.20
0155	682-1505	6000.000	LF	\$1.30000	CABLE, TP RHH/RHW, AWG NO 8	\$7,800.00
0160	682-6222	720.000	LF	\$8.39289	CONDUIT, NONMETL, TP 2, 2 IN	\$6,042.88
0165	682-6233	1320.000	LF	\$2.19815	CONDUIT, NONMETL, TP 3, 2 IN	\$2,901.56
0170	682-9000	1.000	LS	\$17,000.00000	MAIN SVC PICK UP POINT	\$17,000.00
0175	682-9010	12.000	EA	\$603.31278	SVC POLE RISER	\$7,239.75
SUBTOTAL FOR LIGHTING:						\$148,164.72

DETAILED COST ESTIMATE



Job: 0009938

0070 - DRAINAGE

Line Number	ITEM	QUANTITY	UNITS	PRICE	DESCRIPTION	AMOUNT
0245	550-1180	237.000	LF	\$41.07218	STM DR PIPE 18",H 1-10	\$9,734.11
0250	550-2180	300.000	LF	\$27.40499	SIDE DR PIPE 18",H 1-10	\$8,221.50
0260	550-4118	12.000	EA	\$304.76806	FLARED END SECT 18 IN, SIDE DR	\$3,657.22
0255	550-4218	3.000	EA	\$479.06694	FLARED END SECT 18 IN, ST DR	\$1,437.20
0265	668-2100	4.000	EA	\$1,384.19684	DROP INLET, GP 1	\$5,536.79
SUBTOTAL FOR DRAINAGE:						\$28,586.82

TOTALS FOR JOB 0009938

ITEMS COST:	\$1,284,075.63
COST GROUP COST:	\$0.00
ESTIMATED COST:	\$1,282,638.43
CONTINGENCY PERCENT:	0.00
ENGINEERING AND INSPECTION:	0.05
ESTIMATED COST WITH CONTINGENCY AND E&I:	\$1,346,770.35

Total Liquid AC	\$119,756.91
Adjustment Cost	
Total Cst Cost	\$1,466,527.26

CALL NO.

PROJ. NO.

P.I. NO.

DATE

9938

4/23/2013

INDEX (TYPE)

DATE INDEX

REG. UNLEADED

Apr-13 \$ 3.498

DIESEL

\$ 3.970

LIQUID AC

\$ 565.00

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)

Monthly Asphalt Cement Price month placed (APM)

Monthly Asphalt Cement Price month project let (APL)

Total Monthly Tonnage of asphalt cement (TMT)

\$ 117,175.35

\$ 117,175.35

Max. Cap 60%

\$ 904.00

\$ 565.00

345.65

ASPHALT

%AC AC ton

Leveling	Tons	%AC	AC ton
12.5 OGFC		5.0%	0
12.5 mm	1220	5.0%	0
9.5 mm SP		5.0%	61
25 mm SP	4066	5.0%	0
19 mm SP	1627	5.0%	203.3
	6913		81.35
			345.65

BITUMINOUS TACK COAT

Price Adjustment (PA)

Monthly Asphalt Cement Price month placed (APM)

Monthly Asphalt Cement Price month project let (APL)

Total Monthly Tonnage of asphalt cement (TMT)

\$ 2,581.56

\$ 2,581.56

Max. Cap 60%

\$ 904.00

\$ 565.00

7.615213935

Bitum Tack

Gals

gals/ton tons

1773

232.8234 7.61521393

**GEORGIA DEPARTMENT OF TRANSPORTATION
PRELIMINARY ROW COST ESTIMATE SUMMARY**

Date: 8/30/2012 Project: 0009938
 Revised: County: Dawson
 PI: 0009938

Description: SR 53 @ SR 183 Roundabout
 Project Termini: SR 53 @ SR 183 Roundabout

Existing ROW: Varies
 Required ROW: Varies
 Parcels: 10

Land and Improvements _____ \$639,810.00

Proximity Damage	\$0.00
Consequential Damage	\$0.00
Cost to Cures	\$0.00
Trade Fixtures	\$0.00
Improvements	\$200,000.00

Valuation Services _____ \$12,500.00

Legal Services _____ \$81,750.00

Relocation _____ \$20,000.00

Demolition _____ \$0.00

Administrative _____ \$87,500.00

TOTAL ESTIMATED COSTS _____ \$841,560.00

TOTAL ESTIMATED COSTS (ROUNDED) _____ \$842,000.00

Preparation Credits	Hours	Signature

Prepared By: Lashone Alexander CG#: 286999 8/30/2012
 Approved By: Lashone Alexander CG#: 286999 8/30/2012

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

**DEPARTMENT OF TRANSPORTATION
STATE OF GEORGIA**

INTERDEPARTMENT CORRESPONDENCE

FILE P.I. No. 0009938 Dawson Co.
 Roundabout SR 53 @ SR 183

OFFICE Gainesville

DATE February 28, 2013

FROM Jason Dykes
 Assistant District Utilities Engineer

TO Charity Belford, Project Manager

SUBJECT PRELIMINARY REIMBURSABLE UTILITY COST (ESTIMATE)

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

FACILITY OWNER	NON-REIMBURSABLE	REIMBURSABLE
Amicalola EMC	\$ 90,000.00	\$ 18,000.00
Windstream	\$ 10,640.00	\$ 0.00
<hr/>		
Total:	\$ 100,640.00	\$ 18,000.00

** Please note that there is an electrical transmission line that crosses SR 183 just north of the tie-in point. Should the tie-in point be shifted farther north, then the line may become in conflict, which would substantially increase the reimbursable relocation costs and project time.

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

JAD

CC: Michael Bolden, State Utilities Engineer
Angie Robinson, Office of Financial Management
Matthew Needham, Area Engineer
File

ATTACHMENT 3:
CRASH SUMMARIES

Crash Data for the most recent three years 2010-2012
SR 53 @ SR 183, Dawson County

2010	Number of Incident	Injury	Fatality
Rear End	1	0	0
Total	1	0	0

2011	Number of Incident	Injury	Fatality
Rear End	1	1	0
Angle	1	1	1
Sideswipe	1	0	0
Not a Collision with Motor Vehicle	1	0	0
Total	4	2	1

2012	Number of Incident	Injury	Fatality
Rear End	1	0	0
Angle	1	0	0
Total	2	0	0

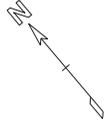
*State-wide data compilation not yet available for these years

ATTACHMENT 4:
TRAFFIC DIAGRAMS

BUILD 2037/2017 ADT

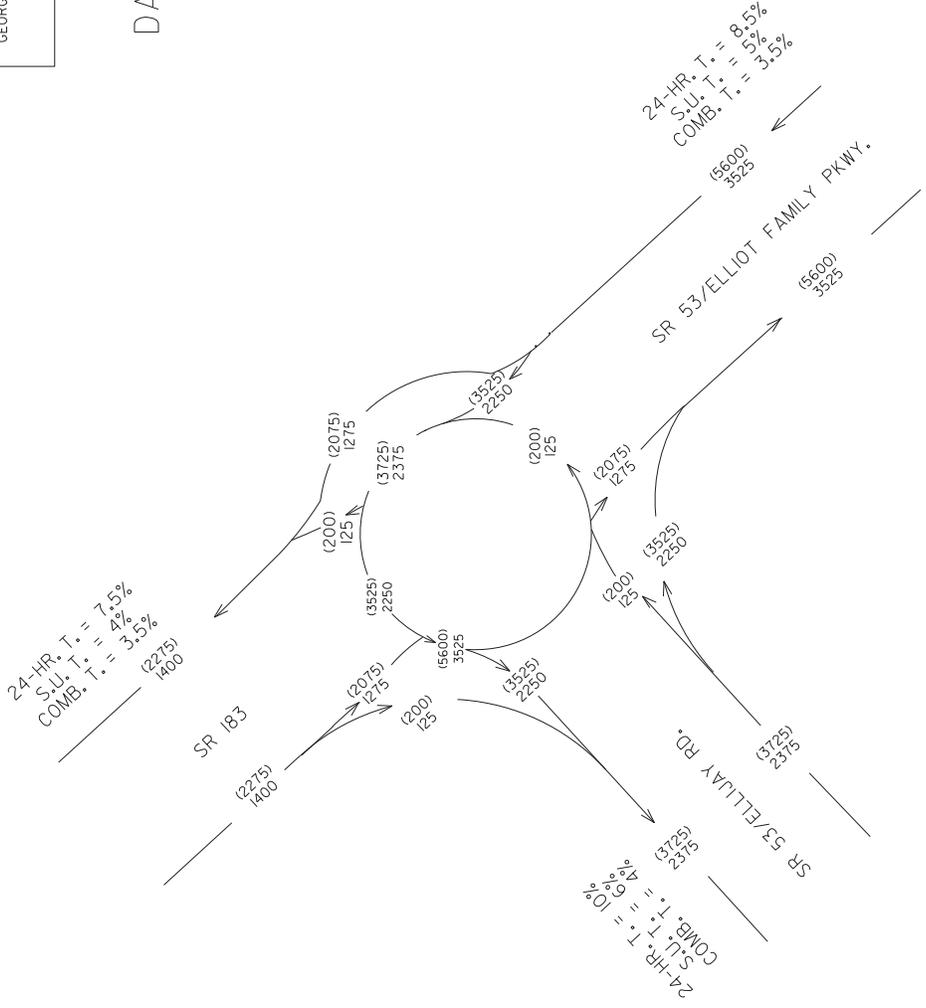
GEORGIA DEPARTMENT OF TRANSPORTATION
OFFICE OF PLANNING

