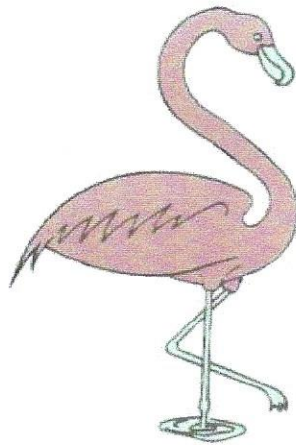


ATTACHMENT C



Traffic Signals PM Sheets

Signal ID: G-27 Date: 1/19/2016 Time:

Location: SEA ISLAND RD / MARKET ST Initials: JV

Single: 6 Two-Way: Three-Way:

Four-Way: 5 Way: 2 Pedestrian: Amp Draw:

Phase 1 X Phase 3 Phase 5 X Phase 7

Phase 2 MW Phase 4 X Phase 6 MW Phase 8 X

	WBLT	EBT		SB	EBLT	WBT		NB
	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6	Phase 7	Phase 8
MIN/GREEN	4	18	0	4	4	18	0	4
PASS/10	40	50	0	30	40	50	0	30
MAX1	8	120	0	15	8	120	8	15
MAX2	8	120	0	15	8	120	8	15
YELL/10	40	40	40	40	40	40	40	40
RED/10	29	22	10	29	28	22	10	29
WALK	0	0	0	0	0	0	0	0
PED CLR	0	0	0	0	0	0	0	0
RECALL	0	2	0	0	0	2	0	0
DELAY EXT								
NL MEM								
2 ENTRY								
ANSI/10								
MAX INI								
TIM BEF								
CAR BEF								
TIME TO								
MGAP/10								

Traffic Signals PM Sheets

Signal ID: G-25 Date: 1/19/2016 Time: _____

Location: SEA ISLAND @ FREDERICA RD Initials: CS

Single: 4 Two-Way: _____ Three-Way: _____

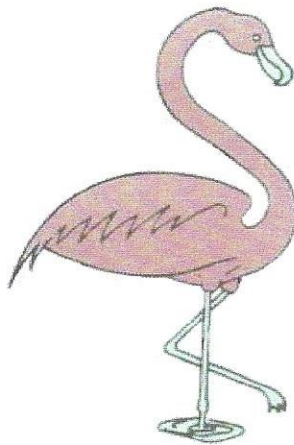
Four-Way: _____ 5 Way: 4 Pedestrian: 0 Amp Draw: 3.1

Phase 1 X Phase 3 X Phase 5 X Phase 7 X

Phase 2 X Phase 4 X Phase 6 X Phase 8 X

	SBLT	NBT	EBLT	WBT	NBLT	SBT	WBLT	EBT
	Phase 1	Phase 2	Phase 3	Phase 4	Phase 5	Phase 6	Phase 7	Phase 8
MIN/GREEN	8	10	5	8	8	10	10	5
PASS/10	30	50	30	30	30	50	80	30
MAX1	26	65	20	60	25	65	75	50
MAX2	30	50	30	50	30	50	30	50
YELL/10	40	40	40	40	40	40	40	40
RED/10	10	10	10	10	10	10	10	10
WALK	0	0	0	0	0	0	0	0
PED CLR	0	0	0	0	0	0	0	0
RECALL	0	2	0	0	0	2	0	0
DELAY EXT	0	0	0	0	0	0	0	0
NL MEM	1	1	1	1	0	1	1	1
2 ENTRY	0	1	0	1	0	1	0	1
ANSI/10	0	0	0	0	0	0	0	0
MAX INI	0	0	0	0	0	0	0	0
TIM BEF	0	0	0	0	0	0	0	0
CAR BEF	0	0	0	0	0	0	0	0
TIME TO	0	0	0	0	0	0	0	0
MGAP/10	0	0	0	0	0	0	0	0

ATTACHMENT D



HCS7 Signalized Intersection Results Summary

General Information

Agency BUCKHOLZ TRAFFIC

Analyst J. Buckholz

Jurisdiction Glynn County

Urban Street Sea Island Road

Intersection Frederica Road

Project Description March 2020 AM Peak Hour

Analysis Date 2/22/2015

Time Period Weekday AM Peak Hour

Analysis Year 2020 JWBTE Traffic - Existing Timings

File Name March2020_AM_JWBTE_Sealsland.xus

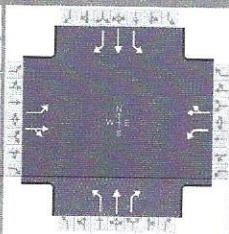
Intersection Information

Duration, h 0.25

Area Type Other

PHF 0.93

Analysis Period 1> 16:30



Demand Information

Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	377	206	40	49	50	20	153	195	124	44	349	671

Signal Information

Cycle, s	89.5	Reference Phase	2									
Offset, s	134	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	Off	Green	7.3	7.7	8.0	5.5	2.3	33.6		
Force Mode	Fixed	Simult. Gap N/S	Off	Yellow	4.0	4.0	4.0	4.0	0.0	4.0		
				Red	1.0	1.0	1.0	1.0	0.0	1.0		

Timer Results

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2	7	4	3	8
Case Number	1.1	4.0	1.1	4.0	1.1	3.0	1.1	3.0
Phase Duration, s	25.0	25.7	12.3	13.0	12.9	40.9	10.5	38.6
Change Period, (Y+R _c), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Allow Headway (MAH), s	3.9	3.4	8.9	3.4	4.0	6.0	4.0	6.1
Queue Clearance Time (Q _c), s	21.1	14.7	4.3	5.1	6.9	8.8	3.4	22.6
Green Extension Time (G _e), s	0.0	0.7	0.9	0.1	0.4	2.9	0.1	11.0
Phase Call Probability	1.00	1.00	0.73	1.00	0.98	1.00	0.69	1.00
Max Out Probability	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05

Movement Group Results

Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (v), veh/h	433	282		53	67		165	210	120	47	375	577
Adjusted Saturation Flow Rate (s), veh/h/ln	1781	1817		1781	1807		1781	1870	1309	1781	1870	1585
Queue Service Time (g _s), s	19.1	12.7		2.3	3.1		4.9	6.8	5.4	1.4	14.0	20.6
Cycle Queue Clearance Time (Q _c), s	19.1	12.7		2.3	3.1		4.9	6.8	5.4	1.4	14.0	20.6
Green Ratio (g/C)	0.34	0.23		0.17	0.09		0.46	0.40	0.40	0.44	0.38	0.60
Capacity (c), veh/h	552	420		298	162		460	751	526	550	703	950
Volume-to-Capacity Ratio (v/c)	0.785	0.673		0.177	0.412		0.358	0.279	0.229	0.086	0.534	0.608
Back of Queue (B _q), ft/ln (95 th percentile)	310.4	218.2		47	63.8		89	133.5	88.7	25	261	280.9
Back of Queue (B _q), veh/ln (95 th percentile)	12.2	8.6		1.9	2.5		3.5	5.3	3.0	1.0	10.3	11.1
Queue Storage Ratio (R _Q) (95 th percentile)	0.73	0.00		0.24	0.00		0.22	0.00	0.35	0.08	0.00	0.75
Uniform Delay (d ₁), s/veh	26.3	31.3		31.7	38.5		15.5	18.1	17.7	14.8	21.8	11.3
Incremental Delay (d ₂), s/veh	5.4	1.4		1.3	1.7		0.5	0.4	0.5	0.1	1.3	1.3
Initial Queue Delay (d ₃), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d _c), s/veh	31.7	32.7		33.0	40.2		15.9	18.5	18.1	14.8	23.2	12.7
Level of Service (LOS)	C	C		C	D		B	B	B	B	C	B
Approach Delay, s/veh / LOS	32.1	C		37.0	D		17.5	B		16.7	B	
Intersection Delay, s/veh / LOS	22.7						C					

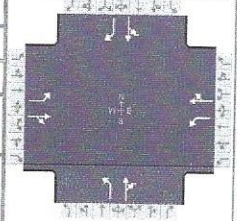
Multimodal Results

	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS7 Signalized Intersection Results Summary

General Information

Agency	BUCKHOLZ TRAFFIC			Intersection Information	
Analyst	J. Buckholz	Analysis Date	2/22/2015	Duration, h	0.25
Jurisdiction	Glynn County	Time Period	Weekday AM Peak Hour	Area Type	Other
Urban Street	Sea Island Road	Analysis Year	2020 JWBTE Traffic - Existing Timings	PHF	0.85
Intersection	Market Street	File Name	March2020_AM_JWBTE_Sealsland.xus	Analysis Period	1> 16:30
Project Description	March 2020 AM Peak Hour				



