

Location: New Cut Rd, east of SR 53

# Atkins

## Twenty-Four Hour Traffic Count

Hour Ending	1st		2nd		3rd		4th		Total		TOTAL
	Eastbound	Westbound	Eastbound	Westbound	Eastbound	Westbound	Eastbound	Westbound	Eastbound	Westbound	
1:00 AM	4	2	7	3	7	3	3	6	21	14	35
2:00 AM	4	2	3	1	2	2	2	3	11	8	19
3:00 AM	1	3	1	1	1	1	0	1	3	6	9
4:00 AM	0	3	3	2	0	3	2	2	5	10	15
5:00 AM	11	8	13	17	8	10	3	15	35	50	85
6:00 AM	5	16	7	18	10	29	11	36	33	99	132
7:00 AM	8	32	14	28	1	58	8	57	31	175	206
8:00 AM	16	62	24	67	17	56	14	57	71	242	313
9:00 AM	16	41	9	38	11	39	16	31	52	149	201
10:00 AM	13	26	14	23	16	35	18	33	61	117	178
11:00 AM	12	33	16	20	17	38	19	25	64	116	180
12:00 PM	26	27	31	35	29	34	25	35	111	131	242
1:00 PM	28	33	32	38	25	44	27	34	112	149	261
2:00 PM	33	28	28	32	23	29	29	37	113	126	239
3:00 PM	33	40	28	46	33	25	31	37	125	148	273
4:00 PM	33	35	36	30	43	34	39	38	151	137	288
5:00 PM	33	34	36	38	60	38	50	34	179	144	323
6:00 PM	44	39	60	33	49	34	56	35	209	141	350
7:00 PM	49	30	32	41	34	32	32	37	147	140	287
8:00 PM	35	30	38	25	23	26	27	18	123	99	222
9:00 PM	27	14	27	22	25	25	19	15	98	76	174
10:00 PM	21	10	17	15	16	18	23	16	77	59	136
11:00 PM	15	10	11	6	14	11	12	5	52	32	84
12:00 AM	8	5	10	5	5	2	4	8	27	20	47
Total	475	563	497	584	469	626	470	615	1,911	2,388	4,299

Twenty-Four Hour Volume: 4,299 Vehicles Per Day

A.M. Peak Hour Is From 7:00 AM TO 8:00 AM  
 Volume of 313 Is 7.3% OF 24-Hour Volume

P.M. Peak Hour Is From 4:30 PM TO 5:30 PM  
 Volume of 358 Is 8.3% OF 24-Hour Volume

Machine Count Made By: All Traffic Data Services, Inc.  
 Day-of-Week of Count: Tuesday  
 Date of Count: 23-May-17  
 Report Prepared By: TLB  
 Date Report Prepared: 1-Sep-17

	% Eastbound	% Westbound
A.M. Directional Distribution	23%	77%
P.M. Directional Distribution	60%	40%

### Appendix F: NCHRP 457 Right-Turn Reduction (Worst Case)

Figure 2 - 11. Minor-road right-turn volume reduction for warrant check.

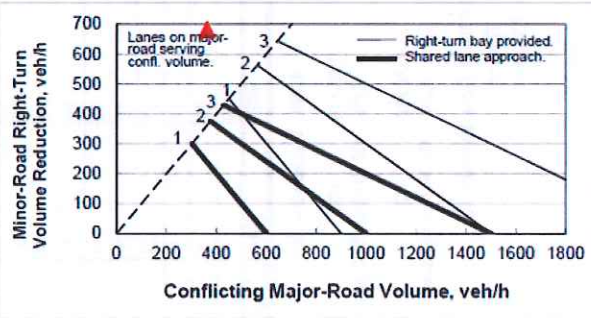
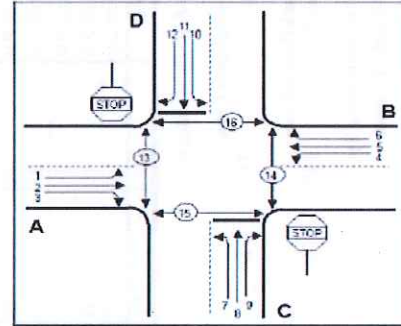
**INPUT**

Number of lanes on major-road approach:		2	
Right-turn geometry on minor-road:		Right-turn bay provided	
Approach	Number	Movement	Volume
Major	2	Through	564
	3	Right	35
Major	5	Through	684
	6	Right	42
Minor	7	Left	21
	8	Through	11
Minor	9	Right	26
	10	Left	69
Minor	11	Through	6
	12	Right	115

**OUTPUT**

Variable	Value
Conflicting major-road volume ( $V_{c2}$ ), veh/h:	300
Conflicting major-road volume ( $V_{c12}$ ), veh/h:	363
Right-turn volume reduction ( $V_{r2}$ ), veh/h:	720
Right-turn volume reduction ( $V_{r12}$ ), veh/h:	682
Adjusted right-turn volume reduction ( $V_{ra}$ ), veh/h:	26
Adjusted right-turn volume reduction ( $V_{r12a}$ ), veh/h:	115
Adjusted minor-road volume, veh/h:	75

Guidance: Conduct warrant check again using adjusted minor road volume.



**Appendix G: Traffic Signal Warrants**  
**Traffic Signal Warrant 1A – Build Year 2020**

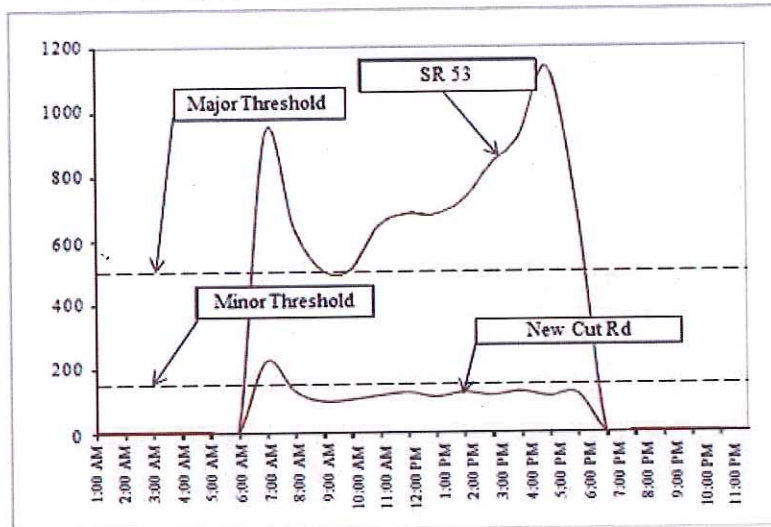
SR 53 @ New Cut Road/Ednaville Road  
 Warrant 1A Check: 1 lanes major, 1 lanes minor

Testing normal warrant requirements:

hour	major st volume	minor st volume	major st criteria	minor st criteria	test
1:00 AM	0	0	500	150	0
2:00 AM	0	0	500	150	0
3:00 AM	0	0	500	150	0
4:00 AM	0	0	500	150	0
5:00 AM	0	0	500	150	0
6:00 AM	0	0	500	150	0
7:00 AM	926	221	500	150	1
8:00 AM	634	128	500	150	0
9:00 AM	501	96	500	150	0
10:00 AM	502	101	500	150	0
11:00 AM	638	113	500	150	0
12:00 PM	676	122	500	150	0
1:00 PM	673	109	500	150	0
2:00 PM	717	122	500	150	0
3:00 PM	827	113	500	150	0
4:00 PM	919	124	500	150	0
5:00 PM	1129	110	500	150	0
6:00 PM	701	117	500	150	0
7:00 PM	0	0	500	150	0
8:00 PM	0	0	500	150	0
9:00 PM	0	0	500	150	0
10:00 PM	0	0	500	150	0
11:00 PM	0	0	500	150	0
12:00 AM	0	0	500	150	0

Conclusion: Signal is Not Warranted

SUM= 1



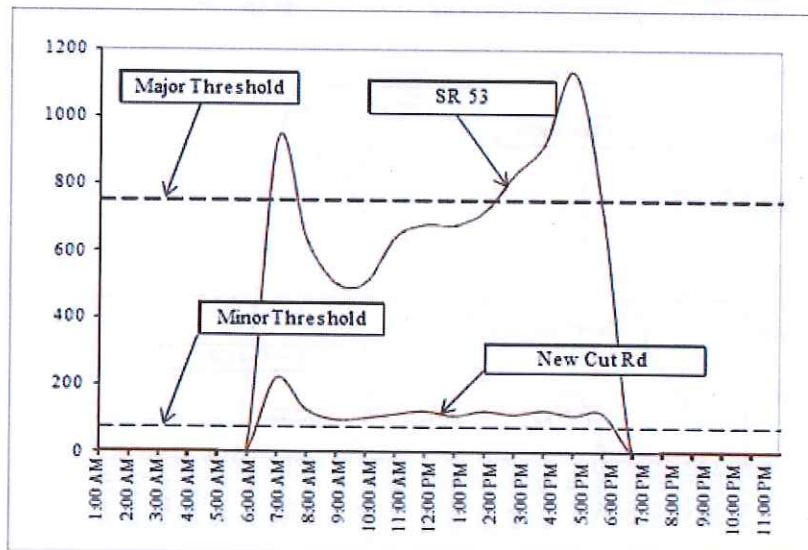
Traffic Signal Warrant 1B – Build Year 2020

SR 53 @ New Cut Road/Ednaville Road  
Warrant 1B Check: 1 lanes major, 1 lanes minor

Testing normal warrant requirements:

hour	major st volume	minor st volume	major st criteria	minor st criteria	test
1:00 AM	0	0	750	75	0
2:00 AM	0	0	750	75	0
3:00 AM	0	0	750	75	0
4:00 AM	0	0	750	75	0
5:00 AM	0	0	750	75	0
6:00 AM	0	0	750	75	0
7:00 AM	926	221	750	75	1
8:00 AM	634	128	750	75	0
9:00 AM	501	96	750	75	0
10:00 AM	502	101	750	75	0
11:00 AM	638	113	750	75	0
12:00 PM	676	122	750	75	0
1:00 PM	673	109	750	75	0
2:00 PM	717	122	750	75	0
3:00 PM	827	113	750	75	1
4:00 PM	919	124	750	75	1
5:00 PM	1129	110	750	75	1
6:00 PM	701	117	750	75	0
7:00 PM	0	0	750	75	0
8:00 PM	0	0	750	75	0
9:00 PM	0	0	750	75	0
10:00 PM	0	0	750	75	0
11:00 PM	0	0	750	75	0
12:00 AM	0	0	750	75	0

Conclusion: Signal is Not Warranted      SUM= 4



Traffic Signal Warrant 2 – Build Year 2020

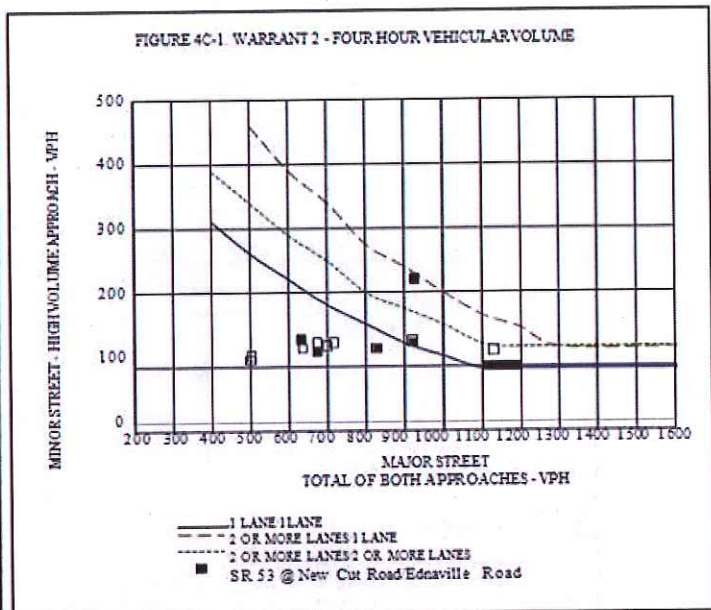
SR 53 @ New Cut Road/Ednaville Road  
 Warrant 2 Check: 1 lanes major, 1 lanes minor