DAWSON COUNTY



P.I. # 0009938
DAWSON COUNTY
SR 53 @ SR 183
BUILD
ADT 2037=(000)
2017= 000
LRW
02/12

SHEET 1 OF 6



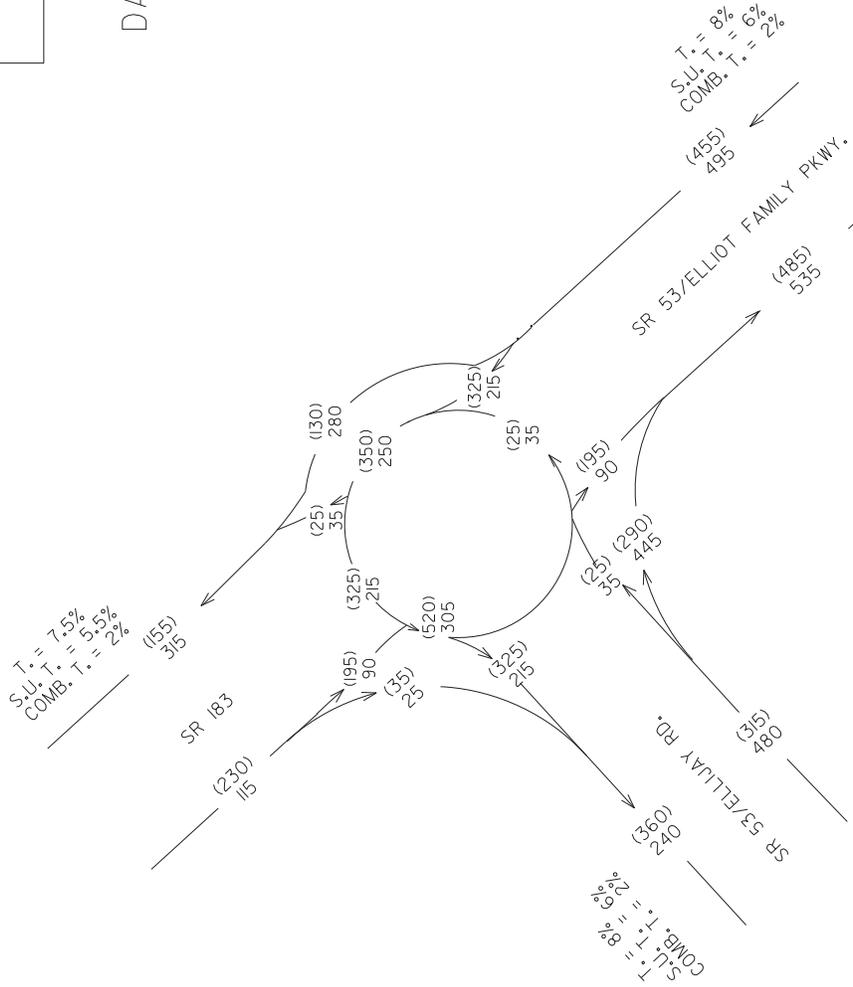
BUILD 2037 DHV

GEORGIA DEPARTMENT OF TRANSPORTATION
OFFICE OF PLANNING

DAWSON COUNTY

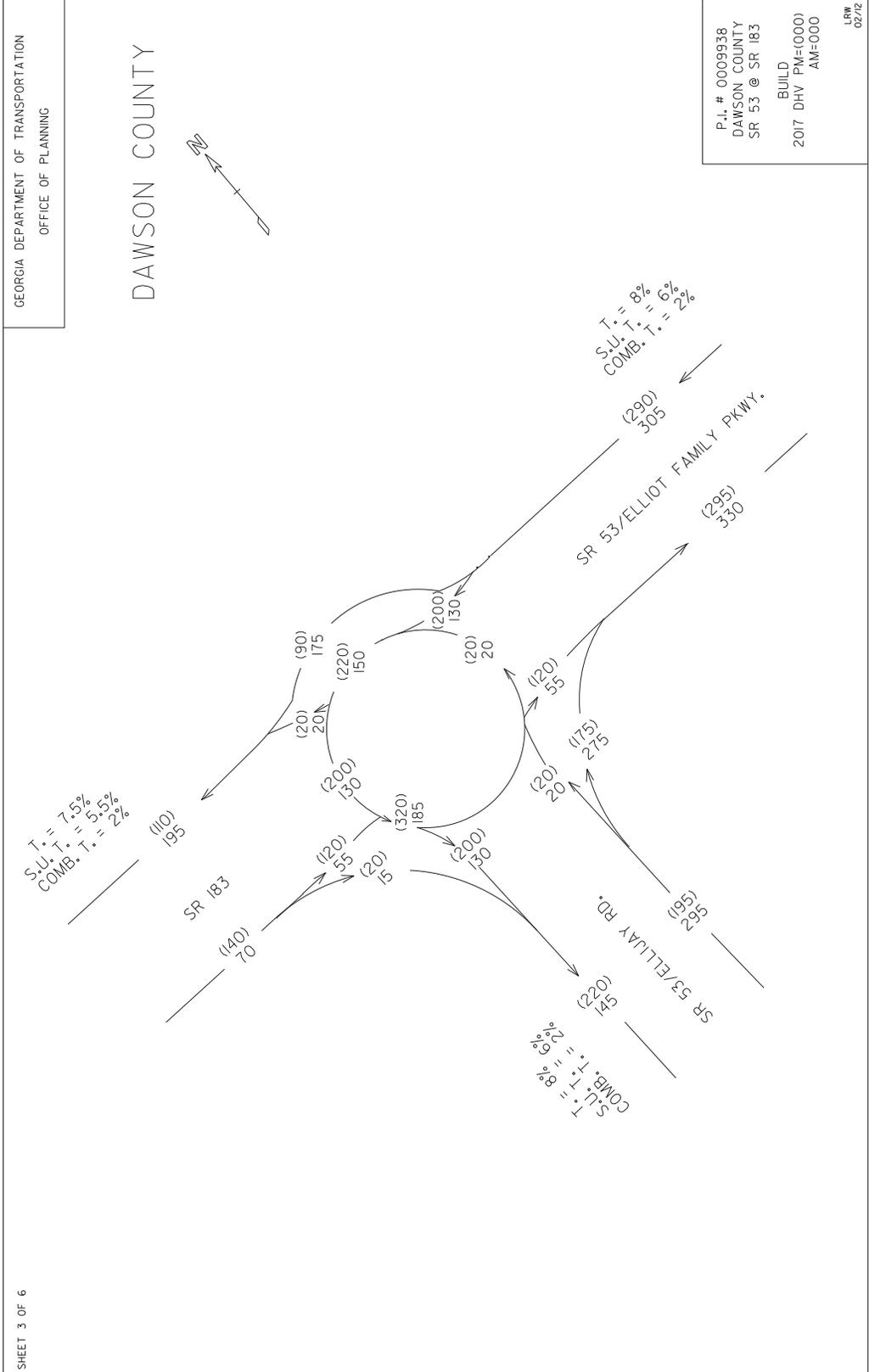


SHEET 2 OF 6



P.I. # 000938
DAWSON COUNTY
SR 53 @ SR 183
BUILD
2037 DHV PM=(000)
AM= 000
LRW
02/12

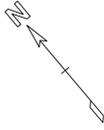
BUILD 2017 DHV



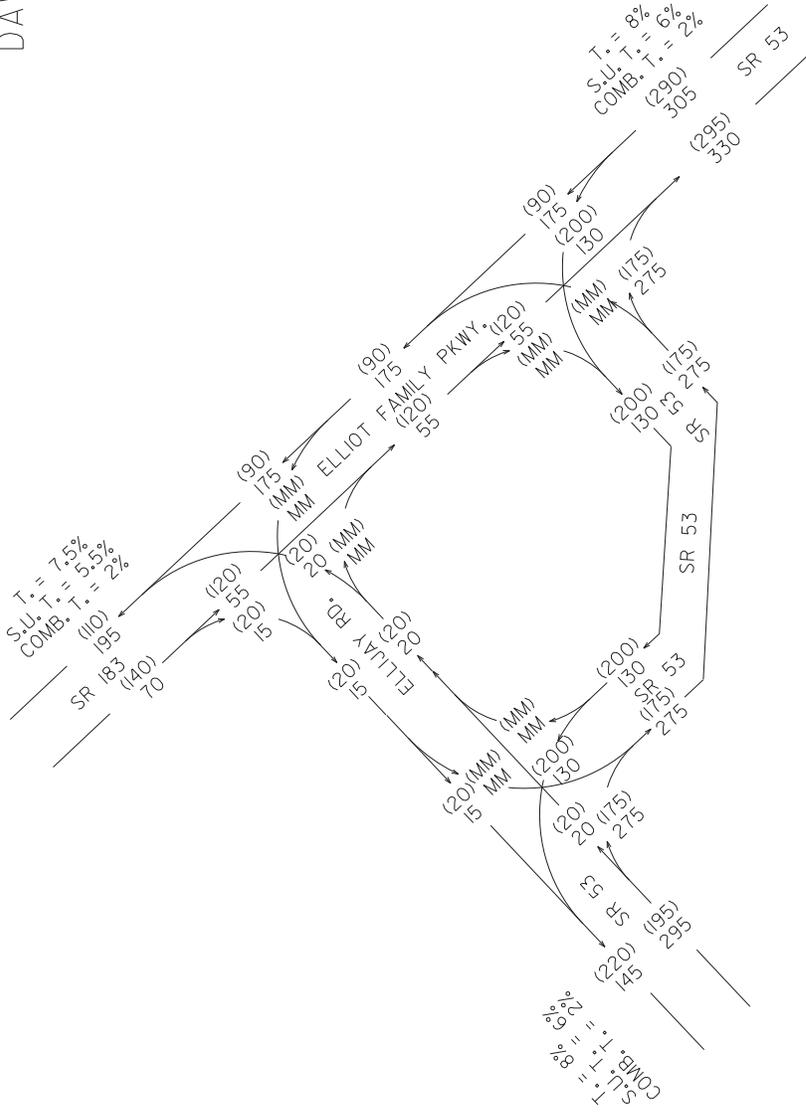
NO BUILD 2017 DHV

GEORGIA DEPARTMENT OF TRANSPORTATION
OFFICE OF PLANNING

DAWSON COUNTY



SHEET 6 OF 6



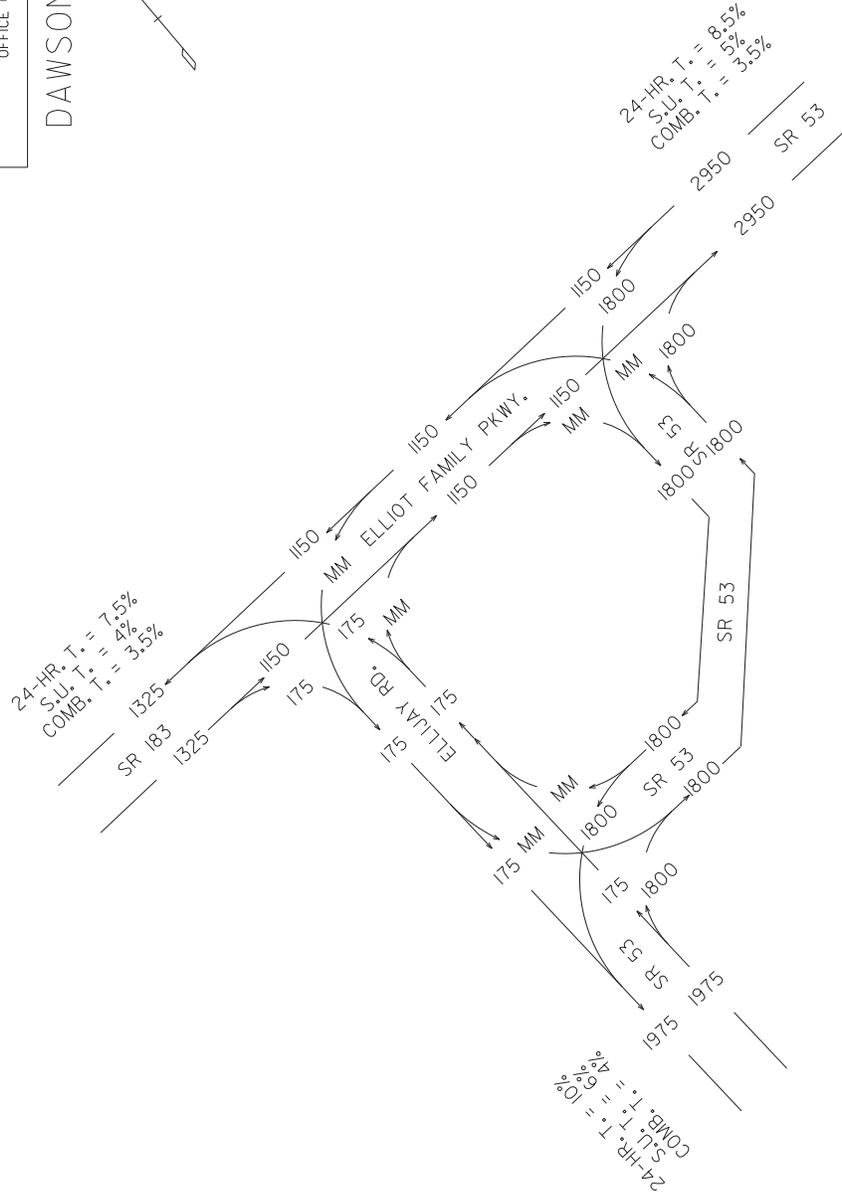
P.I. # 0009938
DAWSON COUNTY
SR 53 @ SR 183
NO BUILD
BASE YR. 2017 DHV
PM = (000)
AM = 000
LRW
02/12

EXISTING 2011 ADT

SHEET 1 OF 2

GEORGIA DEPARTMENT OF TRANSPORTATION
OFFICE OF PLANNING

DAWSON COUNTY



P.I. # 0009938
DAWSON COUNTY
SR 53 @ SR 183

2011 ADT

LRW
02/12

ATTACHMENT 5:
CAPACITY ANALYSIS SUMMARY

Operational Analysis

As shown in tables 3 through 6, the operational delay and level of service (LOS) are better at a roundabout than at a signalized intersection. A roundabout will provide an LOS A from base year through design year whereas a signalized intersection will drop down to an LOS B by the year 2037. In a no-build scenario as shown in tables 7 and 8, LOS will drop to an E by design year for the minor approach of SR 183.

Analysis Tool	Approach	Movement	2017 – Base Year							
			AM				PM			
			V/C	Delay (s/veh)	LOS	95 th % Queue (ft)	V/C	Delay (s/veh)	LOS	95 th % Queue (ft)
Roundabout										
Sidra	Southbound	L	0.08	4.6	A	12	0.19	6.1	A	27
		R								
	Eastbound	L	0.29	5.9	A	52	0.23	6.1	A	38
	T									
	Westbound	R	0.27	5.1	A	46	0.25	5.0	A	45
		T								
HCS	Southbound	L	0.09	5	A	8	0.19	6	A	19
		R								
	Eastbound	L	0.34	7	A	41	0.25	6	A	26
	T									
	Westbound	R	0.34	7	A	41	0.32	7	A	38
		T								

Table 3 - Roundabout Capacity Analysis - 2017

Analysis Tool	Approach	Movement	2037 – Design Year							
			AM				PM			
			V/C	Delay (s/veh)	LOS	95 th % Queue (ft)	V/C	Delay (s/veh)	LOS	95 th % Queue (ft)
Roundabout										
Sidra	Southbound	L	0.16	5.9	A	23	0.36	9.4	A	58
		R								
	Eastbound	L	0.50	9.1	A	115	0.42	9.4	A	81
	T									
	Westbound	R	0.44	7.3	A	101	0.39	6.5	A	87
		T								
HCS	Southbound	L	0.16	6	A	15	0.37	10	A	46
		R								
	Eastbound	L	0.58	12	B	104	0.43	10	A	60
	T									
	Westbound	R	0.56	11	B	97	0.51	10	A	80