Demand Information

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	25	561	42	44	832	10	15	8	22	25	5	7

Signal Information

Cycle, s	61.5	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	Off	Green	1.6	0.6	35.0	4.2	0.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	Off	Yellow	4.0	0.0	4.0	4.0	0.0	0.0		
				Red	2.9	0.0	2.2	2.9	0.0	0.0		

Timer Results

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2		4		8
Case Number	1.1	4.0	1.1	4.0		6.0		7.0
Phase Duration, s	8.5	41.2	9.1	41.8		11.1		11.1
Change Period, (Y+R _c), s	6.9	6.2	6.9	6.2		6.9		6.9
Max Allow Headway (MAH), s	4.9	5.4	4.9	5.4		4.1		4.0
Queue Clearance Time (Q _c), s	2.4	18.5	2.7	25.7		5.2		4.3
Green Extension Time (G _e), s	0.0	6.7	0.0	10.0		0.1		0.0
Phase Call Probability	0.39	1.00	0.55	1.00		0.80		0.80
Max Out Probability	0.42	0.00	0.60	0.00		0.00		0.00

Movement Group Results

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (v), veh/h	29	709		47	893		18	35		35	7	
Adjusted Saturation Flow Rate (s), veh/h/ln	1781	1847		1781	1866		1410	1652		1156	1585	
Queue Service Time (g _s), s	0.4	16.5		0.7	23.7		0.8	1.2		1.0	0.3	
Cycle Queue Clearance Time (Q _c), s	0.4	16.5		0.7	23.7		3.2	1.2		2.3	0.3	
Green Ratio (g/C)	0.59	0.57		0.60	0.58		0.07	0.07		0.07	0.07	
Capacity (c), veh/h	265	1052		405	1082		158	114		187	110	
Volume-to-Capacity Ratio (v/c)	0.111	0.674		0.115	0.826		0.111	0.309		0.188	0.064	
Back of Queue (C), ft/ln (95 th percentile)	5.7	214.8		7.6	280.8		11.8	23.6		23	4.5	
Back of Queue (C), veh/ln (95 th percentile)	0.2	8.5		0.3	11.1		0.5	0.9		0.9	0.2	
Queue Storage Ratio (RQ) (95 th percentile)	0.05	0.00		0.04	0.00		0.24	0.00		0.13	0.03	
Uniform Delay (d ₁), s/veh	10.4	9.2		7.2	10.4		29.3	27.2		27.8	26.7	
Incremental Delay (d ₂), s/veh	0.3	1.6		0.1	2.9		0.3	1.5		0.5	0.2	
Initial Queue Delay (d ₃), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (d _c), s/veh	10.7	10.9		7.4	13.3		29.6	28.7		28.2	27.0	
Level of Service (LOS)	B	B		A	B		C	C		C	C	
Approach Delay, s/veh / LOS	10.9	B		13.0	B		29.0	C		28.0	C	
Intersection Delay, s/veh / LOS	12.9						B					

Multimodal Results

	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

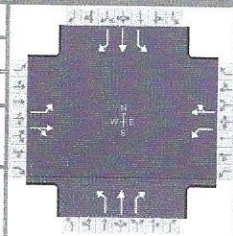
HCS7 Signalized Intersection Results Summary

General Information

Agency	BUCKHOLZ TRAFFIC
Analyst	J. Buckholz
Jurisdiction	Glynn County
Urban Street	Sea Island Road
Intersection	Frederica Road
Project Description	March 2020 PM Peak Hour

Intersection Information

Duration, h	0.25
Area Type	Other
PHF	0.94
Analysis Period	1> 16:30
File Name	March2020_PM_JWBTE_Sealsland.xus



Demand Information

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	565	116	90	95	202	23	103	442	74	15	383	511

Signal Information

Cycle, s	88.9	Reference Phase	2													
Offset, s	134	Reference Point	End													
Uncoordinated	Yes	Simult. Gap E/W	Off	Green	9.2	5.8	13.4	2.6	4.9	28.1						
				Yellow	4.0	4.0	4.0	4.0	0.0	4.0						
				Red	1.0	1.0	1.0	1.0	0.0	1.0						

Timer Results

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2	7	4	3	8
Case Number	1.1	4.0	1.1	4.0	1.1	3.0	1.1	3.0
Phase Duration, s	25.0	29.2	14.2	18.4	12.5	37.9	7.6	33.1
Change Period, (Y+R), s	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Max Allow Headway (MAH), s	3.9	3.5	8.9	3.4	4.0	5.9	4.0	6.1
Queue Clearance Time (QCT), s	21.5	9.2	6.0	12.8	5.4	20.8	2.5	19.0
Green Extension Time (GET), s	0.0	0.4	1.9	0.5	0.3	5.2	0.0	9.1
Phase Call Probability	1.00	1.00	0.92	1.00	0.93	1.00	0.33	1.00
Max Out Probability	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.02

Movement Group Results

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (v), veh/h	475	173		101	231		110	470	71	16	407	435
Adjusted Saturation Flow Rate (s), veh/h/ln	1781	1734		1781	1847		1781	1870	1309	1781	1870	1585
Queue Service Time (g _s), s	19.5	7.2		4.0	10.8		3.4	18.8	3.2	0.5	17.0	15.5
Cycle Queue Clearance Time (CCT), s	19.5	7.2		4.0	10.8		3.4	18.8	3.2	0.5	17.0	15.5
Green Ratio (g/C)	0.40	0.27		0.25	0.15		0.42	0.37	0.37	0.35	0.32	0.54
Capacity (c), veh/h	515	471		447	278		354	693	485	260	591	857
Volume-to-Capacity Ratio (v/c)	0.922	0.368		0.226	0.830		0.309	0.678	0.147	0.061	0.689	0.508
Back of Queue (C _b), ft/ln (95 th percentile)	369.3	129.2		79.6	223.1		63	335.6	53.3	10.1	314.5	230.9
Back of Queue (C _b), veh/ln (95 th percentile)	14.5	5.1		3.1	8.8		2.5	13.2	1.8	0.4	12.4	9.1
Queue Storage Ratio (RQ) (95 th percentile)	0.87	0.00		0.40	0.00		0.16	0.00	0.21	0.03	0.00	0.62
Uniform Delay (d ₁), s/veh	23.3	26.2		26.3	36.7		18.1	23.6	18.6	20.7	26.6	12.9
Incremental Delay (d ₂), s/veh	18.4	0.4		1.2	6.3		0.5	2.5	0.3	0.1	3.1	1.0
Initial Queue Delay (d ₃), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d _c), s/veh	41.7	26.6		27.4	43.0		18.6	26.0	18.9	20.8	29.7	13.9
Level of Service (LOS)	D	C		C	D		B	C	B	C	C	B
Approach Delay, s/veh / LOS	37.6		D	38.3		D	24.0		C	21.5		C
Intersection Delay, s/veh / LOS	28.6						C					

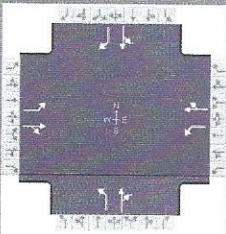
Multimodal Results

	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS7 Signalized Intersection Results Summary

General Information

Agency	BUCKHOLZ TRAFFIC			Intersection Information	
Analyst	J. Buckholz	Analysis Date	2/22/2015	Duration, h	0.25
Jurisdiction	Glynn County	Time Period	Weekday PM Peak Hour	Area Type	Other
Urban Street	Sea Island Road	Analysis Year	2020 JWBTE Traffic - Existing Timings	PHF	0.99
Intersection	Market Street	File Name	March2020_PM_JWBTE_Sealsland.xus	Analysis Period	1> 16:30
Project Description	March 2020 PM Peak Hour				



Demand Information

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	38	493	54	62	599	23	81	12	83	66	24	39

Signal Information

Cycle, s	74.6	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	Yes	Simult. Gap E/W	Off	Green	2.2	1.0	36.4	15.0	0.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	Off	Yellow	4.0	0.0	4.0	4.0	0.0	0.0		
				Red	2.9	0.0	2.2	2.9	0.0	0.0		