Hour	Major Street Volume*	Minor Street Approach	Minor Approach Criteria**	Criteria Satisfied
1:00 AM	0	0	80	No
2:00 AM	0	0	80	No
3:00 AM	0	0	80	No
4:00 AM	0	0	80	No
5:00 AM	0	0	80	No
6:00 AM	0	0	80	No
7:00 AM	926	221	80	Yes
8:00 AM	634	128	80	Yes
9:00 AM	501	96	80	Yes
10:00 AM	502	101	80	Yes
11:00 AM	638	113	80	Yes
12:00 PM	676	122	80	Yes
1:00 PM	673	109	80	Yes
2:00 PM	717	122	80	Yes
3:00 PM	827	113	80	Yes
4:00 PM	919	124	80	Yes
5:00 PM	1129	110	80	Yes
6:00 PM	701	117	80	Yes
7:00 PM	0	0	80	No
8:00 PM	0	0	80	No
9:00 PM	0	0	80	No
10:00 PM	0	0	80	No
11:00 PM	0	0	80	No
12:00 AM	0	0	80	No

Conclusion: Signal is **Not Warranted** 3

Warrant is Satisfied when any Four Hours of an Average Day Exceed the Threshold

\* Major Street Volume is Total for Both Approaches  
 \*\* From MUTCD Figure 4C-1



### Appendix H: Roundabout Analysis



Roundabout Analysis Tool  
Single Lane

12/21/2017  
Version 4.1

General & Site Information v 4.1								
Analyst:	JAM							
Agency/Co:	Atkins							
Date:	8/9/2017							
Project or PI#:	SR 53 @ New Cut Road - 5075							
Year, Peak Hour:	2020 AM Peak							
County/District:	Jackson/District 1							
Intersection Name:	SR 53 @ New Cut Road/Ednaville Road							

		Entry Legs (FROM)							
		N (1)	NE (2)	E (3)	SE (4)	S (5)	SW (6)	W (7)	NW (8)
Exit Legs (TO)	N (1), vph			37		488		6	
	NE (2), vph								
	E (3), vph	10				46		13	
	SE (4), vph								
	S (5), vph	358		186				26	
	SW (6), vph								
	W (7), vph	5		35		19			
	NW (8), vph								
Output	Total Vehicles	373	0	258	0	553	0	45	0

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	94.0%	100.0%	99.0%	100.0%	96.0%	100.0%	100.0%	100.0%
% Heavy Vehicles	6.0%	0.0%	1.0%	0.0%	4.0%	0.0%	0.0%	0.0%
% Bicycle	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
# of Pedestrians (ped/hr)	0	0	0	0	0	0	0	0
PHF	0.88	0.95	0.89	0.95	0.88	0.95	0.77	0.95
F <sub>rv</sub>	0.943	1.000	0.990	1.000	0.962	1.000	1.000	1.000
F <sub>ped</sub>	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Entry/Conflicting Flows	N	NE	E	SE	S	SW	W	NW
Flow to Leg # N (1), pcu/h	0	0	42	0	577	0	8	0
NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	12	0	0	0	54	0	17	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	431	0	211	0	0	0	34	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	6	0	40	0	22	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Entry flow, pcu/h	449	0	293	0	654	0	58	0
Conflicting flow, pcu/h	273	0	607	0	37	0	654	0

Results: Approach Measures of Effectiveness								
HCM 6th Edition	N	NE	E	SE	S	SW	W	NW
Entry Capacity, vph	985	NA	736	NA	1278	NA	708	NA
Entry Flow Rates, vph	424	NA	290	NA	628	NA	58	NA
V/C ratio	0.43		0.39		0.49		0.08	
Control Delay, sec/pcu	9		10		8		6	
LOS	A		B		A		A	
95th % Queue (ft)	58		48		73		7	

Notes: v 4.0





Roundabout Analysis Tool  
Single Lane

12/21/2017  
Version 4.1

General & Site Information		v 4.1							
Analyst:	IAM								
Agency/Co:	Atkins								
Date:	8/9/2017								
Project or PI#:	SR 53 @ New Cut Road - 5075								
Year, Peak Hour:	2020 PM Peak								
County/District:	Jackson/District 1								
Intersection Name:	SR 53 @ New Cut Road/Ednaville Road								

Volumes		Entry Legs (FROM)							
		N (1)	NE (2)	E (3)	SE (4)	S (5)	SW (6)	W (7)	NW (8)
Exit Legs (TO)	N (1), vph			37		365		2	
	NE (2), vph					99		41	
	E (3), vph	72							
	SE (4), vph								
	S (5), vph	542		89				26	
	SW (6), vph								
	W (7), vph	12		21		40			
	NW (8), vph								
Output	Total Vehicles	626	0	147	0	504	0	69	0

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	97.0%	100.0%	99.0%	100.0%	95.0%	100.0%	100.0%	100.0%
% Heavy Vehicles	3.0%	0.0%	1.0%	0.0%	5.0%	0.0%	0.0%	0.0%
% Bicycle	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
# of Pedestrians (ped/hr)	0	0	0	0	0	0	0	0
PHF	0.92	0.95	0.90	0.95	0.89	0.95	0.79	0.95
F <sub>entry</sub>	0.971	1.000	0.990	1.000	0.952	1.000	1.000	1.000
F <sub>ped</sub>	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Entry/Conflicting Flows	N	NE	E	SE	S	SW	W	NW
Flow to Leg # N (1), pcu/h	0	0	42	0	431	0	3	0
NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	81	0	0	0	117	0	52	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	607	0	100	0	0	0	33	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	13	0	24	0	47	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Entry flow, pcu/h	701	0	165	0	595	0	87	0
Conflicting flow, pcu/h	171	0	480	0	135	0	787	0

Results: Approach Measures of Effectiveness								
HCM 6th Edition	N	NE	E	SE	S	SW	W	NW
Entry Capacity, vph	1126	NA	837	NA	1145	NA	618	NA
Entry Flow Rates, vph	680	NA	163	NA	566	NA	87	NA
V/C ratio	0.60		0.20		0.49		0.14	
Control Delay, sec/pcu	11		6		9		7	
LOS	B		A		A		A	
95th % Queue (ft)	110		18		74		12	

Notes: v 4.0

Georgia Department of Transportation  
Office of Traffic Operations





Roundabout Analysis Tool  
Single Lane

12/21/2017  
Version 4.1

General & Site Information v 4.1								
Analyst:	JAM							
Agency/Co:	Atkins							
Date:	8/9/2017							
Project or PI#:	SR 53 @ New Cut Road - 5075							
Year, Peak Hour:	2040 AM Peak							
County/District:	Jackson/District 1							
Intersection Name:	SR 53 @ New Cut Road/Ednaville Road							

Volumes		Entry Legs (FROM)							
		N (1)	NE (2)	E (3)	SE (4)	S (5)	SW (6)	W (7)	NW (8)
Exit Legs (TO)	N (1), vph			49		658		8	
	NE (2), vph								
	E (3), vph	14				62		17	
	SE (4), vph								
	S (5), vph	482		251				35	
	SW (6), vph								
	W (7), vph	7		46		25			
	NW (8), vph								
Output	Total Vehicles	503	0	346	0	745	0	60	0

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	94.0%	100.0%	99.0%	100.0%	96.0%	100.0%	100.0%	100.0%
% Heavy Vehicles	6.0%	0.0%	1.0%	0.0%	4.0%	0.0%	0.0%	0.0%
% Bicycle	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
# of Pedestrians (ped/hr)	0	0	0	0	0	0	0	0
PHF	0.88	0.95	0.89	0.95	0.88	0.95	0.77	0.95
F <sub>car</sub>	0.943	1.000	0.990	1.000	0.962	1.000	1.000	1.000
F <sub>ped</sub>	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Entry/Conflicting Flows	N	NE	E	SE	S	SW	W	NW
Flow to Leg # N (1), pcu/h	0	0	56	0	778	0	10	0
NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	17	0	0	0	73	0	22	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	581	0	285	0	0	0	45	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	8	0	52	0	30	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Entry flow, pcu/h	606	0	393	0	880	0	78	0
Conflicting flow, pcu/h	367	0	818	0	49	0	882	0

Results: Approach Measures of Effectiveness								
HCM 6th Edition	N	NE	E	SE	S	SW	W	NW
Entry Capacity, vph	896	NA	593	NA	1262	NA	561	NA
Entry Flow Rates, vph	572	NA	389	NA	847	NA	78	NA
V/C ratio	0.64		0.66		0.67		0.14	
Control Delay, sec/pcu	14		20		12		8	
LOS	B		C		B		A	
95th % Queue (ft)	126		121		144		12	

Notes: v 4.0







Roundabout Analysis Tool  
Single Lane

12/21/2017  
Version 4.1

General & Site Information v 4.1								
Analyst:	JAM							
Agency/Co:	Atkins							
Date:	8/9/2017							
Project or PI#:	SR 53 @ New Cut Road - 5075							
Year, Peak Hour:	2040 PM Peak							
County/District:	Jackson/District 1							
Intersection Name:	SR 53 @ New Cut Road/Ednaville Road							

Volumes		Entry Legs (FROM)							
		N (1)	NE (2)	E (3)	SE (4)	S (5)	SW (6)	W (7)	NW (8)
Exit Legs (TO)	N (1), vph			49		492		3	
	NE (2), vph								
	E (3), vph	97				134		55	
	SE (4), vph								
	S (5), vph	730		120				35	
	SW (6), vph								
	W (7), vph	15		28		54			
	NW (8), vph								
Output	Total Vehicles	842	0	197	0	680	0	93	0

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	97.0%	100.0%	99.0%	100.0%	95.0%	100.0%	100.0%	100.0%
% Heavy Vehicles	3.0%	0.0%	1.0%	0.0%	5.0%	0.0%	0.0%	0.0%
% Bicycle	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
# of Pedestrians (ped/hr)	0	0	0	0	0	0	0	0
PHF	0.92	0.95	0.90	0.95	0.89	0.95	0.79	0.95
F <sub>hrv</sub>	0.971	1.000	0.990	1.000	0.952	1.000	1.000	1.000
F <sub>ped</sub>	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000

Entry/Conflicting Flows	N	NE	E	SE	S	SW	W	NW
Flow to Leg #								
N (1), pcu/h	0	0	55	0	580	0	4	0
NE (2), pcu/h	0	0	0	0	0	0	0	0
E (3), pcu/h	109	0	0	0	158	0	70	0
SE (4), pcu/h	0	0	0	0	0	0	0	0
S (5), pcu/h	817	0	135	0	0	0	44	0
SW (6), pcu/h	0	0	0	0	0	0	0	0
W (7), pcu/h	17	0	31	0	64	0	0	0
NW (8), pcu/h	0	0	0	0	0	0	0	0
Entry flow, pcu/h	943	0	221	0	802	0	118	0
Conflicting flow, pcu/h	230	0	648	0	182	0	1061	0

Results: Approach Measures of Effectiveness								
HCM 6th Edition	N	NE	E	SE	S	SW	W	NW
Entry Capacity, vph	1060	NA	706	NA	1092	NA	468	NA
Entry Flow Rates, vph	915	NA	219	NA	764	NA	118	NA
V/C ratio	0.86		0.31		0.70		0.25	
Control Delay, sec/pcu	25		9		14		12	
LOS	C		A		B		B	
95th % Queue (ft)	298		33		160		25	

v 4.0

Notes:



## DEGREE OF SATURATION

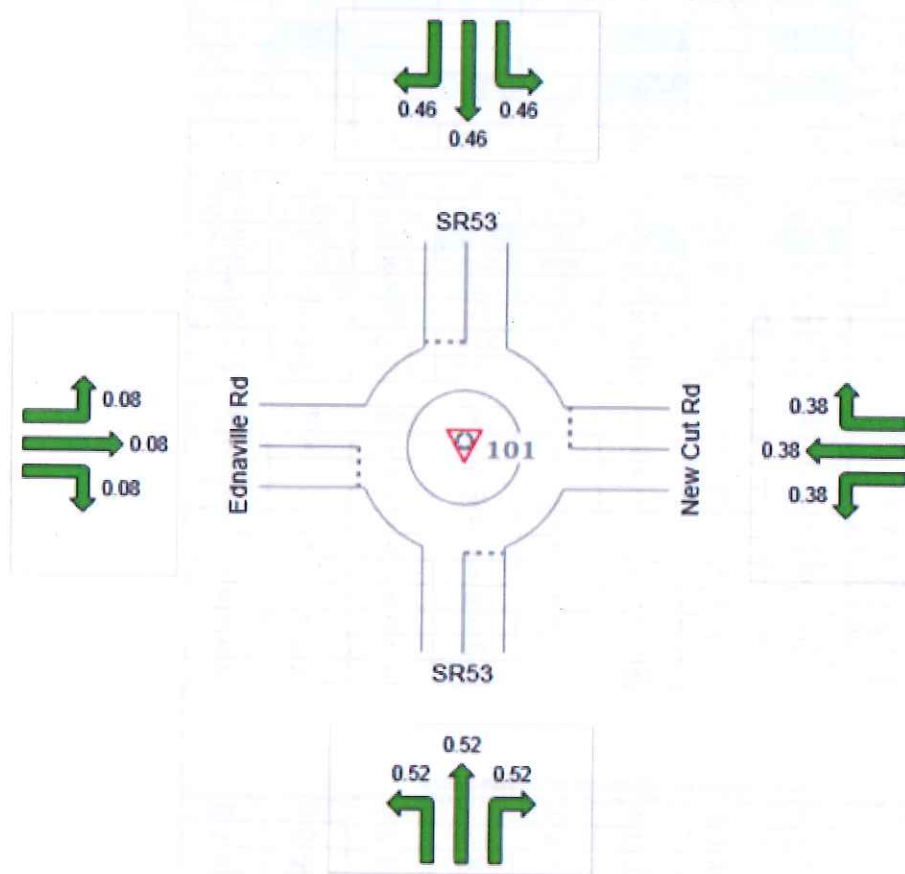
Ratio of Demand Volume to Capacity (v/c ratio)

Site: 101 [SR53 @ New Cut Rd (2020 AM)]

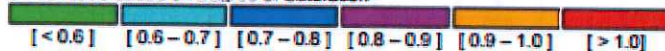
New Site  
Roundabout

### All Movement Classes

Degree of Saturation	South	East	North	West	Intersection
	0.52	0.38	0.46	0.08	0.52



Colour code based on Degree of Saturation



### DELAY (CONTROL)

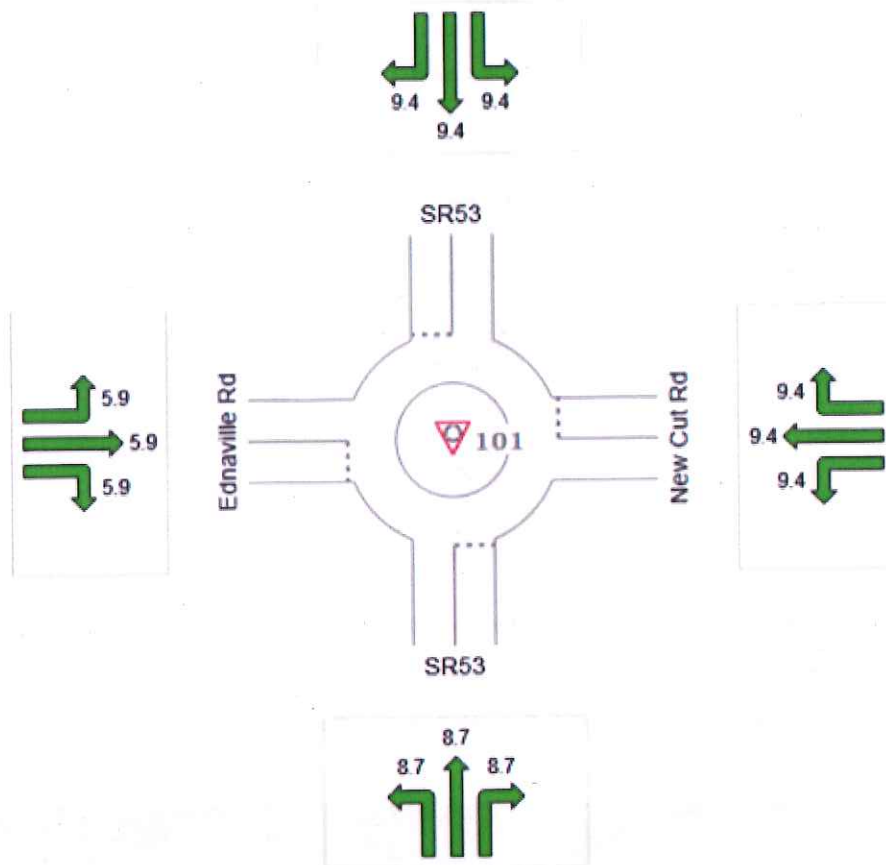
Average control delay per vehicle, or average pedestrian delay (seconds)

Site: 101 [SR53 @ New Cut Rd (2020 AM)]

New Site  
Roundabout

All Movement Classes

	South	East	North	West	Intersection
Delay (Control)	8.7	9.4	9.4	5.9	8.9
LOS	A	A	A	A	A



Colour code based on Level of Service



Site Level of Service (LOS) Method: Delay & w/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

LOS F will result if w/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Roundabout Level of Service Method: Same as Sign Control

## INTERSECTION SUMMARY

**Site: 101 [SR53 @ New Cut Rd (2020 AM)]**

New Site  
Roundabout

Intersection Performance - Hourly Values		
Performance Measure	Vehicles	Persons
Travel Speed (Average)	34.3 mph	34.3 mph
Travel Distance (Total)	886.9 veh-mi/h	1064.3 pers-mi/h
Travel Time (Total)	25.8 veh-h/h	31.0 pers-h/h
Demand Flows (Total)	1401 veh/h	1681 pers/h
Percent Heavy Vehicles (Demand)	3.8 %	
Degree of Saturation	0.517	
Practical Spare Capacity	64.4 %	
Effective Intersection Capacity	2709 veh/h	
Control Delay (Total)	3.48 veh-h/h	4.17 pers-h/h
Control Delay (Average)	8.9 sec	8.9 sec
Control Delay (Worst Lane)	9.4 sec	
Control Delay (Worst Movement)	9.4 sec	9.4 sec
Geometric Delay (Average)	0.0 sec	
Stop-Line Delay (Average)	8.9 sec	
Idling Time (Average)	6.2 sec	
Intersection Level of Service (LOS)	LOS A	
95% Back of Queue - Vehicles (Worst Lane)	4.8 veh	
95% Back of Queue - Distance (Worst Lane)	122.7 ft	
Queue Storage Ratio (Worst Lane)	0.10	
Total Effective Stops	507 veh/h	609 pers/h
Effective Stop Rate	0.36 per veh	0.36 per pers
Proportion Queued	0.50	0.50
Performance Index	52.3	52.3
Cost (Total)	412.18 \$/h	412.18 \$/h
Fuel Consumption (Total)	41.8 gal/h	
Carbon Dioxide (Total)	375.2 kg/h	
Hydrocarbons (Total)	0.035 kg/h	
Carbon Monoxide (Total)	0.516 kg/h	
NOx (Total)	0.721 kg/h	

Site Level of Service (LOS) Method: Delay & w/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).  
 Roundabout LOS Method: Same as Sign Control.  
 Intersection LOS value for Vehicles is based on average delay for all vehicle movements.  
 Roundabout Capacity Model: SIDRA Standard.  
 HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Intersection Performance - Annual Values		
Performance Measure	Vehicles	Persons
Demand Flows (Total)	672,289 veh/y	806,747 pers/y
Delay	1,659 veh-h/y	2,002 pers-h/y
Effective Stops	243,443 veh/y	292,132 pers/y
Travel Distance	425,707 veh-mi/y	510,848 pers-mi/y
Travel Time	12,404 veh-h/y	14,885 pers-h/y
Cost	197,847 \$/y	197,847 \$/y
Fuel Consumption	20,063 gal/y	
Carbon Dioxide	180,074 kg/y	
Hydrocarbons	17 kg/y	
Carbon Monoxide	248 kg/y	
NOx	346 kg/y	

## LANE LEVEL OF SERVICE

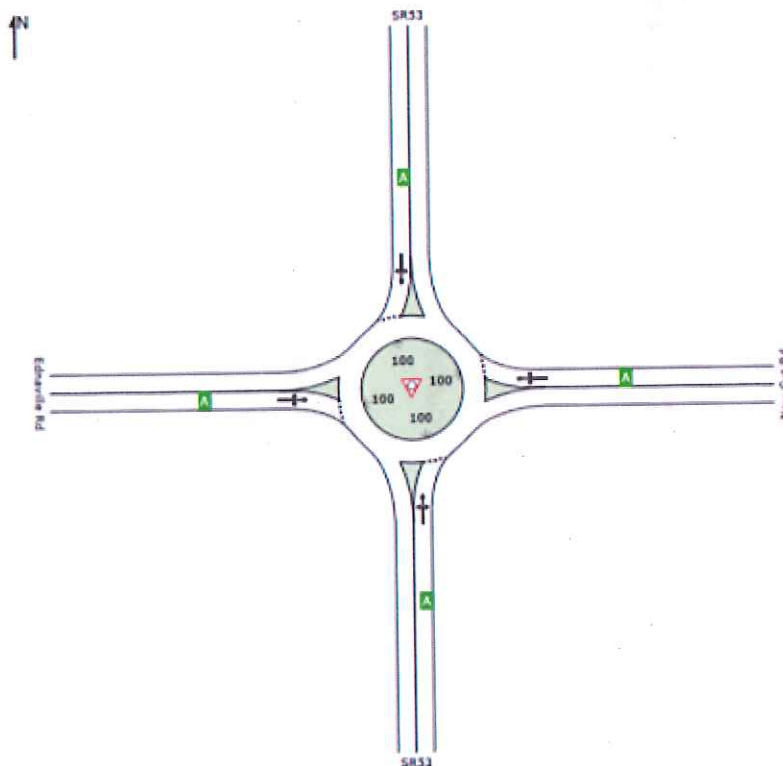
### Lane Level of Service

**Site: 101 [SR53 @ New Cut Rd (2020 AM)]**

New Site  
Roundabout

#### All Movement Classes

	South	East	North	West	Intersection
LOS	A	A	A	A	A



Site Level of Service (LOS) Method: Delay & w/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

Roundabout LOS Method: Same as Sign Control.

Lane LOS values are based on average delay and w/c ratio (degree of saturation) per lane.

LOS F will result if w/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all lanes (w/c not used as specified in HCM 6).