		T								

Table 4 - Roundabout Capacity Analysis - 2037

Approach	Movement	2017 – Base Year					
		AM			PM		
		V/C	Delay (s/veh)	LOS	V/C	Delay (s/veh)	LOS
Signalized Intersection							
Southbound	L	0.16	13.6	B	0.38	13.0	B
	R						
Eastbound	L	0.40	9.2	A	0.27	5.9	A
	T						
Westbound	R	0.43	9.6	A	0.39	6.5	A
	T						

Table 5 - Signalized Intersection Capacity Analysis - 2017

Approach	Movement	2037 – Design Year					
		AM			PM		
		V/C	Delay (s/veh)	LOS	V/C	Delay (s/veh)	LOS
Signalized Intersection							
Southbound	L	0.25	15.7	B	0.51	19.7	B
	R						
Eastbound	L	0.66	15.4	B	0.43	11.2	B
	T						
Westbound	R	0.69	16.4	B	0.61	14.1	B
	T						

Table 6 - Signalized Intersection Capacity Analysis – 2037

Approach	Movement	2037 – Design Year					
		AM			PM		
		V/C	Delay (s/veh)	LOS	V/C	Delay (s/veh)	LOS
Signalized Intersection							
Southbound	L	0.16	13.8	B	0.30	14.9	B
	R						
Eastbound	L	0.02	8.1	A	0.02	8.1	A
	T						
Westbound	R	0.02	8.1	A	0.02	8.1	A
	T						

Table 7 - No Build Capacity Analysis – 2017

Approach	Movement	2037 – Design Year					
		AM			PM		
		V/C	Delay (s/veh)	LOS	V/C	Delay (s/veh)	LOS
Signalized Intersection							
Southbound	L	0.44	26.7	D	0.75	44.1	E
	R						
Eastbound	L	0.04	8.8	A	0.03	8.6	A
	T						
Westbound	R	0.04	8.8	A	0.03	8.6	A
	T						

Table 8 - No Build Capacity Analysis - 2037

ATTACHMENT 6:
SIGNAL WARRANT ANALYSIS

Georgia Department of Transportation

District One Traffic Operations

SR 53 @ SR 183

Dawson County

12/4/12

2017 Project ADT

5.6% Analysis

Signal Warrants - Summary

Major Street Approaches

Eastbound: SR 53

Number of Lanes: 1

Approach Speed: 55

Total Approach Volume: 1,064

Westbound: SR 53

Number of Lanes: 1

Approach Speed: 55

Total Approach Volume: 2,144

Minor Street Approaches

Southbound: SR 183

Number of Lanes: 1

Total Approach Volume: 624

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 Satisfied
Warrant 3A - Peak Hour Delay Not Satisfied	
Total approach volumes and delays on minor street do not exceed minimums for any hour.	
Warrant 3B - Peak Hour Volumes Not Satisfied	
Volumes do not exceed minimums for any hour.	
Warrant 4 - Pedestrian Volumes	Not Evaluated
Warrant 5 - School Crossing	Not Evaluated
Warrant 6 - Coordinated Signal System	Not Evaluated
Warrant 7 - Crash Experience	Not Satisfied
Number of accidents (-1) is less than minimum (5). Volume minimums are not met.	
Warrant 8 - Roadway Network	Not Evaluated