Timer Results

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2		4		8
Case Number	1.1	4.0	1.1	4.0		6.0		7.0
Phase Duration, s	9.1	42.6	10.1	43.6		21.9		21.9
Change Period, (Y+R _c), s	6.9	6.2	6.9	6.2		6.9		6.9
Max Allow Headway (MAH), s	4.9	5.4	4.9	5.4		4.1		4.1
Queue Clearance Time (Q _c), s	2.8	18.4	3.6	29.5		17.0		17.0
Green Extension Time (G _e), s	0.0	4.6	0.1	7.9		0.0		0.0
Phase Call Probability	0.55	1.00	0.80	1.00		1.00		1.00
Max Out Probability	0.68	0.00	1.00	0.00		1.00		1.00

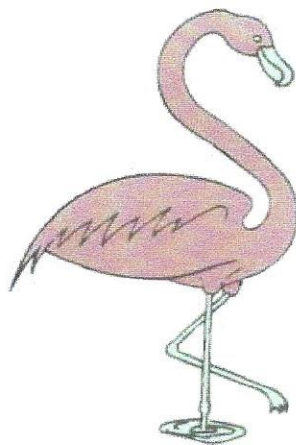
Movement Group Results

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (v), veh/h	38	553		79	789		82	96		91	35	
Adjusted Saturation Flow Rate (s), veh/h/ln	1781	1838		1781	1858		1387	1616		91	1585	
Queue Service Time (g _s), s	0.8	16.4		1.6	27.5		0.0	3.8		0.0	1.4	
Cycle Queue Clearance Time (Q _c), s	0.8	16.4		1.6	27.5		15.0	3.8		15.0	1.4	
Green Ratio (g/C)	0.52	0.49		0.53	0.50		0.20	0.20		0.20	0.20	
Capacity (c), veh/h	223	897		403	932		96	325		102	319	
Volume-to-Capacity Ratio (v/c)	0.172	0.616		0.195	0.847		0.848	0.295		0.893	0.111	
Back of Queue (Q), ft/ln (95 th percentile)	13	252.4		24.4	379.3		124.3	65.9		147.1	23.2	
Back of Queue (Q), veh/ln (95 th percentile)	0.5	9.9		1.0	14.9		4.9	2.6		5.8	0.9	
Queue Storage Ratio (RQ) (95 th percentile)	0.10	0.00		0.14	0.00		2.49	0.00		0.84	0.13	
Uniform Delay (d ₁), s/veh	14.6	14.0		10.6	16.1		37.3	25.3		34.4	24.4	
Incremental Delay (d ₂), s/veh	0.5	1.5		0.3	3.7		47.0	0.5		56.4	0.2	
Initial Queue Delay (d ₃), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (d), s/veh	15.1	15.5		10.8	19.9		84.3	25.8		90.8	24.5	
Level of Service (LOS)	B	B		B	B		F	C		F	C	
Approach Delay, s/veh / LOS	15.4	B		19.0	B		52.8	D		72.2	E	
Intersection Delay, s/veh / LOS	25.0						C					

Multimodal Results

	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

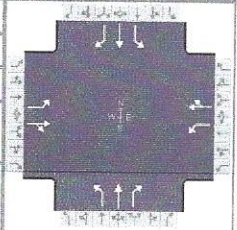
ATTACHMENT E



HCS7 Signalized Intersection Results Summary

General Information

Agency	BUCKHOLZ TRAFFIC			Intersection Information	
Analyst	J. Buckholz	Analysis Date	2/22/2015	Duration, h	0.25
Jurisdiction	Glynn County	Time Period	Weekday AM Peak Hour	Area Type	Other
				PHF	0.93
Urban Street	Sea Island Road	Analysis Year	2035 POND Traffic - Optimized Timings	Analysis Period	1> 16:30
Intersection	Frederica Road	File Name	July2035_AM_POND_Sealsland.xus		
Project Description	July 2035 AM Peak Hour				



Demand Information

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	376	232	52	119	108	27	116	314	174	69	404	449

Signal Information

Cycle, s	160.0	Reference Phase	2									
Offset, s	159	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On	Green	39.0	4.0	39.0	4.0	2.0	50.0		
Force Mode	Fixed	Simult. Gap N/S	Off	Yellow	3.0	0.0	4.0	3.0	0.0	4.0		
				Red	2.0	0.0	2.0	2.0	0.0	2.0		

Timer Results

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2	7	4	3	8
Case Number	1.1	4.0	1.1	4.0	1.1	3.0	1.1	3.0
Phase Duration, s	48.0	49.0	44.0	45.0	11.0	58.0	9.0	56.0
Change Period, (Y+R), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0
Max Allow Headway (MAH), s	3.9	0.0	3.9	0.0	4.0	4.0	4.0	4.1
Queue Clearance Time (QCT), s	31.1		8.3		8.0	25.8	6.0	35.3
Green Extension Time (GET), s	1.4	0.0	0.4	0.0	0.0	1.8	0.0	2.8
Phase Call Probability	1.00		1.00		1.00	1.00	1.00	1.00
Max Out Probability	0.03		0.00		1.00	0.00	1.00	0.07

Movement Group Results

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (v), veh/h	489	369		128	137		125	338	169	74	434	386
Adjusted Saturation Flow Rate (s), veh/h/ln	1781	1811		1781	1821		1781	1870	1309	1781	1870	1585
Queue Service Time (gst), s	29.1	28.0		6.3	9.8		6.0	23.8	10.2	4.0	33.3	21.6
Cycle Queue Clearance Time (CCT), s	29.1	28.0		6.3	9.8		6.0	23.8	10.2	4.0	33.3	21.6
Green Ratio (g/C)	0.52	0.27		0.49	0.24		0.35	0.32	0.57	0.34	0.31	0.58
Capacity (c), veh/h	752	487		561	444		212	608	744	260	584	921
Volume-to-Capacity Ratio (v/c)	0.649	0.758		0.228	0.308		0.590	0.555	0.227	0.285	0.743	0.419
Back of Queue (C), ft/ln (95 th percentile)	418	408.1		122.2	208		97.5	428.6	170.7	29.6	587.7	324.2
Back of Queue (C), veh/ln (95 th percentile)	16.5	16.1		4.8	8.2		3.8	16.9	5.7	1.2	23.1	12.8
Queue Storage Ratio (RQ) (95 th percentile)	0.98	0.00		0.61	0.00		0.32	0.00	0.85	0.09	0.00	0.86
Uniform Delay (d1), s/veh	26.7	43.3		25.1	49.5		46.3	44.5	17.1	40.8	49.3	18.5
Incremental Delay (d2), s/veh	1.0	5.6		0.2	1.8		4.3	1.1	0.2	0.6	5.1	0.3
Initial Queue Delay (d3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	27.7	48.9		25.3	51.3		50.5	45.6	17.2	41.4	54.4	18.8
Level of Service (LOS)	C	D		C	D		D	D	B	D	D	B
Approach Delay, s/veh / LOS	36.9		D	38.7		D	39.0		D	38.0		D
Intersection Delay, s/veh / LOS	37.9						D					

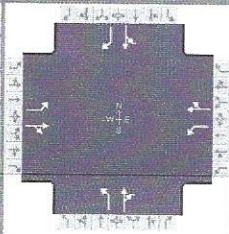
Multimodal Results

	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS7 Signalized Intersection Results Summary

General Information

Agency	BUCKHOLZ TRAFFIC			Intersection Information	
Analyst	J. Buckholz	Analysis Date	2/22/2015	Duration, h	0.25
Jurisdiction	Glynn County	Time Period	Weekday AM Peak Hour	Area Type	Other
Urban Street	Sea Island Road	Analysis Year	2035 POND Traffic - Optimized Timings	PHF	0.85
Intersection	Market Street	Analysis Period	1> 16:30	File Name	July2035_AM_POND_Sealsland.xus
Project Description	July 2035 AM Peak Hour				



Demand Information

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	30	673	50	53	998	12	18	10	26	30	6	8

Signal Information

Cycle, s	160.0	Reference Phase	2									
Offset, s	0	Reference Point	End									
Uncoordinated	No	Simult. Gap E/W	On	Green	6.0	2.0	84.0	51.0	0.0	0.0		
Force Mode	Fixed	Simult. Gap N/S	Off	Yellow	3.0	0.0	4.0	4.0	0.0	0.0		
				Red	2.0	0.0	2.0	2.0	0.0	0.0		

Timer Results

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2		4		8
Case Number	1.1	4.0	1.1	4.0		6.0		7.0
Phase Duration, s	13.0	92.0	11.0	90.0		57.0		57.0
Change Period, (Y+R _c), s	5.0	6.0	5.0	6.0		6.0		6.0
Max Allow Headway (MAH), s	3.9	0.0	3.9	0.0		4.1		4.0
Queue Clearance Time (Q _c), s	3.4		3.4			9.5		7.7
Green Extension Time (G _e), s	0.0	0.0	0.0	0.0		0.2		0.1
Phase Call Probability	1.00		1.00			1.00		1.00
Max Out Probability	0.32		1.00			0.00		0.00