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

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### QUEUE DISTANCE (%ILE)

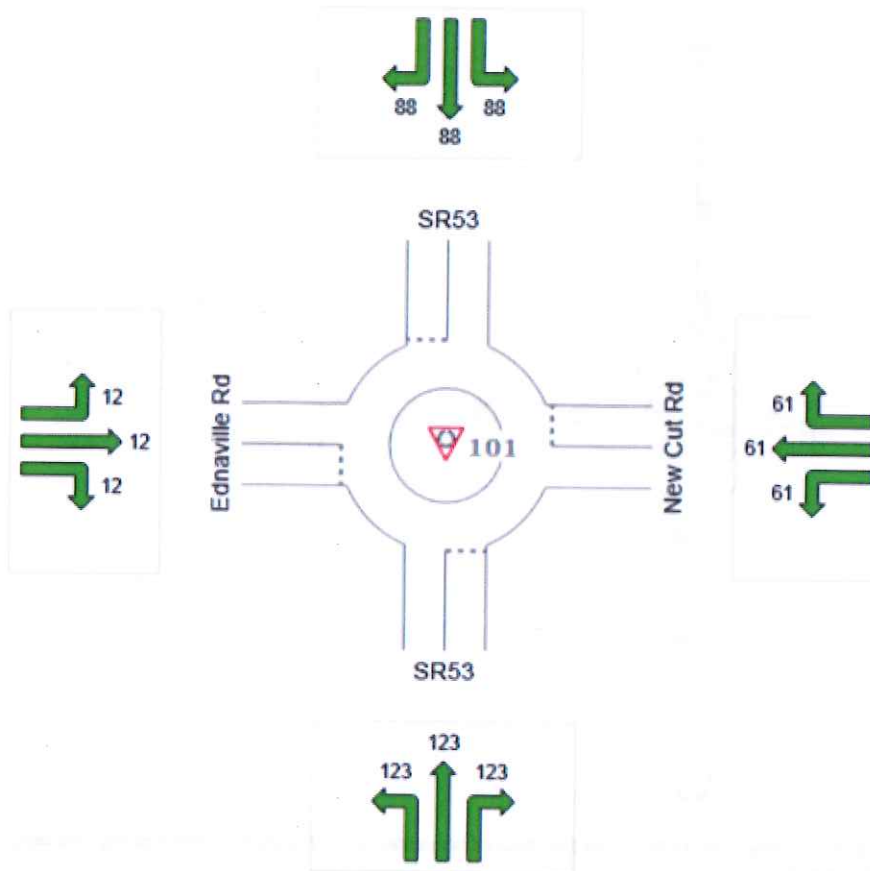
Largest 95% Back of Queue Distance for any lane used by movement (feet)

Site: 101 [SR53 @ New Cut Rd (2020 AM)]

New Site  
Roundabout

All Movement Classes

	South	East	North	West	Intersection
Vehicle Queue (%ile)	123	61	88	12	123



Colour code based on Queue Storage Ratio



### DEGREE OF SATURATION

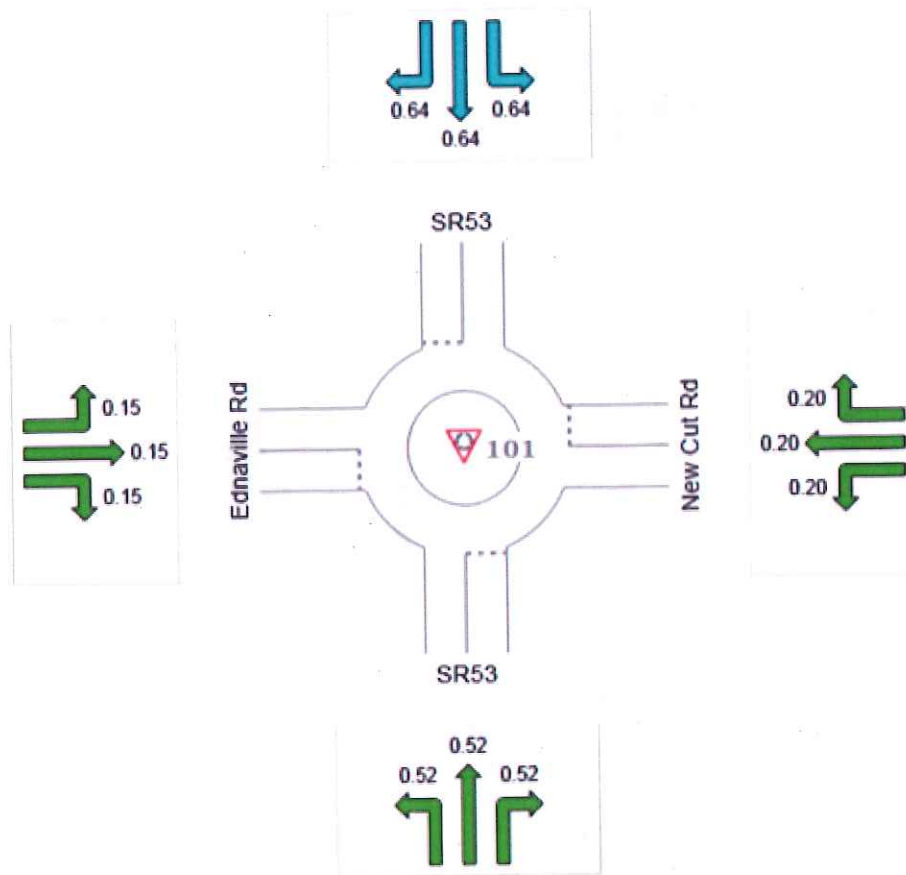
Ratio of Demand Volume to Capacity (v/c ratio)

Site: 101 [SR53 @ New Cut Rd (2020 PM)]

New Site  
Roundabout

All Movement Classes

	South	East	North	West	Intersection
Degree of Saturation	0.52	0.20	0.64	0.15	0.64



Colour code based on Degree of Saturation



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### DELAY (CONTROL)

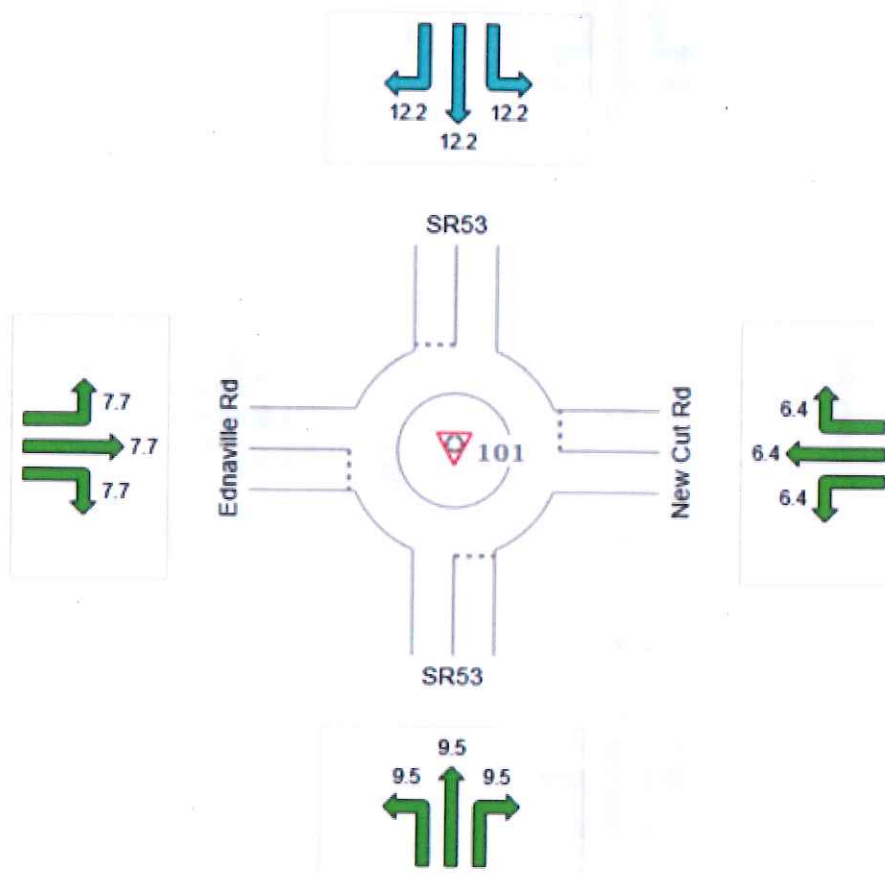
Average control delay per vehicle, or average pedestrian delay (seconds)

▽ Site: 101 [SR53 @ New Cut Rd (2020 PM)]

New Site  
Roundabout

All Movement Classes

	South	East	North	West	Intersection
Delay (Control)	9.5	6.4	12.2	7.7	10.3
LOS	A	A	B	A	B



Colour code based on Level of Service



Site Level of Service (LOS) Method: Delay & w/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

LOS F will result if w/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Roundabout Level of Service Method: Same as Sign Control



## INTERSECTION SUMMARY

**Site: 101 [SR53 @ New Cut Rd (2020 PM)]**

New Site  
Roundabout

Intersection Performance - Hourly Values		
Performance Measure	Vehicles	Persons
Travel Speed (Average)	33.7 mph	33.7 mph
Travel Distance (Total)	946.6 veh-mi/h	1135.9 pers-mi/h
Travel Time (Total)	28.1 veh-h/h	33.7 pers-h/h
Demand Flows (Total)	1497 veh/h	1797 pers/h
Percent Heavy Vehicles (Demand)	3.4 %	
Degree of Saturation	0.635	
Practical Spare Capacity	33.8 %	
Effective Intersection Capacity	2357 veh/h	
Control Delay (Total)	4.27 veh-h/h	5.12 pers-h/h
Control Delay (Average)	10.3 sec	10.3 sec
Control Delay (Worst Lane)	12.2 sec	
Control Delay (Worst Movement)	12.2 sec	12.2 sec
Geometric Delay (Average)	0.0 sec	
Stop-Line Delay (Average)	10.3 sec	
Idling Time (Average)	6.9 sec	
Intersection Level of Service (LOS)	LOS B	
95% Back of Queue - Vehicles (Worst Lane)	6.0 veh	
95% Back of Queue - Distance (Worst Lane)	154.7 ft	
Queue Storage Ratio (Worst Lane)	0.13	
Total Effective Stops	624 veh/h	749 pers/h
Effective Stop Rate	0.42 per veh	0.42 per pers
Proportion Queued	0.60	0.60
Performance Index	57.9	57.9
Cost (Total)	440.04 \$/h	440.04 \$/h
Fuel Consumption (Total)	43.9 gal/h	
Carbon Dioxide (Total)	393.5 kg/h	
Hydrocarbons (Total)	0.037 kg/h	
Carbon Monoxide (Total)	0.549 kg/h	
NOx (Total)	0.898 kg/h	

Site Level of Service (LOS) Method: Delay & w/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).  
 Roundabout LOS Method: Same as Sign Control.  
 Intersection LOS value for Vehicles is based on average delay for all vehicle movements.  
 Roundabout Capacity Model: SIDRA Standard.  
 HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Intersection Performance - Annual Values		
Performance Measure	Vehicles	Persons
Demand Flows (Total)	718,753 veh/y	862,504 pers/y
Delay	2,049 veh-h/y	2,459 pers-h/y
Effective Stops	298,561 veh/y	359,473 pers/y
Travel Distance	454,362 veh-mi/y	545,234 pers-mi/y
Travel Time	13,484 veh-h/y	16,181 pers-h/y
Cost	211,219 \$/y	211,219 \$/y
Fuel Consumption	21,064 gal/y	
Carbon Dioxide	188,862 kg/y	
Hydrocarbons	18 kg/y	
Carbon Monoxide	263 kg/y	
NOx	335 kg/y	

## LANE LEVEL OF SERVICE

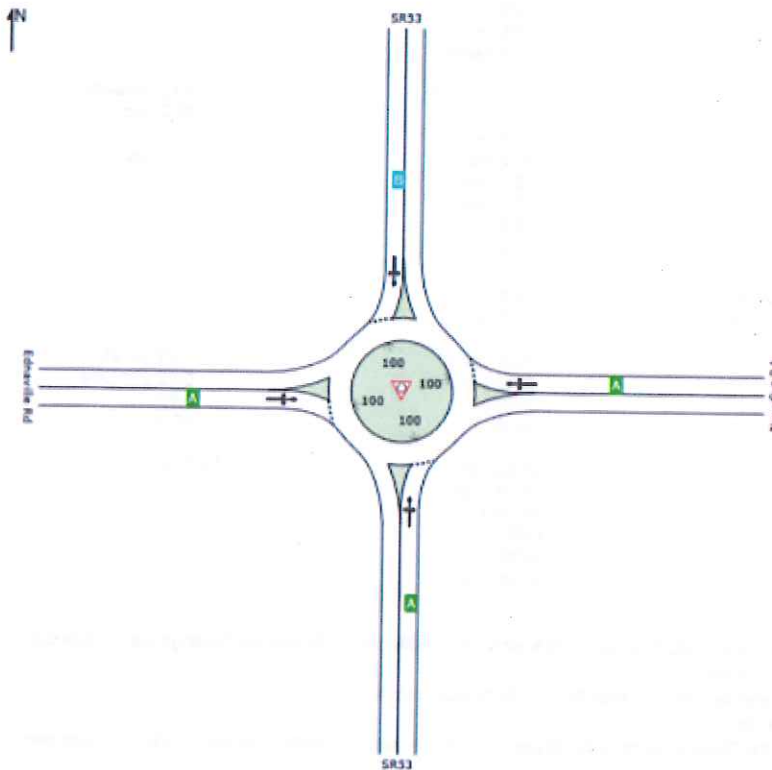
### Lane Level of Service

▽ Site: 101 [SR53 @ New Cut Rd (2020 PM)]

New Site  
Roundabout

### All Movement Classes

	South	East	North	West	Intersection
LOS	A	A	B	A	B



Site Level of Service (LOS) Method: Delay & w/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).  
Roundabout LOS Method: Same as Sign Control.