Georgia Department of Transportation

District One Traffic Operations

SR 53 @ SR 183

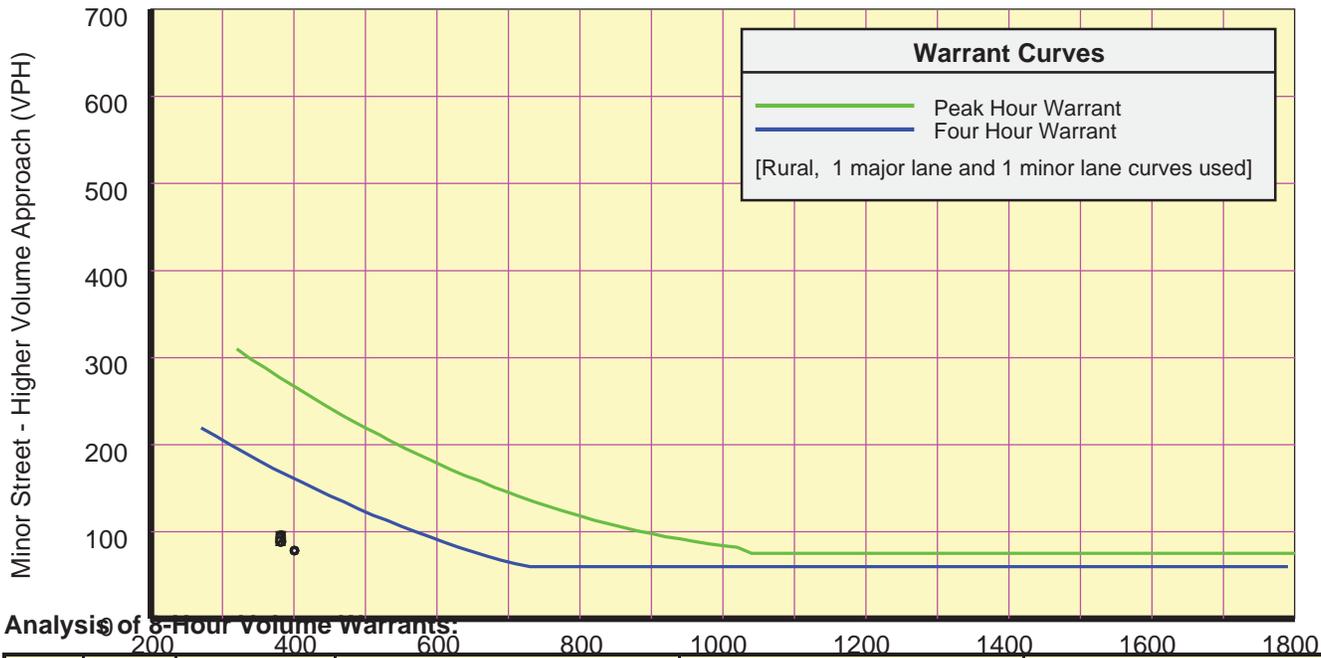
Dawson County

12/4/12

2017 Project ADT

5.6% Analysis

Signal Warrants - Summary



Analysis of 8-Hour Volume Warrants:

Hour Begin	Major Total	Higher Vol	Minor 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	401	78	SB	500-No	150-No	---	750-No	75-Yes	Minor	600-No	120-No	---
01:00	401	78	SB	500-No	150-No	---	750-No	75-Yes	Minor	600-No	120-No	---
02:00	401	78	SB	500-No	150-No	---	750-No	75-Yes	Minor	600-No	120-No	---
03:00	401	78	SB	500-No	150-No	---	750-No	75-Yes	Minor	600-No	120-No	---
04:00	401	78	SB	500-No	150-No	---	750-No	75-Yes	Minor	600-No	120-No	---
05:00	401	78	SB	500-No	150-No	---	750-No	75-Yes	Minor	600-No	120-No	---
06:00	401	78	SB	500-No	150-No	---	750-No	75-Yes	Minor	600-No	120-No	---
07:00	401	78	SB	500-No	150-No	---	750-No	75-Yes	Minor	600-No	120-No	---
08:00	0	0	NB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
09:00	0	0	NB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
10:00	0	0	NB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
11:00	0	0	NB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
12:00	0	0	NB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
13:00	0	0	NB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
14:00	0	0	NB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
15:00	0	0	NB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
16:00	0	0	NB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
17:00	0	0	NB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
18:00	0	0	NB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
19:00	0	0	NB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
20:00	0	0	NB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
21:00	0	0	NB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
22:00	0	0	NB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
23:00	0	0	NB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---

Georgia Department of Transportation

District One Traffic Operations

SR 53 @ SR 183

Dawson County

12/4/12

2037 Project ADT

5.6% Analysis

Signal Warrants - Summary

Major Street Approaches

Eastbound: SR 53

Number of Lanes: 1

Approach Speed: 55

Total Approach Volume: 1,664

Westbound: SR 53

Number of Lanes: 1

Approach Speed: 55

Total Approach Volume: 1,936

Minor Street Approaches

Southbound: SR 183

Number of Lanes: 1

Total Approach Volume: 176

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 Satisfied
Warrant 3A - Peak Hour Delay Not Satisfied	
Total approach volumes and delays on minor street do not exceed minimums for any hour.	
Warrant 3B - Peak Hour Volumes Not Satisfied	
Volumes do not exceed minimums for any hour.	
Warrant 4 - Pedestrian Volumes	Not Evaluated
Warrant 5 - School Crossing	Not Evaluated
Warrant 6 - Coordinated Signal System	Not Evaluated
Warrant 7 - Crash Experience	Not Satisfied
Number of accidents (-1) is less than minimum (5). Volume minimums are not met.	
Warrant 8 - Roadway Network	Not Evaluated

Georgia Department of Transportation

District One Traffic Operations

SR 53 @ SR 183

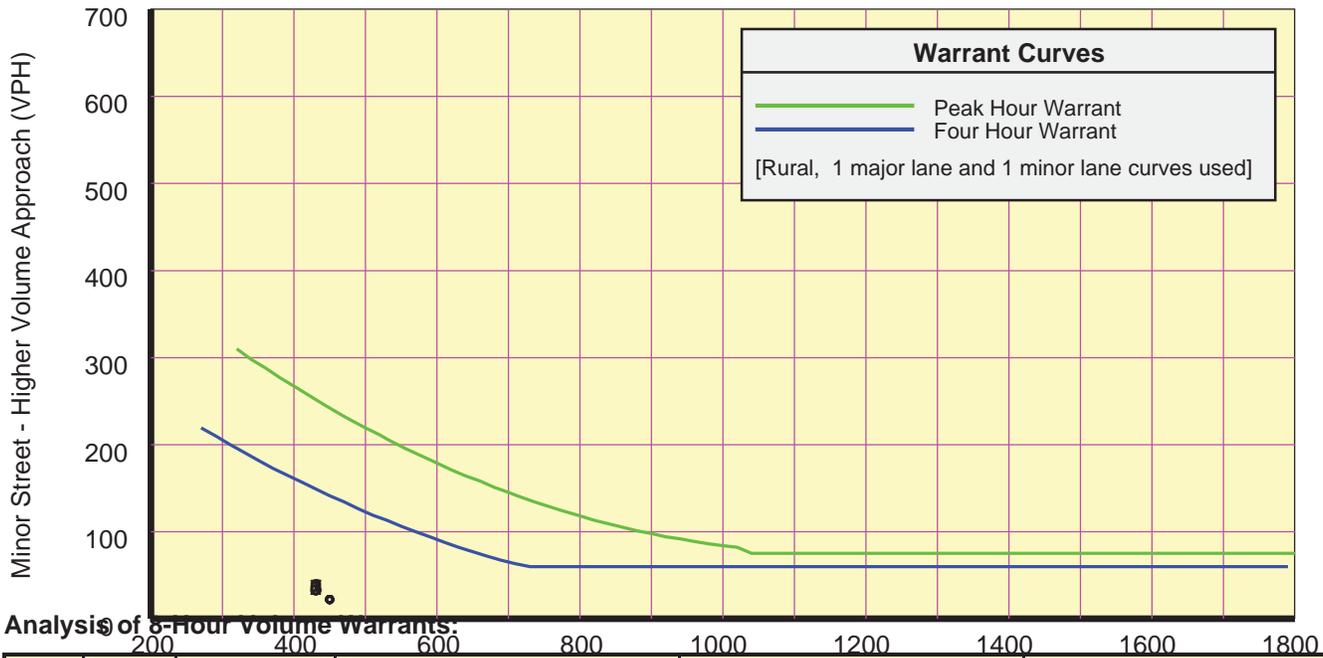
Dawson County

12/4/12

2037 Project ADT

5.6% Analysis

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	450	22	SB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
01:00	450	22	SB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
02:00	450	22	SB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
03:00	450	22	SB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
04:00	450	22	SB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
05:00	450	22	SB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
06:00	450	22	SB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
07:00	450	22	SB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
08:00	0	0	NB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
09:00	0	0	NB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
10:00	0	0	NB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
11:00	0	0	NB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
12:00	0	0	NB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
13:00	0	0	NB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
14:00	0	0	NB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
15:00	0	0	NB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
16:00	0	0	NB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
17:00	0	0	NB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
18:00	0	0	NB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
19:00	0	0	NB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
20:00	0	0	NB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
21:00	0	0	NB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
22:00	0	0	NB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---
23:00	0	0	NB	500-No	150-No	---	750-No	75-No	---	600-No	120-No	---

ATTACHMENT 7a:
**TRAFFIC ENGINEERING STUDY/
PLANNING LEVEL ASSESSMENT**

TRAFFIC ENGINEERING REPORT

January 28, 2011

COUNTY: Dawson

LOCATION: Intersection of SR 53 and SR 183

REASON FOR INVESTIGATION:

To determine if an all way stop controlled intersection or roundabout could improve safety or operational efficiency.