Movement Group Results

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (v), veh/h	35	851		36	688		21	42		42	8	
Adjusted Saturation Flow Rate (s), veh/h/ln	1781	1847		1781	1866		1409	1655		1363	1585	
Queue Service Time (g _s), s	1.4	63.1		1.4	50.8		1.8	2.9		2.9	0.6	
Cycle Queue Clearance Time (Q _c), s	1.4	63.1		1.4	50.8		7.5	2.9		5.7	0.6	
Green Ratio (g/C)	0.57	0.54		0.56	0.52		0.32	0.32		0.32	0.32	
Capacity (c), veh/h	291	993		196	980		443	528		476	505	
Volume-to-Capacity Ratio (v/c)	0.121	0.857		0.184	0.702		0.048	0.080		0.089	0.016	
Back of Queue (B _q), ft/ln (95 th percentile)	25.8	972.6		27.6	839.3		28.7	54.8		56.4	10.4	
Back of Queue (B _q), veh/ln (95 th percentile)	1.0	38.3		1.1	33.0		1.1	2.2		2.2	0.4	
Queue Storage Ratio (R _Q) (95 th percentile)	0.21	0.00		0.16	0.00		0.57	0.00		0.32	0.06	
Uniform Delay (d ₁), s/veh	23.2	31.7		28.8	41.3		41.8	38.1		39.7	37.3	
Incremental Delay (d ₂), s/veh	0.2	9.4		0.4	3.8		0.0	0.1		0.1	0.0	
Initial Queue Delay (d ₃), s/veh	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Control Delay (d), s/veh	23.4	41.2		29.2	45.1		41.8	38.2		39.7	37.3	
Level of Service (LOS)	C	D		C	D		D	D		D	D	
Approach Delay, s/veh / LOS	40.5		D	44.3		D	39.4		D	39.3		D
Intersection Delay, s/veh / LOS	42.0						D					

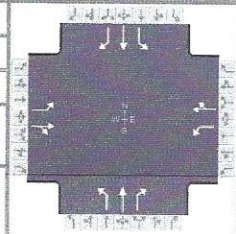
Multimodal Results

	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

HCS7 Signalized Intersection Results Summary

General Information

Agency	BUCKHOLZ TRAFFIC			Intersection Information	
Analyst	J. Buckholz	Analysis Date	2/22/2015	Duration, h	0.25
Jurisdiction	Glynn County	Time Period	Weekday PM Peak Hour	Area Type	Other
				PHF	0.94
Urban Street	Sea Island Road	Analysis Year	2035 POND Traffic - Optimized Timings	Analysis Period	1> 16:30
Intersection	Frederica Road	File Name	July2035_PM_POND_Sealsland.xus		
Project Description	July 2035 PM Peak Hour				



Demand Information

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	638	230	125	227	254	57	108	418	132	42	456	488

Signal Information

Cycle, s	160.0	Reference Phase	2								
Offset, s	157	Reference Point	End								
Uncoordinated	No	Simult. Gap E/W	On	Green	41.0	2.0	40.0	5.0	1.0	49.0	
Force Mode	Fixed	Simult. Gap N/S	Off	Yellow	3.0	0.0	4.0	3.0	0.0	4.0	
				Red	2.0	0.0	2.0	2.0	0.0	2.0	

Timer Results

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2	7	4	3	8
Case Number	1.1	4.0	1.1	4.0	1.1	3.0	1.1	3.0
Phase Duration, s	48.0	48.0	46.0	46.0	11.0	56.0	10.0	55.0
Change Period, (Y+R), s	5.0	6.0	5.0	6.0	5.0	6.0	5.0	6.0
Max Allow Headway (MAH), s	3.9	0.0	3.9	0.0	4.0	4.0	4.0	4.1
Queue Clearance Time (QCT), s	32.6		14.4		8.0	36.3	4.7	40.9
Green Extension Time (GET), s	1.3	0.0	0.7	0.0	0.0	1.7	0.0	2.4
Phase Call Probability	1.00		1.00		1.00	1.00	1.00	1.00
Max Out Probability	0.06		0.00		1.00	0.03	1.00	0.40

Movement Group Results

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (v), veh/h	500	278		241	322		115	445	127	45	485	413
Adjusted Saturation Flow Rate (s), veh/h/ln	1781	1759		1781	1817		1781	1870	1309	1781	1870	1585
Queue Service Time (g s), s	30.6	22.0		12.4	25.9		6.0	34.3	7.4	2.7	38.9	23.9
Cycle Queue Clearance Time (CQT), s	30.6	22.0		12.4	25.9		6.0	34.3	7.4	2.7	38.9	23.9
Green Ratio (g/C)	0.52	0.26		0.51	0.25		0.34	0.31	0.57	0.34	0.31	0.58
Capacity (c), veh/h	617	462		626	454		169	584	744	182	573	911
Volume-to-Capacity Ratio (v/c)	0.811	0.603		0.386	0.709		0.678	0.761	0.170	0.246	0.847	0.453
Back of Queue (C), ft/ln (95 th percentile)	510.8	370		226.6	474.4		99.9	605.8	123.4	57.1	697.4	353.9
Back of Queue (C), veh/ln (95 th percentile)	20.1	14.6		8.9	18.7		3.9	23.9	4.1	2.2	27.5	13.9
Queue Storage Ratio (RQ) (95 th percentile)	1.20	0.00		1.13	0.00		0.25	0.00	0.49	0.18	0.00	0.94
Uniform Delay (d1), s/veh	36.0	50.5		24.5	54.7		47.3	49.6	16.5	40.1	52.0	19.5
Incremental Delay (d2), s/veh	6.3	4.4		0.4	9.0		10.3	5.8	0.1	0.7	11.3	0.4
Initial Queue Delay (d3), s/veh	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Control Delay (d), s/veh	42.3	54.9		24.9	63.7		57.7	55.4	16.6	40.8	63.3	19.9
Level of Service (LOS)	D	D		C	E		E	E	B	D	E	B
Approach Delay, s/veh / LOS	46.8		D	47.1		D	48.6		D	43.2		D
Intersection Delay, s/veh / LOS	46.1						D					

Multimodal Results

	EB	WB	NB	SB
Pedestrian LOS Score / LOS				
Bicycle LOS Score / LOS				

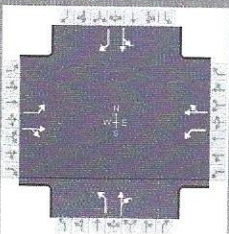
HCS7 Signalized Intersection Results Summary

General Information

Agency: BUCKHOLZ TRAFFIC
 Analyst: J. Buckholz
 Jurisdiction: Glynn County
 Urban Street: Sea Island Road
 Intersection: Market Street
 Project Description: July 2035 PM Peak Hour

Intersection Information

Duration, h: 0.25
 Area Type: Other
 PHF: 0.99
 Analysis Year: 2035 POND Traffic - Optimized Timings
 Analysis Period: 1> 16:30
 File Name: July2035_PM_POND_Sealsland.xus



Demand Information

Approach Movement	EB			WB			NB			SB		
	L	T	R	L	T	R	L	T	R	L	T	R
Demand (v), veh/h	46	592	65	74	719	28	97	14	100	79	29	47

Signal Information

Cycle, s	160.0	Reference Phase	2								
Offset, s	0	Reference Point	End								
Uncoordinated	No	Simult. Gap EW	On	Green	8.0	2.0	81.0	52.0	0.0	0.0	
Force Mode	Fixed	Simult. Gap N/S	Off	Yellow	3.0	0.0	4.0	4.0	0.0	0.0	
				Red	2.0	0.0	2.0	2.0	0.0	0.0	

Timer Results

	EBL	EBT	WBL	WBT	NBL	NBT	SBL	SBT
Assigned Phase	1	6	5	2		4		8
Case Number	1.1	4.0	1.1	4.0		6.0		7.0
Phase Duration, s	13.0	87.0	15.0	89.0		58.0		58.0
Change Period, (Y+R _c), s	5.0	6.0	5.0	6.0		6.0		6.0
Max Allow Headway (MAH), s	3.9	0.0	3.9	0.0		4.1		4.1
Queue Clearance Time (Q _c), s	3.9		5.3			28.6		19.1
Green Extension Time (G _e), s	0.0	0.0	0.1	0.0		0.7		0.5
Phase Call Probability	1.00		1.00			1.00		1.00
Max Out Probability	0.72		0.39			0.00		0.00