Lane LOS values are based on average delay and w/c ratio (degree of saturation) per lane.

LOS F will result if w/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all lanes (w/c not used as specified in HCM 6).

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

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### QUEUE DISTANCE (%ILE)

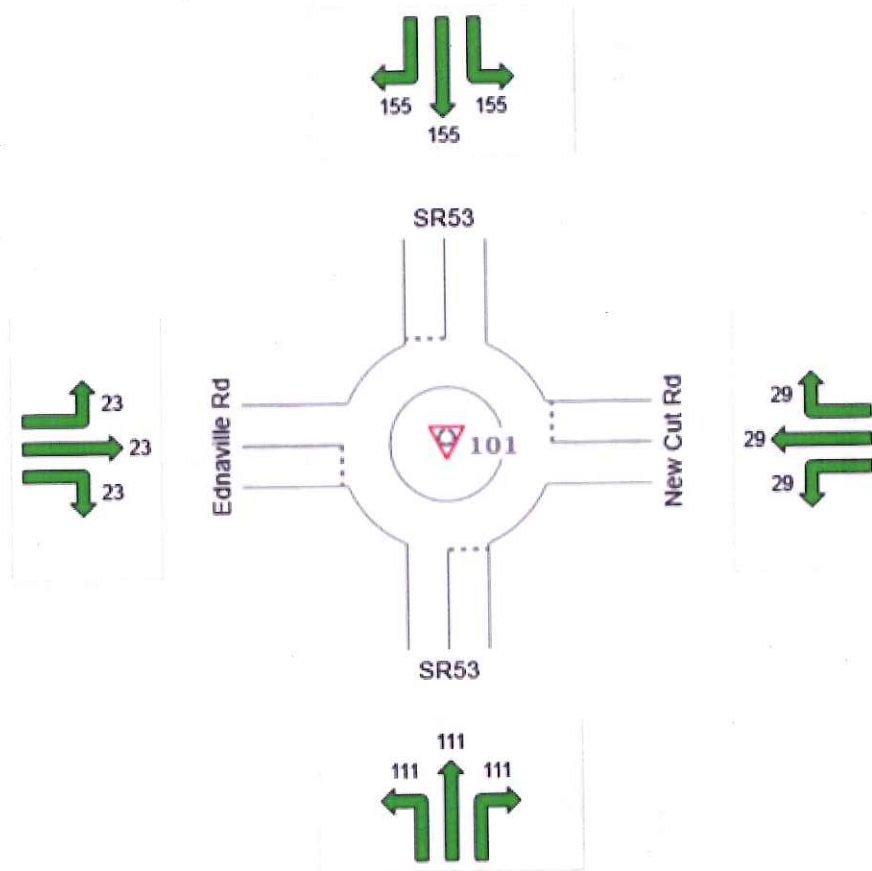
Largest 95% Back of Queue Distance for any lane used by movement (feet)

Site: 101 [SR53 @ New Cut Rd (2020 PM)]

New Site  
Roundabout

All Movement Classes

	South	East	North	West	Intersection
Vehicle Queue (%ile)	111	29	155	23	155



Colour code based on Queue Storage Ratio



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## DEGREE OF SATURATION

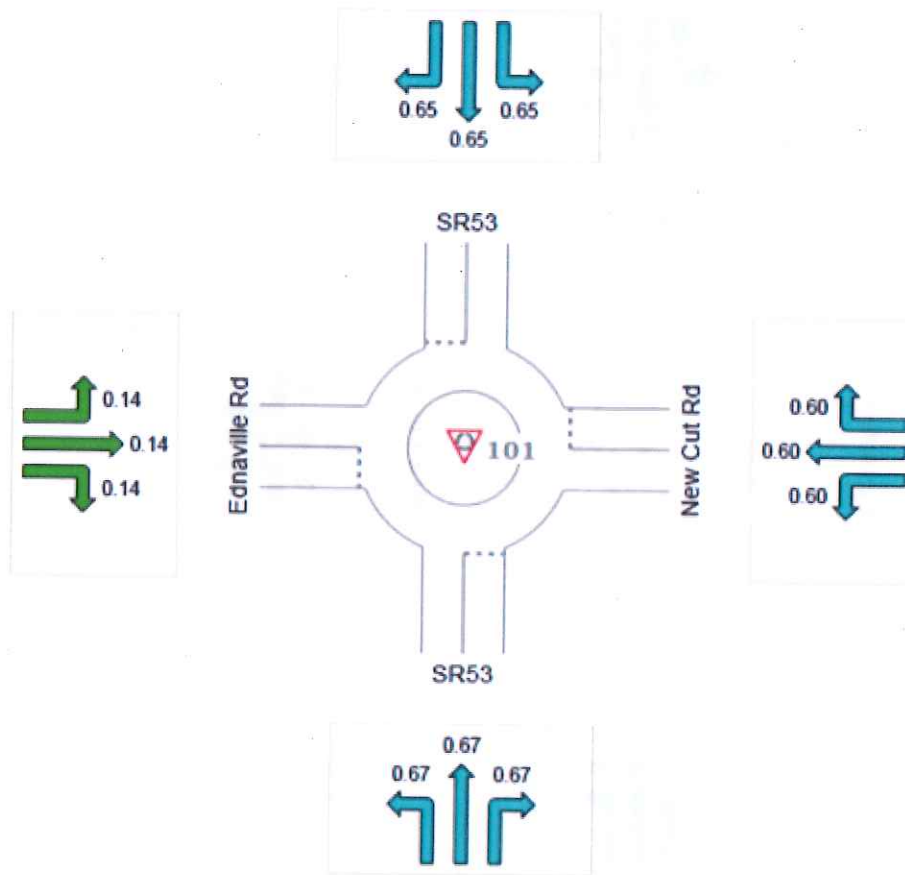
Ratio of Demand Volume to Capacity (v/c ratio)

**Site: 101 [SR53 @ New Cut Rd (2040 AM)]**

New Site  
Roundabout

### All Movement Classes

	South	East	North	West	Intersection
Degree of Saturation	0.67	0.60	0.65	0.14	0.67



Colour code based on Degree of Saturation



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### DELAY (CONTROL)

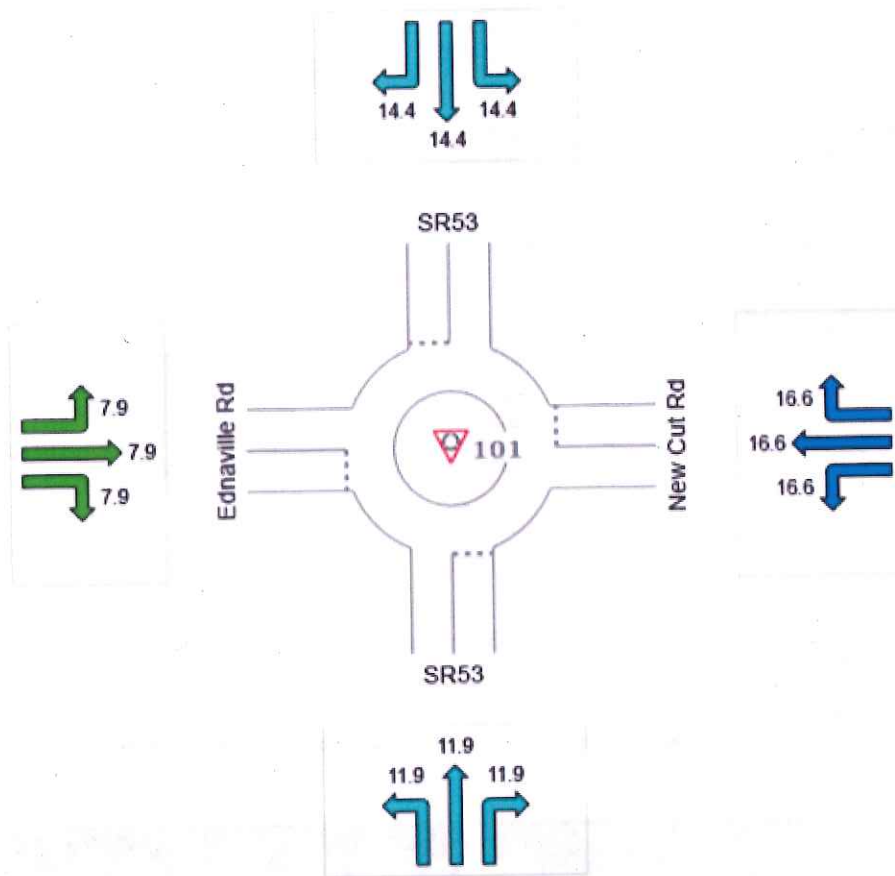
Average control delay per vehicle, or average pedestrian delay (seconds)

Site: 101 [SR53 @ New Cut Rd (2040 AM)]

New Site  
Roundabout

All Movement Classes

	South	East	North	West	Intersection
Delay (Control)	11.9	16.6	14.4	7.9	13.5
LOS	B	C	B	A	B



Colour code based on Level of Service



Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Roundabout Level of Service Method: Same as Sign Control

### INTERSECTION SUMMARY

**Site: 101 [SR53 @ New Cut Rd (2040 AM)]**

New Site  
Roundabout

Intersection Performance - Hourly Values		
Performance Measure	Vehicles	Persons
Travel Speed (Average)	32.1 mph	32.1 mph
Travel Distance (Total)	1193.6 veh-mi/h	1432.3 pers-mi/h
Travel Time (Total)	37.1 veh-h/h	44.6 pers-h/h
Demand Flows (Total)	1885 veh/h	2262 pers/h
Percent Heavy Vehicles (Demand)	3.8 %	
Degree of Saturation	0.673	
Practical Spare Capacity	26.2 %	
Effective Intersection Capacity	2799 veh/h	
Control Delay (Total)	7.05 veh-h/h	8.46 pers-h/h
Control Delay (Average)	13.5 sec	13.5 sec
Control Delay (Worst Lane)	16.6 sec	
Control Delay (Worst Movement)	16.6 sec	16.6 sec
Geometric Delay (Average)	0.0 sec	
Stop-Line Delay (Average)	13.5 sec	
Idling Time (Average)	8.9 sec	
Intersection Level of Service (LOS)	LOS B	
95% Back of Queue - Vehicles (Worst Lane)	8.5 veh	
95% Back of Queue - Distance (Worst Lane)	218.2 ft	
Queue Storage Ratio (Worst Lane)	0.18	
Total Effective Stops	1073 veh/h	1288 pers/h
Effective Stop Rate	0.57 per veh	0.57 per pers
Proportion Queued	0.68	0.68
Performance Index	92.3	92.3
Cost (Total)	598.56 \$/h	598.56 \$/h
Fuel Consumption (Total)	58.3 gal/h	
Carbon Dioxide (Total)	522.9 kg/h	
Hydrocarbons (Total)	0.049 kg/h	
Carbon Monoxide (Total)	0.711 kg/h	
NOx (Total)	1.007 kg/h	