TOPOGRAPHY:

The intersection is located in a rural area with a few residences nearby. SR 53 is a two-lane roadway generally running east-west. SR 183 begins at SR 53 and runs north-south. Instead of being a traditional "T" intersection, as it approaches SR 53, SR 183 "forks" creating a large triangle island. The island is approximately 280 feet long on each side.

VEHICLE VOLUMES:

The most current data reflects the average daily traffic for State Route 53 is 2950 vehicles per day and 2580 vehicles per day for SR 183.

EXISTING TRAFFIC CONTROL:

There are three stop signs to control this intersection. There is a stop sign at the northern point of the triangle for the SR 53 eastbound to SR 183 northbound movement. There is a stop sign at the southwest corner for the SR 183 southbound to SR 53 westbound movement. The third stop sign is in the southeast corner for the SR 183 southbound to SR 53 eastbound movement.

SPEED LIMITS:

The posted speed limit on both roads is 55 mph.

OTHER INFORMATION:

To make this intersection operate as an all-way stop it would have to be controlled by three all way stops.

CONCLUSIONS:

The use of three all way stop controlled intersections is not the preferred alternative due to the delay it would introduce because all vehicles travelling through the intersection would be required to stop twice.

ATTACHMENT 7b:
ROUNDBOUT FEASIBILITY STUDY



Figure 1- Existing Vicinity Map: SR 53 at SR 183

Existing Conditions

The intersection of SR 53 and SR 183 is located in a rural area with a few residences nearby. There are three bridges within a 1-mile radius of the intersection. SR 183 currently splits as it approaches SR 53, creating a large triangular island. The island is approximately 300 feet long on each side.

SR 53 is a two lane non-NHS rural principle arterial with an ADT of 5900 vehicles per day. SR 183 is a two lane rural major collector with an ADT of 2650 vehicles per day. The posted speed of both roads is 55 mph. Presently, there are three stop signs at this intersection. There are two for the SR 183 southbound to SR 53 westbound and eastbound movements. There is another one for the SR 53 eastbound to SR 183 northbound movement.

Safety Assessment

Historical crash data was obtained from the Office of Traffic Safety and Design for the available most recent five years (2004-2008). There were 23 total collisions, 17 injuries and no fatality at this intersection during the five-year span. As shown in Table 1, the total crashes and injuries from year 2005 through 2008 at the study location are higher than the state-wide averages.

Year	Total Crashes	State Crash Average	Total Injuries	State Injury Average	Total Fatalities	State Fatality Average
2004	3.00	3.13	0.00	0.92	0.00	0.00
2005	5.00	2.63	3.00	0.88	0.00	0.00
2006	5.00	3.57	3.00	1.07	0.00	0.71
2007	4.00	1.96	6.00	0.50	0.00	0.00
2008	6.00	1.96	5.00	0.42	0.00	0.00

Table 1 - SR 53 at SR 183 Intersection Crash Rates versus Statewide Average

Table 2 provides the number of crashes and injury rate per crash type. About 39% of the total incidents were angle collisions; most of which are caused by a left turning vehicle colliding with a vehicle on the intersecting road. This may be due to the high traveling speed and the long required intersection sight distance. About 26% of the incidents were rear-ends, which were likely due to the stopping condition of the intersection. Non-motor vehicle collisions make up about 17% of the total incidents, with most happening while the vehicle was negotiating the curve. These resulted in overturning or running off the roadway. The two sideswipes that happened were between two vehicles going in opposite directions where one case involved someone negotiating the curve. Thus it can be seen that the existing horizontal curve at this intersection may be one of the safety concerns.

Crash Type	SR 53/SR 183					
	Total	%	Injury	%	Fatality	%
Angle	9	39.1%	9	52.9%	0	0.0%
Head On	2	8.7%	3	17.6%	0	0.0%
Rear End	6	26.1%	0	0.0%	0	0.0%
Sideswipe	2	8.7%	2	11.8%	0	0.0%
Not a Collision with a Motor Vehicle	4	17.4%	3	17.6%	0	0.0%
<i>Total</i>	<i>23</i>	<i>100.0%</i>	<i>17</i>	<i>100.0%</i>	<i>0</i>	<i>0.0%</i>

Table 2 - SR 53/SR183 Crash Types and Rates

Alternate Sketches

Four roundabout designs and a signalized intersection design were developed for alternate analysis. The four roundabouts are all single-lane designs. The first one is a Y-shaped roundabout which situates the inscribed circle within the existing triangular island to minimize ROW impacts (Figure 2). An unfavorable condition that comes with this design is that the dominant movement from SR 53 East going westbound to SR 53 West is made to almost be a left-turn. The second design tees up the intersection and situates the inscribed circle to the south so that the dominant movement along SR 53 can remain through movements (Figure 3). The third design situates the inscribed circle to the East (Figure 4) and the fourth design situates the inscribed circle to the West (Figure 5). Both of these are unfavorable to the dominant movement. Figure 6 shows the layout for the signalized intersection.



Figure 2 - Concept 1: Y-roundabout





Figure 4 - Concept 3: T-roundabout (SR 183/SR 53 EB)



Figure 5 - Concept 4: T-Roundabout (SR 183/SR 53 WB)



Figure 6 - Concept 5: Signalized Intersection

Operational Analysis

As shown in tables 3 through 6, the operational delay and level of service (LOS) are better at a roundabout than at a signalized intersection. A roundabout will provide an LOS A from base year through design year whereas a signalized intersection will drop down to an LOS B by the year 2037. In a no-build scenario as shown in tables 7 and 8, LOS will drop to an E by design year for the minor approach of SR 183.

Analysis Tool	Approach	Movement	2017 – Base Year							
			AM				PM			
			V/C	Delay (s/veh)	LOS	95 th % Queue (ft)	V/C	Delay (s/veh)	LOS	95 th % Queue (ft)
Roundabout										
Sidra	Southbound	L	0.08	4.6	A	12	0.19	6.1	A	27
		R								
	Eastbound	L	0.29	5.9	A	52	0.23	6.1	A	38
	T									
	Westbound	R	0.27	5.1	A	46	0.25	5.0	A	45
		T								
HCS	Southbound	L	0.09	5	A	8	0.19	6	A	19
		R								
	Eastbound	L	0.34	7	A	41	0.25	6	A	26
	T									
	Westbound	R	0.34	7	A	41	0.32	7	A	38
		T								

Table 3 - Roundabout Capacity Analysis - 2017

Analysis Tool	Approach	Movement	2037 – Design Year							
			AM				PM			
			V/C	Delay (s/veh)	LOS	95 th % Queue (ft)	V/C	Delay (s/veh)	LOS	95 th % Queue (ft)
Roundabout										
Sidra	Southbound	L	0.16	5.9	A	23	0.36	9.4	A	58
		R								
	Eastbound	L	0.50	9.1	A	115	0.42	9.4	A	81
	T									
	Westbound	R	0.44	7.3	A	101	0.39	6.5	A	87
		T								
HCS	Southbound	L	0.16	6	A	15	0.37	10	A	46
		R								
	Eastbound	L	0.58	12	B	104	0.43	10	A	60
	T									
	Westbound	R	0.56	11	B	97	0.51	10	A	80
		T								

Table 4 - Roundabout Capacity Analysis - 2037

Approach	Movement	2017 – Base Year					
		AM			PM		
		V/C	Delay (s/veh)	LOS	V/C	Delay (s/veh)	LOS
Signalized Intersection							
Southbound	L	0.16	13.6	B	0.38	13.0	B
	R						
Eastbound	L	0.40	9.2	A	0.27	5.9	A
	T						
Westbound	R	0.43	9.6	A	0.39	6.5	A
	T						

Table 5 - Signalized Intersection Capacity Analysis - 2017

Approach	Movement	2037 – Design Year					
		AM			PM		
		V/C	Delay (s/veh)	LOS	V/C	Delay (s/veh)	LOS
Signalized Intersection							
Southbound	L	0.25	15.7	B	0.51	19.7	B
	R						
Eastbound	L	0.66	15.4	B	0.43	11.2	B
	T						
Westbound	R	0.69	16.4	B	0.61	14.1	B
	T						

Table 6 - Signalized Intersection Capacity Analysis – 2037

Approach	Movement	2037 – Design Year					
		AM			PM		
		V/C	Delay (s/veh)	LOS	V/C	Delay (s/veh)	LOS
Signalized Intersection							
Southbound	L	0.16	13.8	B	0.30	14.9	B
	R						
Eastbound	L	0.02	8.1	A	0.02	8.1	A
	T						
Westbound	R	0.02	8.1	A	0.02	8.1	A
	T						

Table 7 - No Build Capacity Analysis – 2017

Approach	Movement	2037 – Design Year					
		AM			PM		
		V/C	Delay (s/veh)	LOS	V/C	Delay (s/veh)	LOS
Signalized Intersection							
Southbound	L	0.44	26.7	D	0.75	44.1	E
	R						
Eastbound	L	0.04	8.8	A	0.03	8.6	A
	T						
Westbound	R	0.04	8.8	A	0.03	8.6	A
	T						

Table 8 - No Build Capacity Analysis - 2037

Alternate Selection

Two scoring matrixes were developed. The first one compares the roundabout designs to each other. The second one compares the roundabout selected in the first matrix to a no-build and signalized intersection. As can be seen in Table 9, the Y-roundabout (concept 1) and the T-roundabout which has SR 183 tee into SR 53 (concept 2) are the best roundabout options. These two designs will require the least right-of-way and will also provide easier movement for the prominent legs of SR 53. The Y-roundabout was picked to be compared to the no-build and signalized intersection. As can be seen in Table 10, the roundabout is the most suitable intersection design for this location overall. It ranks the highest in several categories, including having the least conflict points, providing improved stopping and intersection sight distances, and providing the most optimal LOS through design year.