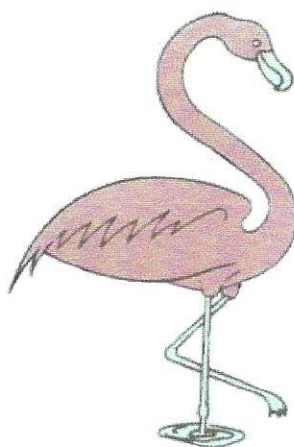
Movement Group Results

	EB			WB			NB			SB		
Approach Movement	L	T	R	L	T	R	L	T	R	L	T	R
Assigned Movement	1	6	16	5	2	12	7	4	14	3	8	18
Adjusted Flow Rate (v), veh/h	46	664		82	823		98	115			109	42
Adjusted Saturation Flow Rate (s), veh/h/ln	1781	1838		1781	1858		1381	1615			1200	1585
Queue Service Time (g _s), s	1.9	44.7		3.3	65.2		9.6	8.3			8.8	3.0
Cycle Queue Clearance Time (Q _c), s	1.9	44.7		3.3	65.2		26.6	8.3			17.1	3.0
Green Ratio (g/C)	0.56	0.51		0.57	0.52		0.32	0.32			0.32	0.32
Capacity (c), veh/h	200	930		332	964		346	525			429	515
Volume-to-Capacity Ratio (v/c)	0.233	0.713		0.246	0.854		0.283	0.219			0.254	0.082
Back of Queue (C), ft/ln (95 th percentile)	36.6	702.7		62.6	1041.7		155.5	154.9			159.1	54.4
Back of Queue (C), veh/ln (95 th percentile)	1.4	27.7		2.5	41.0		6.1	6.1			6.3	2.1
Queue Storage Ratio (RQ) (95 th percentile)	0.29	0.00		0.36	0.00		3.11	0.00			0.91	0.31
Uniform Delay (d ₁), s/veh	30.5	30.5		22.8	44.7		52.6	39.2			44.5	37.5
Incremental Delay (d ₂), s/veh	0.6	4.6		0.3	7.8		0.4	0.2			0.3	0.1
Initial Queue Delay (d ₃), s/veh	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Control Delay (d), s/veh	31.1	35.2		23.1	52.5		53.1	39.5			44.8	37.5
Level of Service (LOS)	C	D		C	D		D	D			D	D
Approach Delay, s/veh / LOS	34.9	C		49.9	D		45.7	D			42.8	D
Intersection Delay, s/veh / LOS	43.5						D					

Multimodal Results

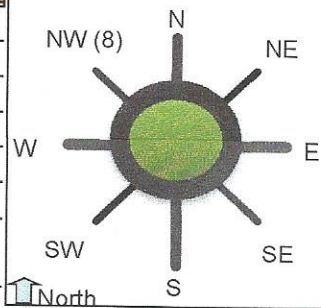
	EB	WB	NB	SB
Pedestrian LOS Score / LOS				

ATTACHMENT F



General & Site Information v 4.2

Analyst: J. Buckholz
Agency/Co: BUCKHOLZ TRAFFIC
Date: 2/16/2021
Project or PI#: #20-1595
Year, Peak Hour: 2035, July, Weekday AM Peak Hour
County/District: Glynn County
Intersection: Frederica Road / Sea island Road



Volumes

		Entry Legs (FROM)							
		N1 (1)	N2 (1)	NE1 (2)	NE2 (2)	E1 (3)	E2 (3)	SE1 (4)	SE2 (4)
Lane Designation		SELECT	SELECT	SELECT	SELECT	SELECT	SELECT	SELECT	SELECT
Exit Legs (TO)	N (1), vph					27			
	NE (2), vph								
	E (3), vph	69							
	SE (4), vph								
	S (5), vph	404				119			
	SW (6), vph								
	W (7), vph					108			
	NW (8), vph								
Entry Volume, vph		473	(	(	(	254	(	0	(

		S1 (5)	S2 (5)	SW1 (6)	SW2 (6)	W1 (7)	W2 (7)	NW1 (8)	NW2 (8)
Lane Designation		SELECT	SELECT	SELECT	SELECT	SELECT	SELECT	SELECT	SELECT
	N (1), vph	168	146			350	26		
	NE (2), vph								
	E (3), vph		174				232		
	SE (4), vph								
	S (5), vph						52		
	SW (6), vph								
	W (7), vph	116							
	NW (8), vph								
Entry Volume, vph		284	320	(	(	350	310	0	(

	N	NE	E	SE	S	SW	W	NW
# of Entry Flow Lanes	(	(	(	(	2	(	2	(
# of Conflict Flow Lanes	(	"	2	"	2	"	1	"

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%
% Heavy Vehicles	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
% Bicycles	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
# of Pedestrians (ped/hr)	(	(	(	(	1	(	0	(
PHF	0.95	0.92	0.71	0.92	0.87	0.92	0.89	0.92
F _{hv}	0.980	1.000	0.980	1.000	0.980	1.000	0.980	1.000
F _{ped}	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	N (1), pcu/h	0	0	39	0	368	0	431	0
Leg #	NE (2), pcu/h	0	0	0	0	0	0	0	0
	E (3), pcu/h	74	0	0	0	204	0	266	0
	SE (4), pcu/h	0	0	0	0	0	0	0	0
	S (5), pcu/h	434	0	171	0	0	0	60	0
	SW (6), pcu/h	0	0	0	0	0	0	0	0
	W (7), pcu/h	0	0	155	0	136	0	0	0
	NW (8), pcu/h	0	0	0	0	0	0	0	0
	Entry flow, pcu/h	508	0	365	0	708	0	756	0
	Entry flow Lane 1, pcu/h	508	0	365	0	333	0	401	0
	Entry flow Lane 2, pcu/h	0	0	0	0	375	0	355	0
	Conflicting flow, pcu/h	462	0	935	0	771	0	679	0

Results: Approach Measures of Effectiveness

HCM 6th Edition		N		E		S		W	
Lane Designations		Lane 1	Lane 2	Lane 1	Lane 2	Lane 1	Lane 2	Lane 1	Lane 2
Entry Capacity, veh/h		844	NA	629	NA	651	723	751	751
Entry Flow Rates, veh/h		498	0	358	0	326	368	393	348
V/C ratio		0.59	0.00	0.57	0.00	0.50	0.51	0.52	0.46
Control Delay, s/veh		13.1	0.0	15.9	0.0	13.5	12.6	12.6	11.2
LOS		E	#N/A	C	#N/A	B	E	B	E
Average Queue (ft)		45	0	39	0	31	32	31	27
95th % Queue (ft)		101	#VALUE!	91	#VALUE!	72	74	79	63
Approach Delay, LOS		10.7 sec, LOS B		15.9 sec, LOS C		13 sec, LOS B		11.9 sec, LOS B	
Lane Designations		NE		SE		SW		NW	
Lane Designations		Lane 1	Lane 2	Lane 1	Lane 2	Lane 1	Lane 2	Lane 1	Lane 2
Entry Capacity, veh/h		NA	NA	NA	NA	NA	NA	NA	NA
Entry Flow Rates, veh/h		0	0	0	0	0	0	0	0
V/C ratio		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Control Delay, sec/pcu		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LOS		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Average Queue (ft)		0	0	0	0	0	0	0	0
95th % Queue (ft)		#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
Approach Delay, LOS		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!	