Site Level of Service (LOS) Method: Delay & w/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).  
 Roundabout LOS Method: Same as Sign Control.  
 Intersection LOS value for Vehicles is based on average delay for all vehicle movements.  
 Roundabout Capacity Model: SIDRA Standard.  
 HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Intersection Performance - Annual Values		
Performance Measure	Vehicles	Persons
Demand Flows (Total)	904,737 veh/y	1,085,684 pers/y
Delay	3,383 veh-h/y	4,059 pers-h/y
Effective Stops	515,243 veh/y	618,291 pers/y
Travel Distance	572,906 veh-mi/y	687,488 pers-mi/y
Travel Time	17,830 veh-h/y	21,396 pers-h/y
Cost	287,310 \$/y	287,310 \$/y
Fuel Consumption	27,966 gal/y	
Carbon Dioxide	250,981 kg/y	
Hydrocarbons	24 kg/y	
Carbon Monoxide	341 kg/y	
NOx	483 kg/y	

## LANE LEVEL OF SERVICE

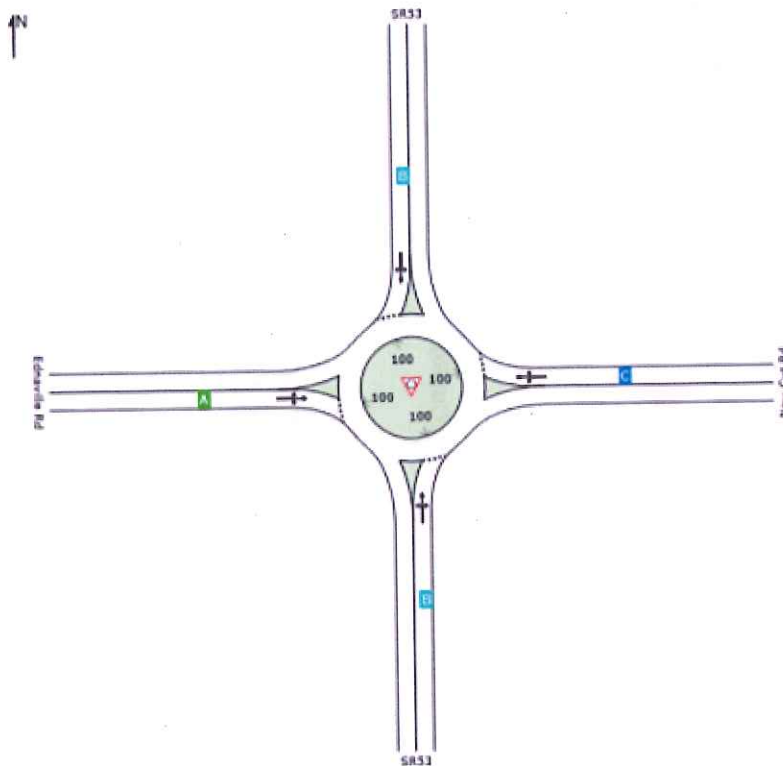
Lane Level of Service

**Site: 101 [SR53 @ New Cut Rd (2040 AM)]**

New Site  
Roundabout

### All Movement Classes

	South	East	North	West	Intersection
LOS	B	C	B	A	B



Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).  
 Roundabout LOS Method: Same as Sign Control.  
 Lane LOS values are based on average delay and v/c ratio (degree of saturation) per lane.  
 LOS F will result if v/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).  
 Intersection and Approach LOS values are based on average delay for all lanes (v/c not used as specified in HCM 6).  
 HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

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### QUEUE DISTANCE (%ILE)

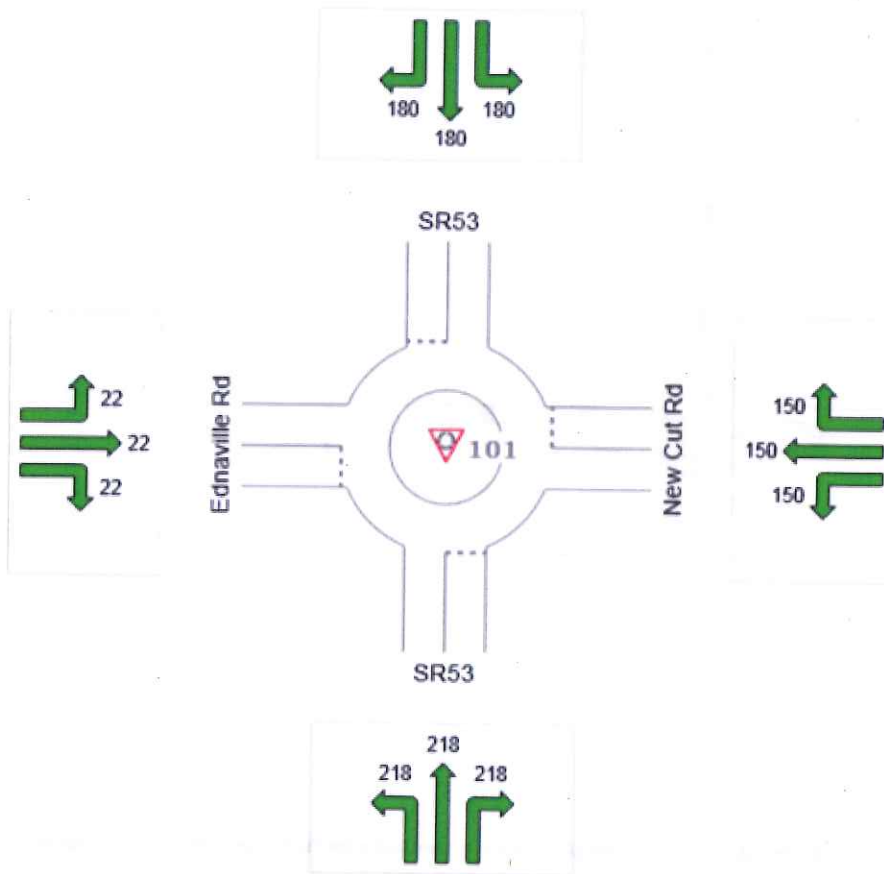
Largest 95% Back of Queue Distance for any lane used by movement (feet)

Site: 101 [SR53 @ New Cut Rd (2040 AM)]

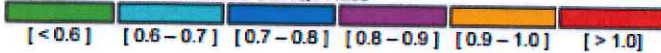
New Site  
Roundabout

All Movement Classes

	South	East	North	West	Intersection
Vehicle Queue (%ile)	218	150	180	22	218



Colour code based on Queue Storage Ratio





### DEGREE OF SATURATION

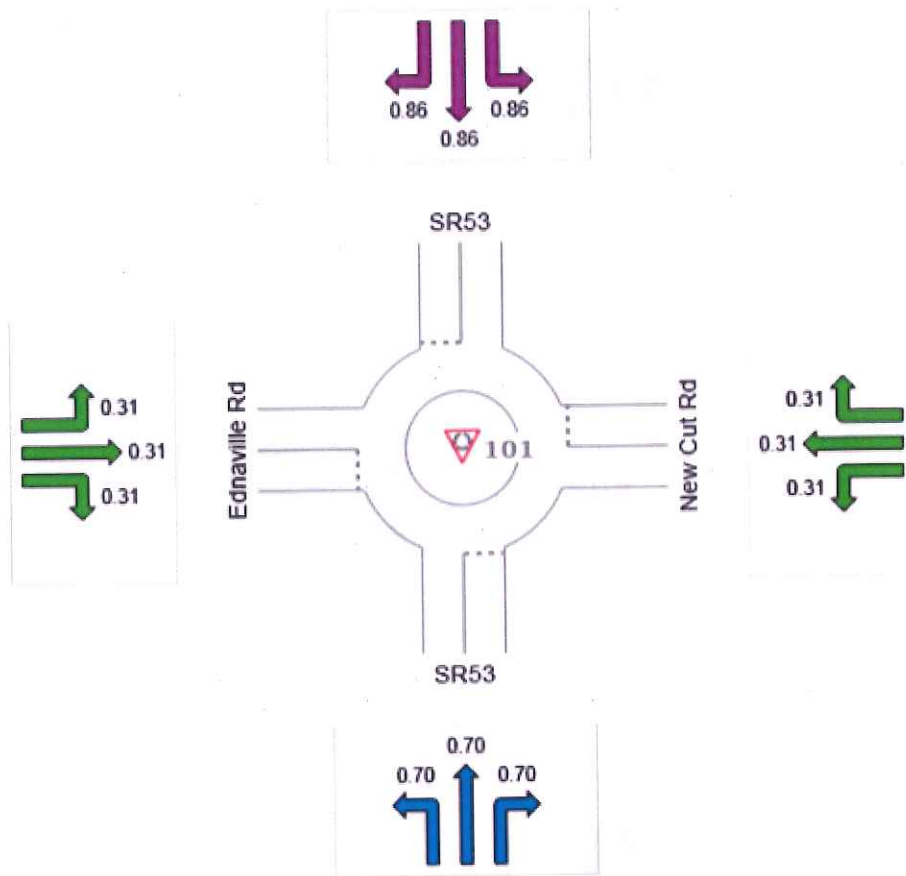
Ratio of Demand Volume to Capacity (v/c ratio)

**Site: 101 [SR53 @ New Cut Rd (2040 PM)]**

New Site  
Roundabout

**All Movement Classes**

	South	East	North	West	Intersection
Degree of Saturation	0.70	0.31	0.86	0.31	0.86



Colour code based on Degree of Saturation



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## DELAY (CONTROL)

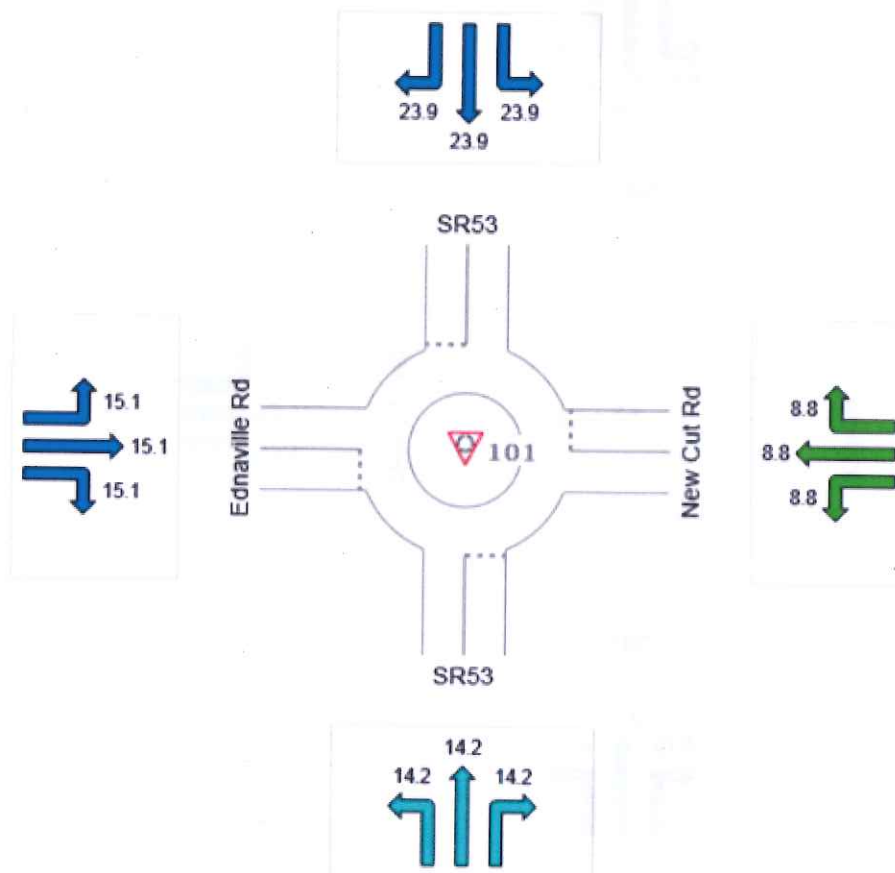
Average control delay per vehicle, or average pedestrian delay (seconds)

 Site: 101 [SR53 @ New Cut Rd (2040 PM)]

New Site  
Roundabout

### All Movement Classes

	South	East	North	West	Intersection
Delay (Control)	14.2	8.8	23.9	15.1	18.1
LOS	B	A	C	C	C



Colour code based on Level of Service



Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).

LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).

Roundabout Level of Service Method: Same as Sign Control

## INTERSECTION SUMMARY

 Site: 101 [SR53 @ New Cut Rd (2040 PM)]

New Site  
Roundabout

Intersection Performance - Hourly Values		
Performance Measure	Vehicles	Persons
Travel Speed (Average)	30.2 mph	30.2 mph
Travel Distance (Total)	1274.4 veh-mi/h	1529.2 pers-mi/h
Travel Time (Total)	42.2 veh-h/h	50.6 pers-h/h
Demand Flows (Total)	2016 veh/h	2419 pers/h
Percent Heavy Vehicles (Demand)	3.4 %	
Degree of Saturation	0.858	
Practical Spare Capacity	-0.9 %	
Effective Intersection Capacity	2350 veh/h	
Control Delay (Total)	10.11 veh-h/h	12.14 pers-h/h
Control Delay (Average)	18.1 sec	18.1 sec
Control Delay (Worst Lane)	23.9 sec	
Control Delay (Worst Movement)	23.9 sec	23.9 sec
Geometric Delay (Average)	0.0 sec	
Stop-Line Delay (Average)	18.1 sec	
Idling Time (Average)	12.1 sec	
Intersection Level of Service (LOS)	LOS C	
95% Back of Queue - Vehicles (Worst Lane)	16.7 veh	
95% Back of Queue - Distance (Worst Lane)	428.5 ft	
Queue Storage Ratio (Worst Lane)	0.35	
Total Effective Stops	1475 veh/h	1770 pers/h
Effective Stop Rate	0.73 per veh	0.73 per pers
Proportion Queued	0.88	0.88
Performance Index	114.5	114.5
Cost (Total)	668.12 \$/h	668.12 \$/h
Fuel Consumption (Total)	62.4 gal/h	
Carbon Dioxide (Total)	559.3 kg/h	
Hydrocarbons (Total)	0.054 kg/h	
Carbon Monoxide (Total)	0.765 kg/h	
NOx (Total)	0.992 kg/h	

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).  
 Roundabout LOS Method: Same as Sign Control.  
 Intersection LOS value for Vehicles is based on average delay for all vehicle movements.  
 Roundabout Capacity Model: SIDRA Standard.  
 HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

Intersection Performance - Annual Values		
Performance Measure	Vehicles	Persons
Demand Flows (Total)	967,619 veh/y	1,161,143 pers/y
Delay	4,854 veh-h/y	5,825 pers-h/y
Effective Stops	708,190 veh/y	849,828 pers/y
Travel Distance	611,700 veh-mi/y	734,040 pers-mi/y
Travel Time	20,249 veh-h/y	24,299 pers-h/y
Cost	320,698 \$/y	320,698 \$/y
Fuel Consumption	29,944 gal/y	
Carbon Dioxide	268,448 kg/y	
Hydrocarbons	26 kg/y	
Carbon Monoxide	367 kg/y	
NOx	476 kg/y	

## LANE LEVEL OF SERVICE

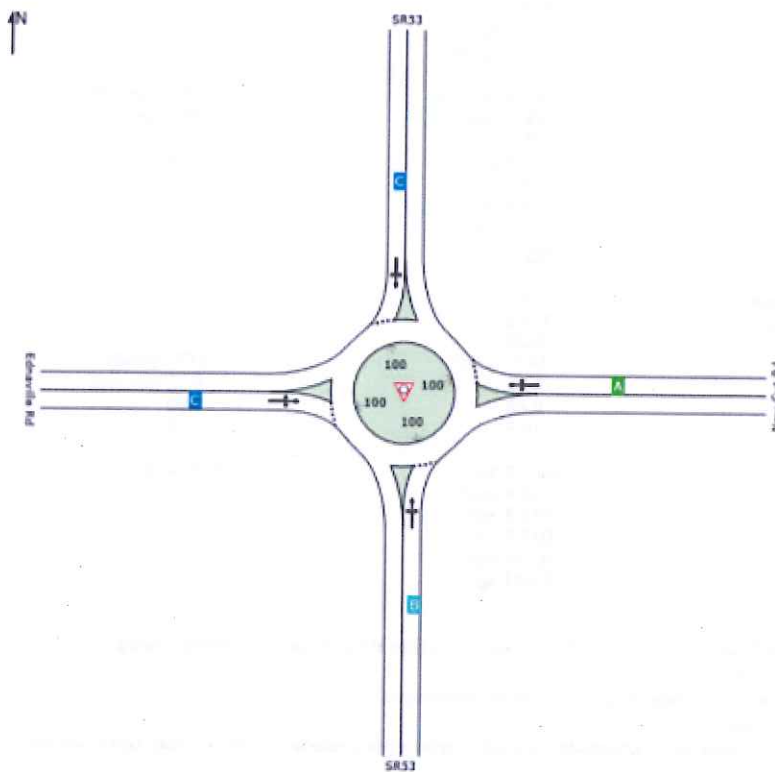
### Lane Level of Service

**Site: 101 [SR53 @ New Cut Rd (2040 PM)]**

New Site  
Roundabout

### All Movement Classes

	South	East	North	West	Intersection
LOS	B	A	C	C	C



Site Level of Service (LOS) Method: Delay & w/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).  
Roundabout LOS Method: Same as Sign Control.

Lane LOS values are based on average delay and w/c ratio (degree of saturation) per lane.

LOS F will result if w/c > 1 irrespective of lane delay value (does not apply for approaches and intersection).

Intersection and Approach LOS values are based on average delay for all lanes (w/c not used as specified in HCM 6).

HCM Delay Formula option is used. Control Delay does not include Geometric Delay since Exclude Geometric Delay option applies.

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### QUEUE DISTANCE (%ILE)

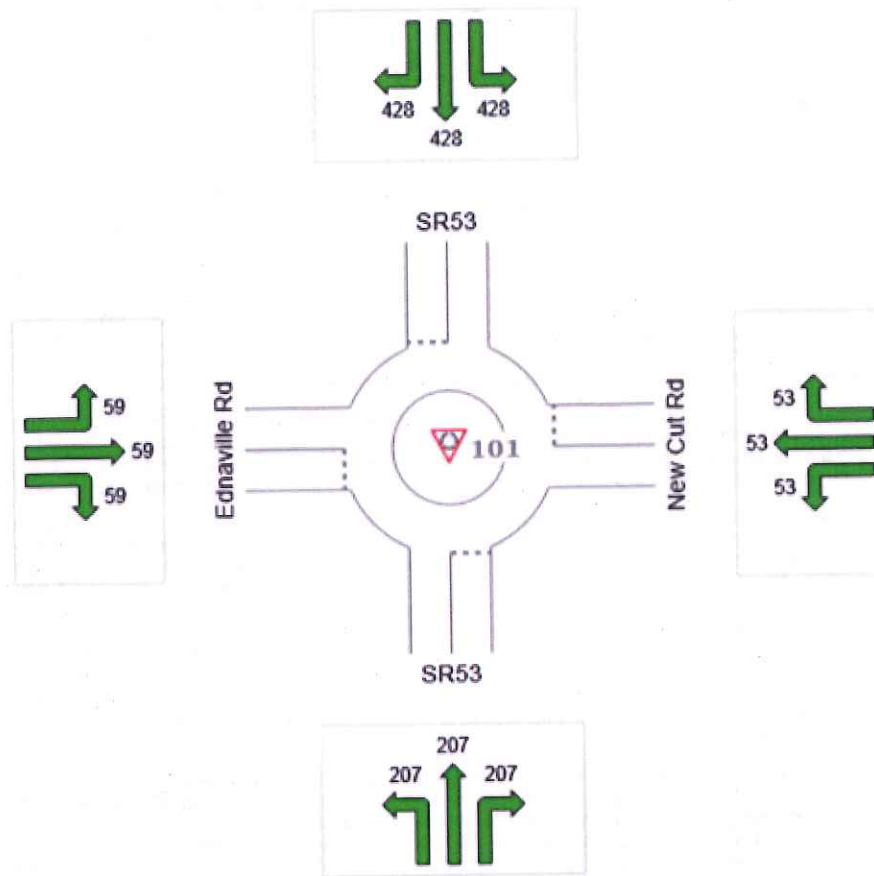
Largest 95% Back of Queue Distance for any lane used by movement (feet)

Site: 101 [SR53 @ New Cut Rd (2040 PM)]

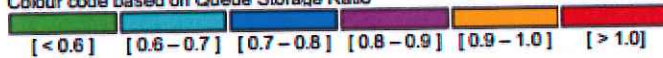
New Site  
Roundabout

All Movement Classes

	South	East	North	West	Intersection
Vehicle Queue (%ile)	207	53	428	59	428



Colour code based on Queue Storage Ratio



### Appendix I: Intersection Control Evaluation

**GDOT INTERSECTION CONTROL EVALUATION (ICE) TOOL**

ICE Version 2  
 Revised 01/2022

GDOT PI #(or NA): NA	Request By: District Engineer
County: Jackson	GDOT District: 1 - Gainesville
Major (State) Road: SR 53	Speed Limit: 55 mph
Minor (Crossing) ST: New Cut Rd	Speed Limit: 55 mph
Major ST Direction: North/South	Area Type: Suburb/Transition
Intersection Control: Conventional (Minor Stop)	
Prepared By: Atkins	Analyst: T. Brewer
Date: 2/1/2018	Project ID: 5075
Proj Purpose: Improve intersection safety at an intersection with stop-controlled minor street	

Note: Enter current year traffic data

		[8700 / 11500]					
2020	Project Opening Year	(0)	(11)	(342)	(69)	Annual Growth Rate:	1.6%
2040	Project Design Year	0	5	342	10	Peak Hour Dir:	10%

		[10300 / 13700]					
		[529 / 452]					

Approach Split: SR 53 - 0734 New Cut Rd - 0.21

**Introduction:** In 2005, SAFETEA-LU established the Highway Safety Improvement Program (HSIP) and mandated that each state prepare a Strategic Highway Safety Plan (SHSP) to prioritize safety funding investments. Intersections quickly became a common component of most states' SHSP emphasis areas and HSIP project lists, including Georgia's SHSP. Intersection Control Evaluation (ICE) policies and procedures represent a traceable and transparent procedure to streamline the evaluation of intersection control alternatives, and further leverage safety advancements for intersection improvements beyond just the safety program. Approximately one-third of all traffic fatalities and roughly seventy five percent of all traffic crashes in Georgia occur at or adjacent to intersections. Accordingly, the Georgia SHSP includes an emphasis on enhancing intersection safety to advance the *Toward Zero Deaths* vision embraced by the Georgia Governor's Office of Highway Safety (GOHS). This ICE tool was developed to support the ICE policy, developed and adopted to help ensure that intersection investments across the entire Georgia highway system are selected, prioritized and implemented with defensible benefits for safety towards those ends.

**Tool Goal:** The goal of this ICE tool is to provide a simplified and consistent way of importing traffic, safety, cost, environmental impact and stakeholder posture data to assess and quantify intersection control improvement benefits. The tool supports the ICE policy and procedures to provide traceability, transparency, consistency and accountability when identifying and selecting an intersection control solution that both meets project purpose and reflects overall best value in terms of specific performance-based criteria.