Concept	Capacity Analysis			Sight Distance		Existing ROW Impacts			Prominent Movement Impedance		Safety		Constructability		Total Score (Sum of Rank)		
	HCS	GDOT	SIDRA	Rank	Considerations	Impacts	Relative Amount	Rank	Movements	Conflict Points	Rank	Considerations	Rank				
1	Y- roundabout	A/A	A/A	A/A	1	Improved SSD, shorter reqd ISD	1	Least impacts	1.00	1	SR 53 SE to SR 53 SW requires left turn	2	6	1	Need some temp pavement	2	8
2	T- roundabout (SR 53)	A/A	A/A	A/A	1	Improved SSD, shorter reqd ISD	1	May impact house on S side	1.28	2	Low difficulty for SR 53 to SR 53	1	6	1	Need some temp pavement	2	8
3	T- roundabout (SR 183- SR53 SE)	A/A	A/A	A/A	1	Improved SSD, shorter reqd ISD	1	Some on NE side	2.68	2	SR 53 SE to SR 53 SW requires left turn	3	6	1	Construct outside half of circle, then use it for traffic while constructing inside half	2	10
4	T- roundabout (SR 183- SR53 SW)	A/A	A/A	A/A	1	Improved SSD, shorter reqd ISD	1	Significant on W side	4.10	3	SR 53 SE to SR 53 SW requires left turn	4	6	1	Can construct circle outside of exist pavement	1	11

Table 9 - Roundabout Scoring Matrix

Concept	Capacity Analysis			Sight Distance		Existing ROW Impacts			Prominent Movement Impedance		Safety		Constructability		Total Score (Sum of Rank)
	HCS	GDOT	SIDRA	Rank	Considerations	Impacts	Relative Amount	Rank	Movements	Conflict Points	Rank	Considerations	Rank		
1	A/A	A/A	A/A	1	Improved SSD, shorter reqd ISD	Very little impact	1.00	2	Low difficulty for SR 53 to SR 53	6	1	Need some temp pavement	2	9	
5	B/B			2	Same SSD, shorter reqd ISD	May impact house on S side	0.95	2	No impedance along SR 53, no protective left turn from SR 53 to SR 183	9	3	will need temporary pavement	2	12	
6	D/E			3	Poor ISD	No impact	0.00	1	Low difficulty for SR 53 to SR 53	9	3	None	1	12	

Table 10 – Intersection Scoring Matrix



Figure 7 - Conceptual Roundabout Design

Conceptual Roundabout Design

The final conceptual design is a 70' radius single-lane roundabout, which will stay a single-lane through design year (See Figure 7). Since neither SR 53 nor SR 183 is an oversize truck route, the design vehicle for this roundabout is a WB-67. The entry radii for all approaches are 90' and the entry path radii are kept at 180' at a maximum to achieve entry speeds of 26 mph or lower. See Figures 8-12 for sketches of the fastest paths and the design vehicle swept paths. See Figures 13-14 for stopping and intersection sight distance areas.

Recommendations

From the study's findings, a roundabout is the most feasible choice for the intersection location at SR 53 and SR 183. There is a history of crash rates higher than the state averages at this location. The roundabout will introduce lower travel speeds and less conflict points through this intersection. Required intersection sight distance will also be reduced. The recommended alternate is a combination of the Y-intersection and the T-intersection selected in the scoring process. The inscribed circle should situate further south from the Y-intersection's original location to allow for as straight east-west movement as possible along SR 53, but less southward than the T-intersection design so that it would not impact the property located on the south side. Because the existing SR 53 is composed of several reverse curves, it is not recommended to flatten the curve at this intersection much more than currently proposed to avoid drastic realignment and construction. Vertical grades will need to be considered for adjustment to the horizontal sight distance and for the calculation of vertical sight distance.