Overall Intersection Measures of Effectiveness

Int Control Delay (sec)	13.1	Int LOS	E	Max Approach V/C	0.59
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Notes:

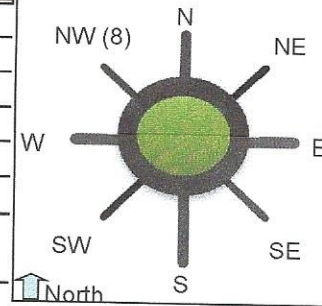
v 4.2

Bypass Lane Merge Point Analysis (if applicable)						
Bypass Characteristics	Bypass #1	Bypass #2	Bypass #3	Bypass #4	Bypass #5	Bypass #6
Select Entry Leg from Bypass (FROM)	N (1)					
Select Exit Leg for Bypass (TO)	W (7)					
Does the bypass have a dedicated receiving lane?	No					
# of Conflicting Exit Flow Lanes	1	2	2	2	2	2
Volumes						
Entry Leg: Insert Right Turn Volume	488					
Exit Leg: <i>(Select Input Method)</i>	Default					
Lane Flow in Exit Leg***	194					
Sum of inner circulatory flow lane to exit leg (leg bypass merges into)	N/A	N/A	N/A	N/A	N/A	N/A
Sum of outer circulatory flow lane to exit leg (leg bypass merges into)	N/A	N/A	N/A	N/A	N/A	N/A
Critical Lane Flow (Manual) in Exit Leg***	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
Volume Characteristics						
PHF (Entry Leg)	0.95	#N/A	#N/A	#N/A	#N/A	#N/A
F _{HV} (Entry Leg)	0.98	#N/A	#N/A	#N/A	#N/A	#N/A
F _{ped}	1.00	#N/A	#N/A	#N/A	#N/A	#N/A
PHF (Exit Leg)***	N/A	N/A	N/A	N/A	N/A	N/A
F _{HV} (Exit Leg)***	N/A	N/A	N/A	N/A	N/A	N/A
***Volume Characteristics are already taken into account for Default method ONLY. Insert Values above if Manual method.						
Entry/Conflicting Flows						
Entry Flow	524	#N/A	#N/A	#N/A	#N/A	#N/A
Conflicting Critical Flow	194					
Bypass Lane Results						
Entry Capacity of Bypass, veh/h	1110	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
Flow Rates of Exiting Traffic, veh/h	514	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
V/C ratio	0.46	#N/A	#N/A	#N/A	#N/A	#N/A
Control Delay, sec/pcu	8.3	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
LOS	A	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
95th Percentile Queue (veh)	3	#N/A	#N/A	#N/A	#N/A	#N/A
95th % Queue (ft)	64	#N/A	#N/A	#N/A	#N/A	#N/A

General & Site Information

v 4.2

Analyst: J. Buckholz
Agency/Co: BUCKHOLZ TRAFFIC
Date: 2/9/2021
Project or PI#: #20-1595
Year, Peak Hour: 2035, July, Weekday PM Peak Hour
County/District: Glynn County
Intersection: Frederica Road / Sea island Road



Volumes

Entry Legs (FROM)

		N1 (1)	N2 (1)	NE1 (2)	NE2 (2)	E1 (3)	E2 (3)	SE1 (4)	SE2 (4)
Lane Designation		SELECT	SELECT	SELECT	SELECT	SELECT	SELECT	SELECT	SELECT
Exit Legs (TO)	N (1), vph					57			
	NE (2), vph								
	E (3), vph	42							
	SE (4), vph								
	S (5), vph	456				227			
	SW (6), vph								
	W (7), vph					254			
	NW (8), vph								
Entry Volume, vph		498	(C)	(C)	(C)	538	(C)	0	(C)

		S1 (5)	S2 (5)	SW1 (6)	SW2 (6)	W1 (7)	W2 (7)	NW1 (8)	NW2 (8)
Lane Designation		SELECT	SELECT	SELECT	SELECT	SELECT	SELECT	SELECT	SELECT
	N (1), vph	201	207			526	112		
	NE (2), vph								
	E (3), vph		132				230		
	SE (4), vph								
	S (5), vph						125		
	SW (6), vph								
	W (7), vph	108							
	NW (8), vph								
Entry Volume, vph		309	339	(C)	(C)	526	467	0	(C)

	N	NE	E	SE	S	SW	W	NW
# of Entry Flow Lanes	1	(C)	1	(C)	2	(C)	2	(C)
# of Conflict Flow Lanes	1	1	2	1	2	1	1	1

Volume Characteristics	N	NE	E	SE	S	SW	W	NW
% Cars	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%	98.0%
% Heavy Vehicles	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
% Bicycles	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
# of Pedestrians (ped/hr)	(C)	(C)	(C)	(C)	1	(C)	0	(C)
PHF	0.95	0.92	0.89	0.92	0.86	0.92	0.95	0.92
F _{hv}	0.980	1.000	0.980	1.000	0.980	1.000	0.980	1.000
F _{ped}	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	65	0	484	0	685	0
	NE (2), pcu/h	0	0	0	0	0	0	0	0
	E (3), pcu/h	45	0	0	0	157	0	247	0
	SE (4), pcu/h	0	0	0	0	0	0	0	0
	S (5), pcu/h	490	0	260	0	0	0	134	0
	SW (6), pcu/h	0	0	0	0	0	0	0	0
	W (7), pcu/h	0	0	291	0	128	0	0	0
	NW (8), pcu/h	0	0	0	0	0	0	0	0
Entry flow, pcu/h		535	0	617	0	769	0	1066	0
Entry flow Lane 1, pcu/h		535	0	617	0	366	0	565	0
Entry flow Lane 2, pcu/h		0	0	0	0	402	0	501	0
Conflicting flow, pcu/h		679	0	1297	0	977	0	795	0

Results: Approach Measures of Effectiveness

HCM 6th Edition		N		E		S		W	
Lane Designations		Lane 1	Lane 2	Lane 1	Lane 2	Lane 1	Lane 2	Lane 1	Lane 2
Entry Capacity, veh/h		677	NA	462	NA	539	607	675	675
Entry Flow Rates, veh/h		524	0	604	0	359	394	554	492
V/C ratio		0.77	0.00	1.31	0.00	0.67	0.65	0.82	0.73
Control Delay, s/veh		25.0	0.0	178.8	0.0	22.4	19.5	29.0	21.9
LOS		D	#N/A	F	#N/A	C	C	D	C
Average Queue (ft)		91	0	751	0	56	53	111	75
95th % Queue (ft)		189	#VALUE!	673	#VALUE!	126	120	222	161
Approach Delay, LOS		17.5 sec, LOS C		178.8 sec, LOS F		20.9 sec, LOS C		25.6 sec, LOS D	
		NE		SE		SW		NW	
Lane Designations		Lane 1	Lane 2	Lane 1	Lane 2	Lane 1	Lane 2	Lane 1	Lane 2
Entry Capacity, veh/h		NA	NA	NA	NA	NA	NA	NA	NA
Entry Flow Rates, veh/h		0	0	0	0	0	0	0	0
V/C ratio		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Control Delay, sec/pcu		0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
LOS		#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
Average Queue (ft)		0	0	0	0	0	0	0	0
95th % Queue (ft)		#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
Approach Delay, LOS		#DIV/0!		#DIV/0!		#DIV/0!		#DIV/0!	

Overall Intersection Measures of Effectiveness

Int Control Delay (sec)	55.9	Int LOS	F	Max Approach V/C	1.31
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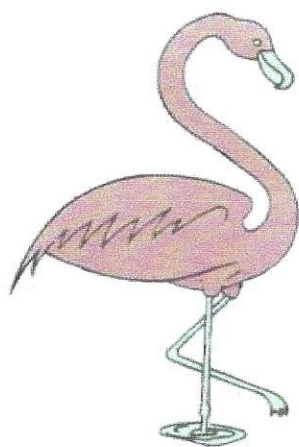
Notes:

v 4.2

Bypass Lane Merge Point Analysis (if applicable)

Bypass Characteristics	Bypass #1	Bypass #2	Bypass #3	Bypass #4	Bypass #5	Bypass #6
Select Entry Leg from Bypass (FROM)	N (1)					
Select Exit Leg for Bypass (TO)	W (7)					
Does the bypass have a dedicated receiving lane?	No					
# of Conflicting Exit Flow Lanes	1	2	2	2	2	2
Volumes						
Entry Leg: Insert Right Turn Volume	488					
Exit Leg: (Select Input Method)	Default					
Lane Flow in Exit Leg***	291					
Sum of inner circulatory flow lane to exit leg (leg bypass merges into)	N/A	N/A	N/A	N/A	N/A	N/A
Sum of outer circulatory flow lane to exit leg (leg bypass merges into)	N/A	N/A	N/A	N/A	N/A	N/A
Critical Lane Flow (Manual) in Exit Leg***	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
Volume Characteristics						
PHF (Entry Leg)	0.95	#N/A	#N/A	#N/A	#N/A	#N/A
F _{HV} (Entry Leg)	0.98	#N/A	#N/A	#N/A	#N/A	#N/A
F _{ped}	1.00	#N/A	#N/A	#N/A	#N/A	#N/A
PHF (Exit Leg)***	N/A	N/A	N/A	N/A	N/A	N/A
F _{HV} (Exit Leg)***	N/A	N/A	N/A	N/A	N/A	N/A
***Volume Characteristics are already taken into account for Default method ONLY. Insert Values above if Manual method.						
Entry/Conflicting Flows						
Entry Flow	524	#N/A	#N/A	#N/A	#N/A	#N/A
Conflicting Critical Flow	291					
Bypass Lane Results						
Entry Capacity of Bypass, veh/h	1005	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
Flow Rates of Exiting Traffic, veh/h	514	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
V/C ratio	0.51	#N/A	#N/A	#N/A	#N/A	#N/A
Control Delay, sec/pcu	9.8	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
LOS	A	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
95th Percentile Queue (veh)	3	#N/A	#N/A	#N/A	#N/A	#N/A
95th % Queue (ft)	76	#N/A	#N/A	#N/A	#N/A	#N/A