**Requirements:** An ICE is required for any intersection improvement (e.g. new or modified intersection, widening/reconstruction or corridor project, or work accomplished through a driveway or encroachment permit that affects an intersection) where: 1) the intersection includes at least one roadway designated as a State Route (State Highway System) or as part of the National Highway System, or 2) the intersection will be designed or constructed using State or Federal funding. In certain circumstances where an ICE would otherwise be required, the requirement may be waived based on appropriate evidence presented with a written request. (See the "Waiver" tab to review criteria that may make a project waiver eligible and for instructions to submit a waiver request to the Department). An ICE is not required when the proposed work does not include any changes to the intersection design, involves only routine traffic signal timing and equipment maintenance, or for driveway permits where the driveway is not a new leg to an already existing intersection on either 1) a divided, multi-lane highway with a closed median and only right-in/right-out access or 2) an undivided roadway where the development is not required to construct left and/or right turn lanes (as per the Driveway Manual and District Traffic Engineer).

**Two-Stage Process:** A complete ICE process consists of two (2) distinct stages, and it is expected that the respective level of effort for completing both stages of ICE will correspond to the magnitude and complexity of the intersection. Prior to starting an ICE, the District Traffic Engineer and/or State Traffic Engineer should be consulted for advice on an appropriate level of effort. The Stage 1 and Stage 2 ICE forms are designed minimize required data inputs using drop-down menu choices and limiting text entry. All fields shaded grey include drop down menu choices and all fields shaded blue require data entry. All other cells in the worksheet are locked.

**Stage 1: Screening Decision Record** Stage 1 should be conducted as early in the project development process as possible and is intended to inform which alternatives are worthy of further evaluation in Stage 2. Stage 1 serves as a screening effort meant to eliminate non-competitive options and identify which alternatives merit further considerations based on their practical feasibility. Users should use good engineering judgement in responding to the seven policy questions by selecting "Yes" or "No" in the drop-down boxes. Alternatives should not be summarily eliminated without due consideration, and reasons for eliminating or advancing an alternative should be documented in the "Screening Decision Justification" column.

**Stage 2: Alternative Selection Decision Record** Stage 2 involves a more detailed and familiar evaluation of the alternatives identified in Stage 1 in order to support the selection of a preferred alternative that may be advanced to detailed design. Stage 2 data entry may require the use of external analysis tools to determine costs, operations and/or safety data that, combined with environmental and stakeholder posture data, form the basis of the ICE evaluation. A separate "CostEst" worksheet tab helps users develop pre-planning-level cost estimates for each Stage 2 alternative evaluated, and a separate Users Guide has been prepared to give guidance on Stage 1 and Stage 2 data entry. Once all data is entered, each alternative is scored and ranked, with the results reported at the bottom of the Stage 2 worksheet to inform on the best of the intersection controls evaluated for project recommendation.

**Documentation:** A complete ICE document consists of the combination of the outputs from either a completed and signed waiver form or both Stage 1 and Stage 2 worksheets (along with supporting costing and/or environmental documentation), to be included in the approved project Concept Report (or equivalent) or as a stand-alone document.

**GDOT** Georgia Department of Transportation **GDOT ICE STAGE 1: SCREENING DECISION RECORD** ICE Version 2.1 | Revised 01/05/2018

GDOT PI #	NA	<p><b>Note:</b> Up to 5 alternatives may be selected and evaluated; Use this ICE Stage 1 to screen 5 or fewer alternatives to evaluate in Stage 2</p> <p>1. Does alternative address the project need in a balanced manner and in scale with the project?                  2. Does alternative improve safety performance in terms of reducing severe crashes?                  3. Does alternative incorporate safety performance in operations (congestion, delay, reliability, etc.)?                  4. Does alternative improve (or preserve) traffic characteristics, delay, reliability, etc.?                  5. Does alternative appear feasible given the site respect to other project factors?                  6. Does alternative appear feasible with respect to other project factors?                  7. Overall feasible alternative (select alternative for further evaluation in Stage 2)?</p>							
Project Location:	SR 53 @ New Cut Rd								
Prepared by:	Atkins								
Date:	2/1/2018								
Analyst:	T. Brewer	<p>Answer "Yes" or "No" to each policy question for each control type to identify which alternatives should be evaluated in the Stage 2 Decision Record; enter justification in the rightmost column</p>							
Intersection Alternative (see "Intersections" tab for detailed description of intersection/Interchange type)									
		<p>Screening Decision Justification:</p>							
Unsignalized Intersections	Conventional (Minor Stop)	No	No	No	No	No	No	No	No Build Condition
	Conventional (All-Way Stop)	No	No	Yes	No	Yes	No	No	Meets warrants, but AWSC would create significant delay
	Mini Roundabout	No	Yes	Yes	No	Yes	No	No	Control not appropriate for high-speed roadway (Speed Limit > 35 mph)
	Single Lane Roundabout	No	Yes	Yes	Yes	Yes	Yes	Yes	Potential Solution to evaluate
	Multilane Roundabout	Yes	Yes	No	Yes	Yes	No	No	Single Lane Roundabout is sufficient
	RCUT (stop control)	No	No	No	No	No	No	No	Not a divided highway, would add significant ROW costs for U-Turns
	R/RD w/down stream U-Turn	No	No	No	No	No	No	No	Not a divided highway, would add significant ROW costs for U-Turns
	High-T (un signalized)	No	No	No	No	No	No	No	Not at T-intersection
	Offset-T Intersections	No	Yes	Yes	No	No	No	No	Intersection is properly aligned
	Diamond Interch (Stop Control)	No	No	No	No	No	No	No	N/A - Not an interchange
	Diamond Interch (RAB Control)	No	No	No	No	No	No	No	N/A - Not an interchange
	Add LT Lanes on Both Roads No RT Lane Improvements No Median Improvements	Yes	No	No	Yes	Yes	Yes	Yes	Potential Solution to evaluate
	Other Unsignalized (provide description):	No	No	No	No	No	No	No	N/A
Signalized Intersections	Traffic Signal	Yes	Yes	Yes	No	Yes	Yes	Yes	Potential Solution to evaluate
	Median U-Turn (Indirect Left)	No	No	No	No	No	No	No	Not a divided highway, would add significant ROW costs for U-Turns
	RCUT (signalized)	No	No	No	No	No	No	No	Not a divided highway, would add significant ROW costs for U-Turns
	Displaced Left Turn (CFI)	No	No	No	No	No	No	No	Left turn volumes do not justify
	Continuous Green-T	No	No	No	No	No	No	No	Not a T-Intersection
	Jughandle	No	No	No	No	No	No	No	Significant ROW impact due to homes/businesses
	Quadrant Roadway	No	No	No	No	No	No	No	Significant ROW impact due to homes/businesses
	Diamond Interch (Signal Control)	No	No	No	No	No	No	No	N/A - Not an interchange
	Diverging Diamond	No	No	No	No	No	No	No	N/A - Not an interchange
	Single Point Interchange	No	No	No	No	No	No	No	N/A - Not an interchange
	No LT Lane Improvements No RT Lane Improvements No Median Improvements	No	No	No	No	No	No	No	N/A
	Other Signalized (provide description):	No	No	No	No	No	No	No	N/A

= Intersection type selected for more detailed analysis in Stage 2 Alternative Selection Decision Record



**GDOT ICE STAGE 2: ALTERNATIVE SELECTION DECISION RECORD**

ICE Version 2.1 | Revised 01/05/2018

GDOT PI # (or N/A) N/A

GDOT District: 1 - Gainesville

Date: 2/1/2018

County: Jackson

Area Type: Suburb/Transition

Agency/Firm: Atkins

Project Location: SR 53 @ New Cut Rd

Analyst: T. Brewer

Existing Intersection Control: Conventional (Minor Stop)

Type of Analysis: Safety Funded Project

**Opening / Design Year Traffic Operations**

Intersection meets signal AWS warrants?  
Traffic Analysis Measure of Effectiveness  
Traffic Analysis Software Used

Meets AWS only	
Intersection Delay	
Synchro 10	
AM Peak Hr	PM Peak Hr
57.3 sec	40.9 sec
1.45	1.51
2040 Design Yr No-Build Intersection Delay	
288.0 sec	245.0 sec
2040 Design Yr No-Build Intersection V/C ratio	
3.89	3.57

Complete Streets Warrants Met?

- PEDESTRIANS
- BICYCLES
- TRANSIT

Crash Data: Enter 5 most recent years of intersection crash data	Crash Severity			%
	PDO	Injury Crash	Fatal Crash	
Angle	15	8	0	39%
Head-On	1	0	0	2%
Rear End	12	7	0	32%
Sideswipe - same	0	1	0	2%
Sideswipe - opposite	2	0	0	3%
Not Collision w/ Motor Veh	10	3	0	22%
<b>TOTALS:</b>	<b>40</b>	<b>19</b>	<b>0</b>	<b>59</b>

\* Number of crashes resulting in injuries / fatalities, not number of persons

**Alternatives Analysis:**

Proposed Control Type/Improvement

	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5
Proposed Control Type/Improvement	Single Lane Roundabout	Add Left Turn Lanes	Traffic Signal		
Additional description here			Add LT bays at approaches		
Construction Cost	\$1,514,000	\$398,000	\$511,000		
ROW Cost	\$120,000	\$82,000	\$82,000		
Environmental Cost	\$13,000	\$10,000	\$10,000		
Reimbursable Utility Cost	\$90,000	\$28,000	\$51,000		
Design & Contingency Cost	\$427,000	\$102,000	\$182,000		
Cost Adjustment (justification req'd)	0%	0%	0%		
<b>Total Cost</b>	<b>\$2,164,000</b>	<b>\$620,000</b>	<b>\$836,000</b>		

**Traffic Operations:**

Traffic Analysis Software Used	SIDRA 7		Synchro 10		Synchro 10	
Analysis Period	AM Peak Hr	PM Peak Hr	AM Peak Hr	PM Peak Hr	AM Peak Hr	PM Peak Hr
2040 Design Yr Build Intersection Delay	13.5 sec	18.1 sec	170.1 sec	151.1 sec	19.0 sec	16.0 sec
2040 Design Yr Build Intersection V/C	0.67	0.86	3.24	3.21	0.73	0.83

**Safety Analysis:**

Predefined CRF: PDO	39%	0%	39%
Predefined CRF: Fatal/Inj	78%	0%	40%
Predefined CRF Source:	FHWA Clearinghouse #s 233 / 234	NA	FHWA Clearinghouse #s 7982 / 7984
User Defined CRF: PDO		27%	
User Defined CRF: Fatal/Inj		23%	
User Defined CRF Source (write in if applicable):		FHWA Clearinghouse #s 270274	

**Environmental Impacts:<sup>1</sup>**

Historic District/Property	None	None	None
Archaeology Resources	None	None	None
Graveyard	None	None	None
Stream	None	None	None
Underground Tank/Hazmat	None	None	None
Park Land	None	None	None
EJ Community	None	None	None
Wooded Area	Minimal	Minimal	Minimal
Wetland	None	None	None

Note: If environmental impact is significant (RED), provide justification impact with jeopardize project delivery using "Env" worksheet  
<sup>1</sup> Environmental impacts are only preliminary estimates. Detailed environmental impact documentation will be included with project concept report

**Stakeholder Posture:**

Local Community Support	Neutral	Neutral	Neutral
GDOT Support	Supportive	Neutral	Neutral

<b>Final ICE Stage 2 Score:</b>	<b>5.9</b>	<b>0.8</b>	<b>-</b>
Rank of Control Type Alternatives	1	2	-

Note: Stage 2 score is not given (shown as "-") if signal or AWS is selected as control type but respective warrants are not met

Provide additional comments and/or Developed CMFs for multiple turn lane improvements using CMF Clearinghouse procedures. PM peak delay

explain any unique analysis inputs, or times and v/c ratios were adjusted manually to account for flaws in Synchro 10 (Synchro threw out delay times results (as necessary) on approaches where delay was exponentially large and did not account for that in the overall delay output. We notified Synchro of the concern and they are looking into it)