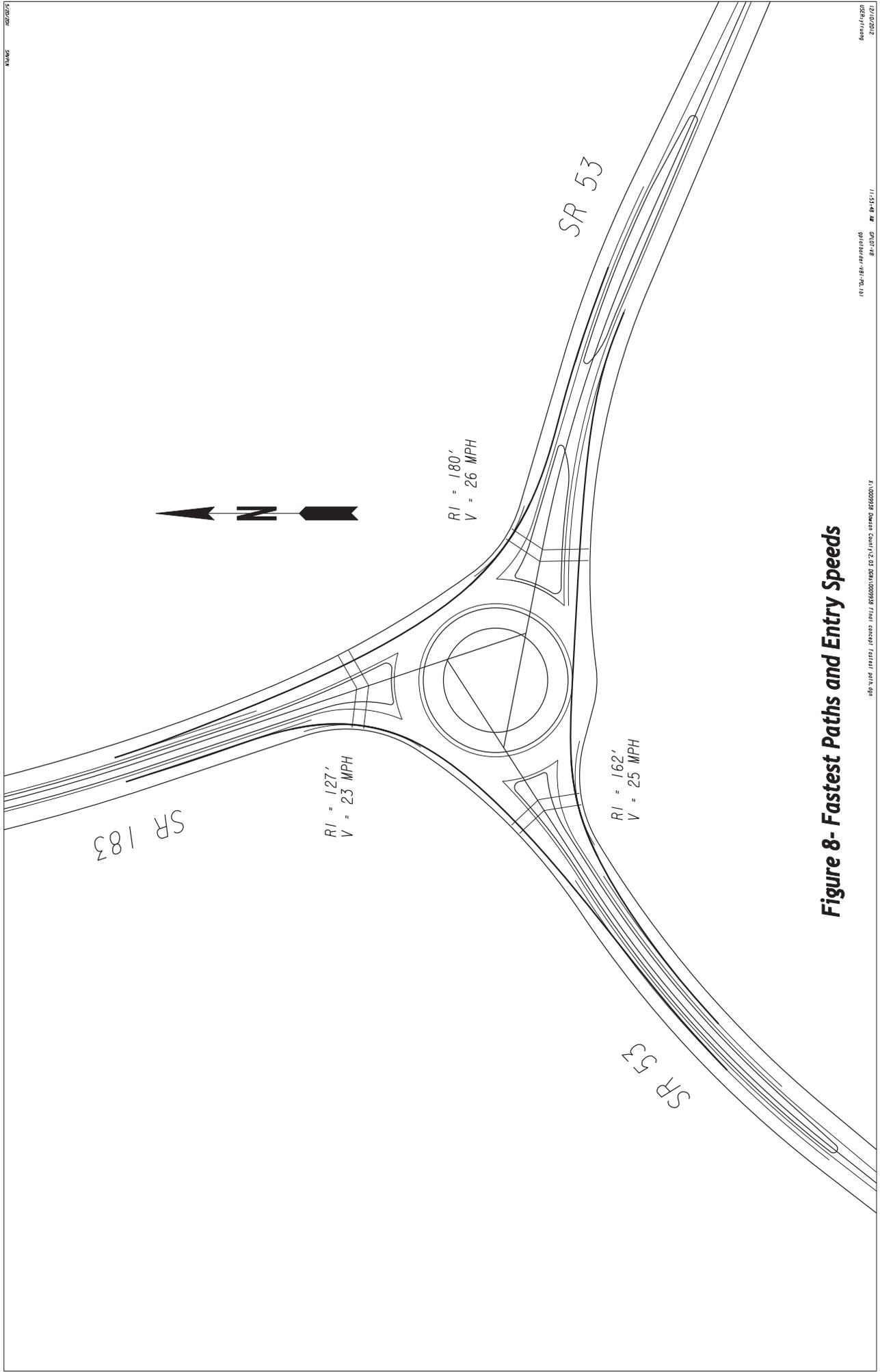


Figure 8- Fastest Paths and Entry Speeds

12/10/2012 USP/rlr/way	Revision gpi/boeder-WB-67-67	J:\10009358\Bosman_Court\7.12.03\DATA\10009358_Final_concept.dwg	STATE GA	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
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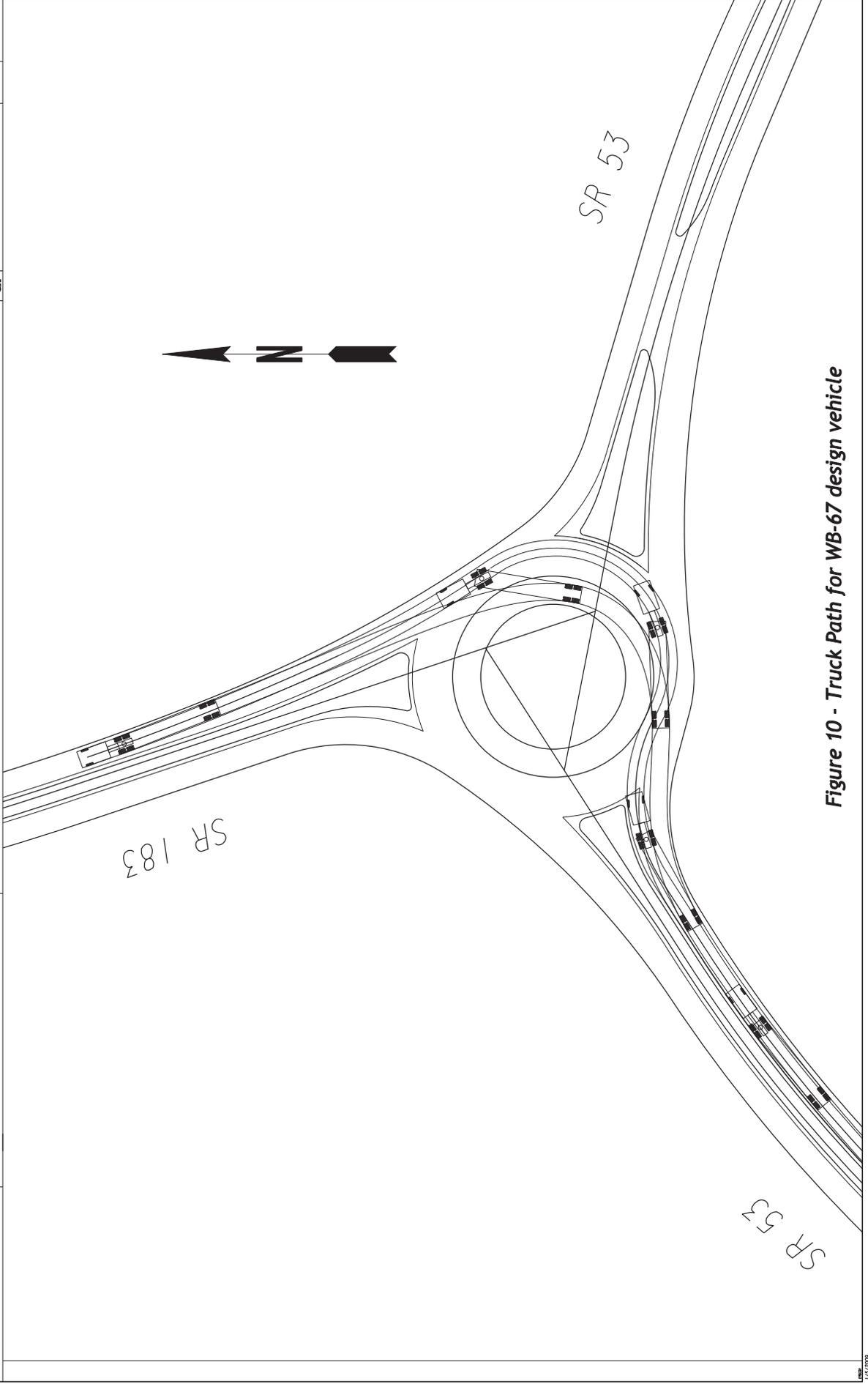


Figure 10 - Truck Path for WB-67 design vehicle

12/10/2012 USP/rrwmp	Revision gpi/bober-WB-101.H	J:\10009348\Bosman_Court\712_GA_DRA\10009348_Final_concept_min\101010_04.dwg 04/10/12	STATE GA	PROJECT NUMBER	SHEET NO.	TOTAL SHEETS
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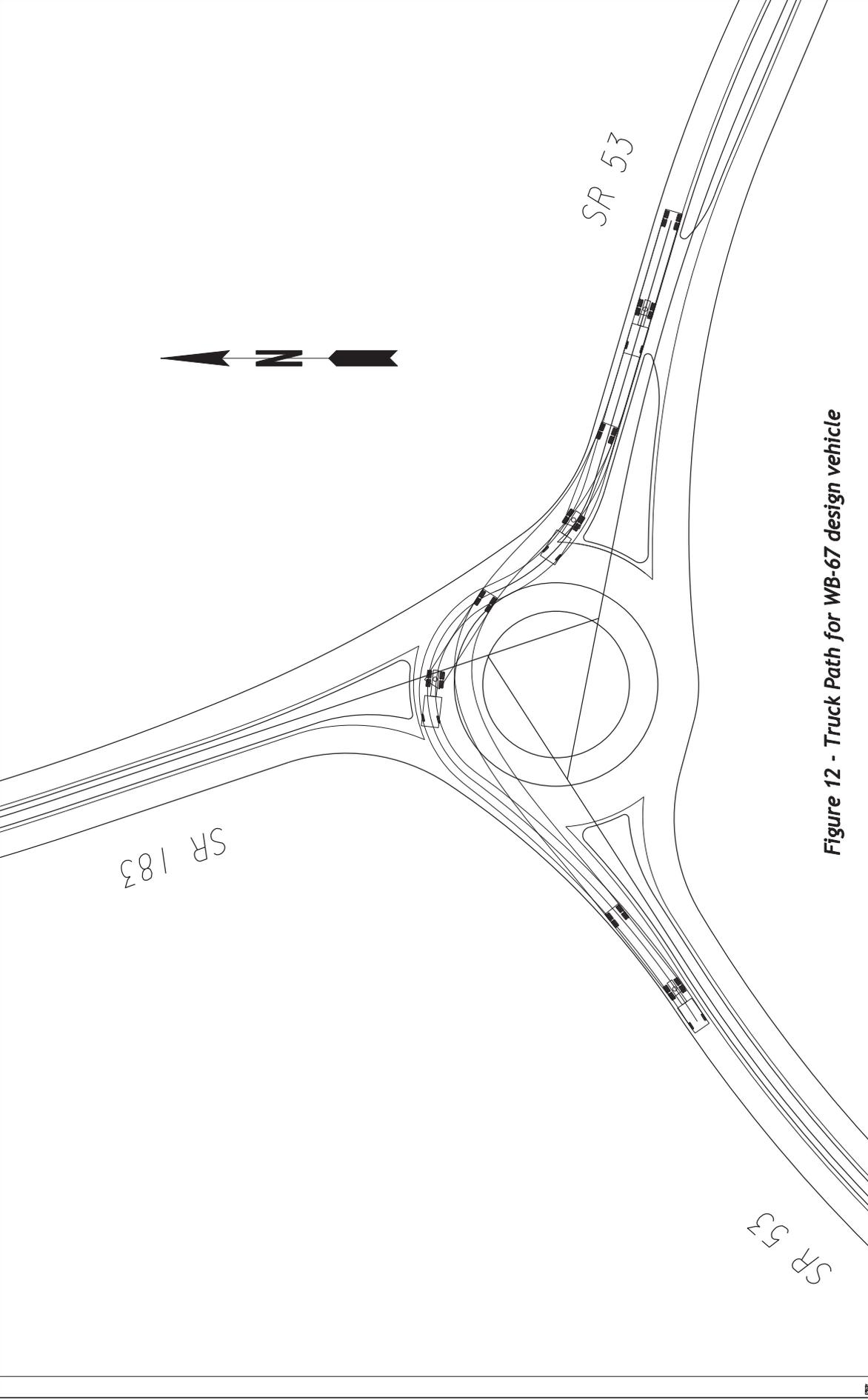


Figure 12 - Truck Path for WB-67 design vehicle

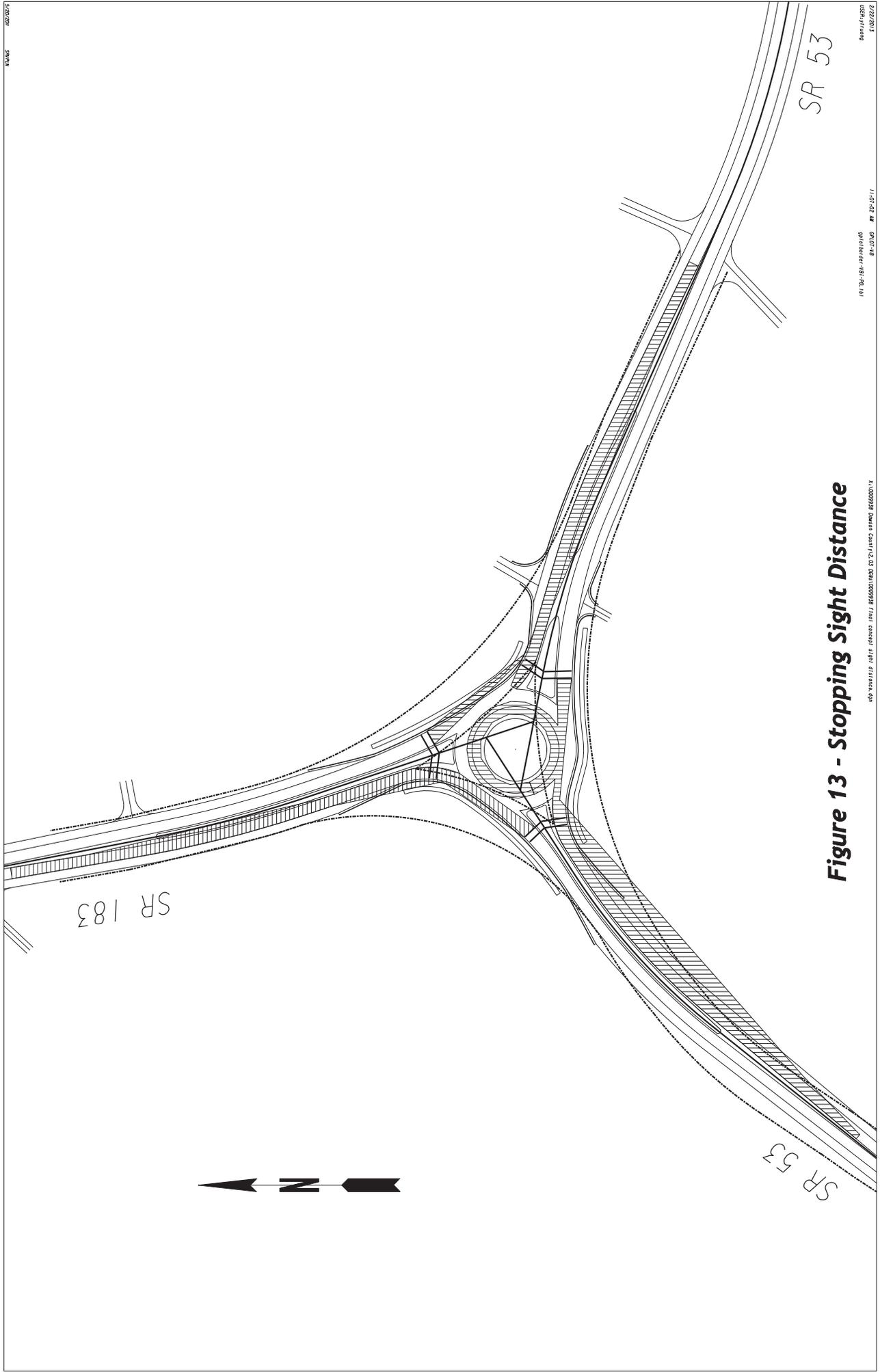


Figure 13 - Stopping Sight Distance

10/22/2011 8:41:03 AM M 2010-11

SR 183 SR 53

SR 183 SR 53

SR 183 SR 53

**ATTACHMENT 7c:
LIGHTING AGREEMENT/
COMMITMENT LETTER**

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

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

Local Street Names: _____ at _____

State/County Route Numbers: SR 53 at SR 183

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 21st day of October, 2010

Attest:

By: Mike Bay

Title: Chairman, Dawson BOE

D. Supri
Clerk

ATTACHMENT 7d:
PEER REVIEW AND RESPONSES

9/18/12:

Suggested possible alternative locations for inscribed circle

Suggested to use smaller, compact circles with radius of 70'

Have a separate analysis for a T-intersection for safety and capacity comparison

10/01/12:

Advised splitter islands be combined in design at this stage

Asked that truck paths and fastest paths be assessed for each design

10/10/12:

Commented that splitter island should be lengthened to 350' for the design speed of 55 mph

Reviewed truck paths and fastest paths; suggested to reduce entry radii and/or add deflection in entry to reduce speed of fastest paths

10/12/12:

Suggested to realign SR 53 SW leg so that stopping sight distance may be improved around the horizontal curve

10/22/12:

Recommended to combine *route continuity* and *prominent route impedance* into one category in comparison matrix

Recommended to have two separate matrices: one to compare the roundabouts to each other, the other to compare the selected roundabout to a no-build and signalized alternative

12/3/12

Recommended to have 80 feet of tangent between reverse curves. Suggested 8-ft multi-use path and 5-ft grass buffer

Suggested 20' circulating lane and 20' approach pavement width

12/19/12:

Reviewed feasibility study report – no further comment

*All recommendations have been incorporated into the design process except for the multi-use sidewalk section. District expressed that a multi-use path is not in their interest during the concept team meeting. Bike traffic is not significant at this location, and users on these state routes are expected to be experienced bikers. The proposed section will have the standard 2-ft grass buffer and 5-ft sidewalk.

Attachment 8:

Crash Reduction Factors

For a rural intersection with minor-road stop control converting into a modern roundabout, the Crash Modification Factor (CMF) found in Table 14-4 of the HSM is 0.29 for all severities and 0.13 for injuries.

The Crash Reduction Factors (CRFs) are as follow:

All severies = $1 - \text{CMF} = 1 - 0.29 = \mathbf{0.71}$

Injuries = $1 - \text{CMF} = 1 - 0.13 = \mathbf{0.87}$

ATTACHMENT 9:
CONCEPT MEETINGS MINUTES

Office of Roadway Design Meeting Minutes: PI#0009887, 0009898, 0009938

Location: 26th Floor Conference Room

Date: 09/21/2011

Time: 3:00 PM

Attendees

Mark Lenters

Scott Zehngraff

David Acree

Sam Woods

Drew Martin

Charles Robinson

Derrick Cameron

PI#0009898 – Bartow County (PM Charles Robinson)

- Charles is to provide the Traffic Impact Study for David.
- The I-75 ramps were converted to concrete as result of a maintenance project four to six years ago. If there are plans, Roadway Design is to provide them to Mark.
- According to Mark, at concept level we want to be 75-85% on the horizontal alignment. At the feasibility study level we will want to have the horizontal alignment developed to 30%.
- The general consensus is that existing traffic (provided by the District) wouldn't be helpful. The design traffic will change drastically in design year due to the proposed sports complex.
- We will need future traffic volumes before the feasibility study can be initiated. We will need to wait on Abby to provide both sets of numbers before proceeding.
- It was asked if there has been an instance of just one roundabout being built at a set of ramp terminals and neglecting the other set. Mark said it has been done before but didn't think that would apply in our situation.
- GDOT is to provide Mark with example and templates of concept reports.
- We need to figure out what the cleared area adjoining the project is going to be in the future. Access management is the main concern. The county (Bartow) may be able to help with this issue.

PI#0009938 – Dawson County (PM Derrick Cameron)

- This intersection is a good candidate for a "Y" shaped roundabout. While FHWA does not recommend this design, if it is designed correctly, it will perform well.
- This design yields a high capacity because you can have two circulating lanes and only one exit lane.
- The problem with this design is crashes.
- Mark suggested an Inscribed Circle Diameter of 140'.
- Mark will provide aerial of St. George Airport where this design was utilized.
- Mark also suggested a bypass lane for a grade climb.
- The starting point should be a T-shaped roundabout moving towards a Y-shape and others.
- Smaller curves will be key to this design because larger curves will incur right of way costs.
- Current driveways will function well with the roundabout intersection. The slower speeds within the roundabout will increase the acceptable gaps for entering the roadway.

PI#0009887 – Cherokee County (PM Charles Robinson)

- It will be difficult to get a functional design with this layout, because the approaches are skewed and one is curved.
- An ellipse may work, or a larger inscribed circular diameter.
- This project will involve more hours and will require more direction.
- We will need to think outside the box.
- If a signal were to be placed here, the intersection would have to be realigned. The intersection skew angle would need to be at least 70 degrees.
- Another option to consider is the “Peanut”. This is two linked roundabouts. Mark says he will run this through Arcady. There is no visual output, but this is the best model for analyzing multiple roundabouts.
- We will need to develop multiple alternates pretty far and explain the faults of each. More details will reveal more problems.
- Mark will send GDOT aerial examples of the ideas he is proposing.

General

- Early and frequent coordination is key to the peer review.
- We will be using a Matrix Evaluation covering: safety, impacts, operation, etc.
- Vissim is not a great tool for operational analysis. The program is very hard to calibrate. Also, the program is not a design tool. The user specified calibrations do not replicate real world observations. However, the simulation output from this program is good for public meetings.

Concept Team Meeting Minutes
PI 0009938 – SR 53 @ SR 183 Roundabout
January 24, 2013

The concept team meeting for the above project was held at the Gainesville District Office on January 24, 2013. The purpose of the meeting was to present the conceptual roundabout design. Charity Belford opened the meeting and introduced the project. After everyone in attendance introduced themselves Charity turn the meeting over to Roadway Design. Y-Thao Truong presented PowerPoint presentation to explain the proposed project to the team. After the presentation, there was an open question and comment secession. Below is a summary of the questions and comments:

David Headley, Dawson County commented on the elevation and grades of SR 183. He asked if the roundabout would be sloped and how the grades would be accommodated. David and Y-Thao responded that the survey had not been completed so little design work to consider the topography had been done. It was noted that the fairly steep grade on SR 183 was noticed during field visits. Design stated this could influence the length of impact along SR 183 and possibly on SR 53. It was also mentioned that the roundabout configuration could be on a sloped plane.

Justin Lott, District Traffic Operations, recommended looking to the circulatory fastest path and compare to compare this speed to the other computed fastest paths. Design concurred to look at this.

Brent Cook, District Preconstruction Engineer, asked why a multi-use path was being considered. There were other general comments about using curb and gutter and sidewalk. Design responded that the multi-use path was a comment from the peer-review consultant and it was not expected to be needed or included. It was also noted that the sidewalk and curb and gutter were typical for roundabouts. Providing a pathway for pedestrians to cross the intersections is a statewide policy. David Headley commented that a multi-use path was not in the county's interest.

Harold Mull, District Construction Engineer, mentioned the steep slopes and the effect they may have on the construction limits (slopes). Design mentioned that location of the roundabout may need to be modified to minimize impacts and that this work would be accomplished during the preliminary design phase when survey is available. There was general discussion concluding that the focus at this time was to determine if the concept roundabout was feasible.

Brent Cook, mentioned taking a look at the eastbound fastest path and design concurred to do so. There was some discussion explaining that the approach alignment was designed to slow down the vehicle entering the roundabout. It was discussed that the speed leaving the roundabout didn't influence the fastest path as much as the approach. It was explained that as long as the approach was appropriate, the vehicle performance may control the exit speeds over the exit geometry. It was also mentioned that the peer-review consultant has looked at this fairly close with the designer but design also agreed to verify.

David Headley mentioned the fairly high volume of trucks and they used all directions. There was general discussion about the use of the truck apron.

Larry Robinson, Windstream Communications, mentioned there were facilities to the east side of SR 183 and some power and aerial phone lines on SR 53. He stated it appeared there would be minimal impact based off the current concept.

David Headley, asked about the potential for a signal and mentioned citizens may not be in favor of a roundabout. Design mentioned that signals warrants were not met and this was a safety project. David stated he was overall in favor of the roundabout design but was just concerned how locals may respond to the roundabout.

It was asked if the concept team members overall recommend that the roundabout project move forward and all agreed the concept report should be completed and the project should move to the preliminary design phase.

Attached: Sign in sheet