ATTACHMENT G



Roundabout Analysis Tool
Multi-Lane

10/9/2015
Version 2.1

General & Site Information						v2.1			
Analyst:		Andrew Babb							
Agency/Co:		Pond & Company							
Date:		8/5/2015							
Project or PI#:		St. Simons Island Traffic Study							
Year, Peak Hour:		2035, July, AM							
County/District:		Glynn County							
Intersection:		Frederica Road and Sea Island Road							
Volumes									
Entry Legs (FROM)									
		N1 (1)	N2 (1)	NE1 (2)	NE2 (2)	E1 (3)	E2 (3)	SE1 (4)	SE2 (4)
Exit Legs (TO)	Lane Designation	Left-Thru	No Lane	SELECT	SELECT	Lf-Th-Rt	No Lane	SELECT	SELECT
	N (1), vph					27			
	NE (2), vph								
	E (3), vph	69							
	SE (4), vph								
	S (5), vph	404				119			
	SW (6), vph								
	W (7), vph					108			
	NW (8), vph								
Entry Volume, vph		473	0	0	0	254	0	0	0
		S1 (5)	S2 (5)	SW1 (6)	SW2 (6)	W1 (7)	W2 (7)	NW1 (8)	NW2 (8)
Lane Designation	Left-Thru	Right-Thru	SELECT	SELECT	Left Only	Lf-Th-Rt	SELECT	SELECT	
	N (1), vph	168	146			350	26		
	NE (2), vph								
	E (3), vph		174				232		
	SE (4), vph								
	S (5), vph						52		
	SW (6), vph								
	W (7), vph	116							
	NW (8), vph								
Entry Volume, vph		284	320	0	0	350	310	0	0
		N	NE	E	SE	S	SW	W	NW
# of Entry Flow Lanes	1	0	1	0	2	0	2	0	
# of Conflict Flow Lanes	1	1	2	1	2	1	1	1	
		N	NE	E	SE	S	SW	W	NW
% Cars	98%	98%	98%	98%	98%	98%	98%	98%	
% Heavy Vehicles	2%	2%	2%	2%	2%	2%	2%	2%	
% Bicycles	0%	0%	0%	0%	0%	0%	0%	0%	
# of Pedestrians (ped/hr)	0	0	4	0	0	0	0	0	
PHF	0.95	0.92	0.71	0.92	0.87	0.92	0.89	0.92	
F _{hv}	0.980	1.000	0.980	1.000	0.980	1.000	0.980	1.000	
F _{ped}	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
		N	NE	E	SE	S	SW	W	NW
Flow to	N (1), pcu/h	0	0	39	0	368	0	431	0

Roundabout Analysis Tool
Multi-Lane

10/9/2015
Version 2.1

Leg #	NE (2), pcu/h	0	0	0	0	0	0	0	0
	E (3), pcu/h	74	0	0	0	204	0	266	0
	SE (4), pcu/h	0	0	0	0	0	0	0	0
	S (5), pcu/h	434	0	171	0	0	0	60	0
	SW (6), pcu/h	0	0	0	0	0	0	0	0
	W (7), pcu/h	0	0	155	0	136	0	0	0
	NW (8), pcu/h	0	0	0	0	0	0	0	0
	Entry flow, pcu/h	508	0	365	0	708	0	756	0
	Entry flow Lane 1, pcu/h	508	0	365	0	333	0	401	0
	Entry flow Lane 2, pcu/h	0	0	0	0	375	0	355	0
	Conflicting flow, pcu/h	462	0	935	0	771	0	679	0

Results: Approach Measures of Effectiveness

HCM 2010 Model (build yr)		N		E		S		W	
Lane Designations		Left-Thru	No Lane	Lf-Th-Rt	No Lane	Left-Thru	Right-Thru	Left Only	Lf-Th-Rt
Entry Capacity, veh/h		802	NA	576	NA	621	646	562	562
Entry Flow Rates, veh/h		498	NA	358	NA	326	368	393	348
V/C ratio		0.62		0.62		0.53	0.57	0.70	0.62
Control Delay, s/veh		14.7		19.1		14.6	15.5	23.5	19.4
LOS		B		C		B	C	C	C
95th % Queue (ft)		112		109		78	92	141	108
Approach Delay, LOS		12.7 sec, LOS B		19.1 sec, LOS C		15.1 sec, LOS C		21.6 sec, LOS C	
Lane Designations		NE		SE		SW		NW	
		Lane 1	Lane 2	Lane 1	Lane 2	Lane 1	Lane 2	Lane 1	Lane 2
Entry Capacity, veh/h		NA	NA	NA	NA	NA	NA	NA	NA
Entry Flow Rates, veh/h		NA	NA	NA	NA	NA	NA	NA	NA
V/C ratio									
Control Delay, sec/pcu									
LOS									
95th % Queue (ft)									
Approach Delay, LOS									
Calibrated Model (future yr)		N		E		S		W	
Lane Designations		Left-Thru	No Lane	Lf-Th-Rt	No Lane	Left-Thru	Right-Thru	Left Only	Lf-Th-Rt
Entry Capacity, veh/h		1061	NA	693	NA	744	803	716	716
Entry Flow Rates, veh/h		498	NA	358	NA	326	368	393	348
V/C ratio		0.47		0.52		0.44	0.46	0.55	0.49
Control Delay, s/veh		8.7		13.2		10.8	10.5	13.7	12.1
LOS		A		B		B	B	B	B
95th % Queue (ft)		65		76		57	62	86	68
Approach Delay, LOS		9.7 sec, LOS A		13.2 sec, LOS B		10.6 sec, LOS B		13 sec, LOS B	
Lane Designations		NE		SE		SW		NW	
		Lane 1	Lane 2	Lane 1	Lane 2	Lane 1	Lane 2	Lane 1	Lane 2
Entry Capacity, veh/h		NA	NA	NA	NA	NA	NA	NA	NA
Entry Flow Rates, veh/h		NA	NA	NA	NA	NA	NA	NA	NA
V/C ratio									
Control Delay, sec/pcu									
LOS									
95th % Queue (ft)									
Approach Delay, LOS									

v2.1

Bypass Lane Merge Point Analysis (if applicable)

Roundabout Analysis Tool
Multi-Lane

10/9/2015
Version 2.1

Bypass Characteristics		Bypass #1	Bypass #2	Bypass #3	Bypass #4	Bypass #5	Bypass #6
Select Entry Leg from Bypass (FROM)	N (1)						
Select Exit Leg for Bypass (TO)	W (7)						
Does the bypass have a dedicated receiving lane?	No						
# of Conflicting Exit Flow Lanes	1	2	2	2	2	2	
Volumes							
Entry Leg: Insert Right Turn Volume	449						
Exit Leg: <i>(Select Input Method)</i>	Default						
Lane Flow in Exit Leg***	194						
Sum of inner circulatory flow lane to exit leg (leg bypass merges into)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Sum of outer circulatory flow lane to exit leg (leg bypass merges into)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Critical Lane Flow (Manual) in Exit Leg***							
Volume Characteristics							
PHF (Entry Leg)	0.95						
F _{HV} (Entry Leg)	0.98						
F _{ped}	1.00						
PHF (Exit Leg)***	N/A	N/A	N/A	N/A	N/A	N/A	N/A
F _{HV} (Exit Leg)***	N/A	N/A	N/A	N/A	N/A	N/A	N/A
***Volume Characteristics are already taken into account for Default method ONLY. Insert Values above if Manual method.							
Entry/Conflicting Flows							
Entry Flow	482						
Conflicting Critical Flow	194						
Bypass Lane Results							
Entry Capacity of Bypass, veh/h	912						
Flow Rates of Exiting Traffic, veh/h	473						
V/C ratio	0.52						
Control Delay, sec/pcu	10.7						
LOS	B						
95th % Queue (ft)	78						

Roundabout Analysis Tool
Multi-Lane

10/9/2015
Version 2.1

General & Site Information						v2.1																														
Analyst:	Andrew Babb																																			
Agency/Co:	Pond & Company																																			
Date:	8/5/2015																																			
Project or PI#:	St. Simons Island Traffic Study																																			
Year, Peak Hour:	2035, July, PM																																			
County/District:	Glynn County																																			
Intersection:	Frederica Road and Sea Island Road																																			
Volumes																																				
Entry Legs (FROM)																																				
		N1 (1)	N2 (1)	NE1 (2)	NE2 (2)	E1 (3)	E2 (3)	SE1 (4)	SE2 (4)																											
Lane Designation		Left-Thru	No Lane	SELECT	SELECT	Lf-Th-Rt	No Lane	SELECT	SELECT																											
Exit Legs (TO)	N (1), vph					57																														
	NE (2), vph																																			
	E (3), vph	42																																		
	SE (4), vph																																			
	S (5), vph	456				227																														
	SW (6), vph																																			
	W (7), vph					254																														
	NW (8), vph																																			
Entry Volume, vph		498	0	0	0	538	0	0	0																											
		S1 (5)	S2 (5)	SW1 (6)	SW2 (6)	W1 (7)	W2 (7)	NW1 (8)	NW2 (8)																											
Lane Designation		Left-Thru	Right-Thru	SELECT	SELECT	Left Only	Lf-Th-Rt	SELECT	SELECT																											
	N (1), vph	201	207			526	112																													
	NE (2), vph																																			
	E (3), vph		132				230																													
	SE (4), vph																																			
	S (5), vph						125																													
	SW (6), vph																																			
	W (7), vph	108																																		
	NW (8), vph																																			
Entry Volume, vph		309	339	0	0	526	467	0	0																											
<table border="1"> <thead> <tr> <th></th> <th>N</th> <th>NE</th> <th>E</th> <th>SE</th> <th>S</th> <th>SW</th> <th>W</th> <th>NW</th> </tr> </thead> <tbody> <tr> <td># of Entry Flow Lanes</td> <td>1</td> <td>0</td> <td>1</td> <td>0</td> <td>2</td> <td>0</td> <td>2</td> <td>0</td> </tr> <tr> <td># of Conflict Flow Lanes</td> <td>1</td> <td>1</td> <td>2</td> <td>1</td> <td>2</td> <td>1</td> <td>1</td> <td>1</td> </tr> </tbody> </table>											N	NE	E	SE	S	SW	W	NW	# of Entry Flow Lanes	1	0	1	0	2	0	2	0	# of Conflict Flow Lanes	1	1	2	1	2	1	1	1
	N	NE	E	SE	S	SW	W	NW																												
# of Entry Flow Lanes	1	0	1	0	2	0	2	0																												
# of Conflict Flow Lanes	1	1	2	1	2	1	1	1																												
Volume Characteristics																																				
	N	NE	E	SE	S	SW	W	NW																												
% Cars	98%	98%	98%	98%	98%	98%	98%	98%																												
% Heavy Vehicles	2%	2%	2%	2%	2%	2%	2%	2%																												
% Bicycles	0%	0%	0%	0%	0%	0%	0%	0%																												
# of Pedestrians (ped/hr)	0	0	3	0	1	0	0	0																												
PHF	0.95	0.92	0.89	0.92	0.86	0.92	0.95	0.92																												
F _{hv}	0.980	1.000	0.980	1.000	0.980	1.000	0.980	1.000																												
F _{ped}	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 N (1), pcu/h	0	0	65	0	484	0	685	0																												

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Leg #	NE (2), pcu/h	0	0	0	0	0	0	0	0
	E (3), pcu/h	45	0	0	0	157	0	247	0
	SE (4), pcu/h	0	0	0	0	0	0	0	0
	S (5), pcu/h	490	0	260	0	0	0	134	0
	SW (6), pcu/h	0	0	0	0	0	0	0	0
	W (7), pcu/h	0	0	291	0	128	0	0	0
	NW (8), pcu/h	0	0	0	0	0	0	0	0
	Entry flow, pcu/h	535	0	617	0	769	0	1066	0
	Entry flow Lane 1, pcu/h	535	0	617	0	366	0	565	0
	Entry flow Lane 2, pcu/h	0	0	0	0	402	0	501	0
	Conflicting flow, pcu/h	679	0	1297	0	977	0	795	0

Results: Approach Measures of Effectiveness

HCM 2010 Model (build yr)		N		E		S		W	
Lane Designations		Left-Thru	No Lane	Lf-Th-Rt	No Lane	Left-Thru	Right-Thru	Left Only	Lf-Th-Rt
Entry Capacity, veh/h		689	NA	447	NA	532	559	500	500
Entry Flow Rates, veh/h		524	NA	604	NA	359	394	554	492
V/C ratio		0.76		1.35		0.67	0.71	1.11	0.98
Control Delay, s/veh		23.7		198.3		23.0	23.9	100.7	64.7
LOS		C		F		C	C	F	F
95th % Queue (ft)		181		710		129	144	462	333
Approach Delay, LOS		19 sec, LOS C		198.3 sec, LOS F		23.5 sec, LOS C		83.7 sec, LOS F	
Lane Designations		NE		SE		SW		NW	
		Lane 1	Lane 2	Lane 1	Lane 2	Lane 1	Lane 2	Lane 1	Lane 2
Entry Capacity, veh/h		NA	NA	NA	NA	NA	NA	NA	NA
Entry Flow Rates, veh/h		NA	NA	NA	NA	NA	NA	NA	NA
V/C ratio									
Control Delay, sec/pcu									
LOS									
95th % Queue (ft)									
Approach Delay, LOS									
Calibrated Model (future yr)		N		E		S		W	
Lane Designations		Left-Thru	No Lane	Lf-Th-Rt	No Lane	Left-Thru	Right-Thru	Left Only	Lf-Th-Rt
Entry Capacity, veh/h		872	NA	500	NA	605	667	638	638
Entry Flow Rates, veh/h		524	NA	604	NA	359	394	554	492
V/C ratio		0.60		1.21		0.59	0.59	0.87	0.77
Control Delay, s/veh		13.1		137.1		17.2	15.8	35.9	25.9
LOS		B		F		C	C	E	D
95th % Queue (ft)		105		584		99	99	257	184
Approach Delay, LOS		13.7 sec, LOS B		137.1 sec, LOS F		16.5 sec, LOS C		31.2 sec, LOS D	
Lane Designations		NE		SE		SW		NW	
		Lane 1	Lane 2	Lane 1	Lane 2	Lane 1	Lane 2	Lane 1	Lane 2
Entry Capacity, veh/h		NA	NA	NA	NA	NA	NA	NA	NA
Entry Flow Rates, veh/h		NA	NA	NA	NA	NA	NA	NA	NA
V/C ratio									
Control Delay, sec/pcu									
LOS									
95th % Queue (ft)									
Approach Delay, LOS									

v2.1

Bypass Lane Merge Point Analysis (if applicable)

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Bypass Characteristics	Bypass #1	Bypass #2	Bypass #3	Bypass #4	Bypass #5	Bypass #6
Select Entry Leg from Bypass (FROM)	N (1)					
Select Exit Leg for Bypass (TO)	W (7)					
Does the bypass have a dedicated receiving lane?	No					
# of Conflicting Exit Flow Lanes	1	2	2	2	2	2
Volumes						
Entry Leg: Insert Right Turn Volume	488					
Exit Leg: <i>(Select Input Method)</i>	Default					
Lane Flow in Exit Leg***	291					
Sum of inner circulatory flow lane to exit leg (leg bypass merges into)	N/A	N/A	N/A	N/A	N/A	N/A
Sum of outer circulatory flow lane to exit leg (leg bypass merges into)	N/A	N/A	N/A	N/A	N/A	N/A
Critical Lane Flow (Manual) in Exit Leg***						
Volume Characteristics						
PHF (Entry Leg)	0.95					
F _{HV} (Entry Leg)	0.98					
F _{ped}	1.00					
PHF (Exit Leg)***	N/A	N/A	N/A	N/A	N/A	N/A
F _{HV} (Exit Leg)***	N/A	N/A	N/A	N/A	N/A	N/A
***Volume Characteristics are already taken into account for Default method ONLY. Insert Values above if Manual method.						
Entry/Conflicting Flows						
Entry Flow	524					
Conflicting Critical Flow	291					
Bypass Lane Results						
Entry Capacity of Bypass, veh/h	828					
Flow Rates of Exiting Traffic, veh/h	514					
V/C ratio	0.62					
Control Delay, sec/pcu	14.3					
LOS	B					
95th % Queue (ft)	112					

ATTACHMENT H

