

APPENDIX T-8:

Synchro Reports

Existing
AM Peak

4: Pratt Blvd & Glen Cove Avenue

Existing
AM Peak

											
Lane Group	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER
Lane Configurations											
Volume (vph)	203	38	401	83	418	310	486	398	3	0	0
Confl. Peds. (#/hr)											
Confl. Bikes (#/hr)											
Peak Hour Factor	0.94	0.94	0.94	0.92	0.92	0.92	0.96	0.96	0.96	0.25	0.25
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	12%	12%	12%	7%	7%	7%	4%	4%	4%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)											
Mid-Block Traffic (%)		0%			0%			0%		0%	
Lane Group Flow (vph)	108	148	427	90	454	337	506	418	0	0	0
Turn Type	Split		pm+ov	pm+pt		pm+ov	Prot				
Protected Phases	4	4	1	5	2	4	1	6			
Permitted Phases			4	2		2					
Detector Phases	4	4	1	5	2	4	1	6			
Minimum Initial (s)	8.0	8.0	8.0	4.0	23.0	8.0	8.0	23.0			
Minimum Split (s)	22.0	22.0	15.0	10.0	41.0	22.0	15.0	41.0			
Total Split (s)	26.0	26.0	31.0	18.0	66.0	26.0	31.0	79.0	0.0	0.0	0.0
Total Split (%)	21.1%	21.1%	25.2%	14.6%	53.7%	21.1%	25.2%	64.2%	0.0%	0.0%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0			
Lead/Lag			Lead	Lead	Lag		Lead	Lag			
Lead-Lag Optimize?											
Recall Mode	None	None	Min	None	Min	None	Min	Min			
Act Effct Green (s)	15.0	15.0	40.6	34.2	25.4	44.4	21.5	40.7			
Actuated g/C Ratio	0.20	0.20	0.55	0.45	0.34	0.60	0.29	0.55			
v/c Ratio	0.38	0.25	0.31	0.19	0.41	0.40	0.53	0.23			
Control Delay	30.4	26.4	9.3	8.3	21.9	10.3	24.6	10.8			
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0			
Total Delay	30.4	26.4	9.3	8.3	21.9	10.4	24.6	10.8			
LOS	C	C	A	A	C	B	C	B			
Approach Delay		16.3			16.1			18.4			
Approach LOS		B			B			B			
Queue Length 50th (ft)	48	31	54	11	84	77	98	52			
Queue Length 95th (ft)	101	60	80	32	151	147	160	98			
Internal Link Dist (ft)		458			408			365		404	
Turn Bay Length (ft)	75	75	350	220		100	150				
Base Capacity (vph)	388	801	1374	531	1832	892	1112	2323			
Starvation Cap Reductn	0	0	0	0	0	64	0	0			
Spillback Cap Reductn	0	0	0	0	0	0	0	0			
Storage Cap Reductn	0	0	0	0	0	0	0	0			
Reduced v/c Ratio	0.28	0.18	0.31	0.17	0.25	0.41	0.46	0.18			
Intersection Summary											
Cycle Length: 123											
Actuated Cycle Length: 74.1											
Natural Cycle: 80											
Control Type: Semi Act-Uncoord											
Maximum v/c Ratio: 0.53											
Intersection Signal Delay: 17.0						Intersection LOS: B					
Intersection Capacity Utilization 49.7%						ICU Level of Service A					
Analysis Period (min) 15											

4: Pratt Blvd & Glen Cove Avenue

Existing
AM Peak

Splits and Phases: 4: Pratt Blvd & Glen Cove Avenue

 ø1	 ø2	 ø4
31 s	66 s	26 s
 ø5	 ø6	
18 s	79 s	

6: Charles Street & Glen Cove Avenue

Existing
AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	149	36	183	36	0	27	0	629	29	15	624	0
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.99	0.99	0.99	0.58	0.25	0.58	0.25	0.91	0.91	0.90	0.90	0.25
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	7%	7%	7%	4%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	151	36	185	0	109	0	0	723	0	17	693	0
Turn Type	Perm		Perm	Perm						Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8	8					6		
Detector Phases	4	4	4	8	8			2		6	6	
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0			20.0		20.0	20.0	
Minimum Split (s)	12.0	12.0	12.0	12.0	12.0			26.0		26.0	26.0	
Total Split (s)	37.0	37.0	37.0	37.0	37.0	0.0	0.0	43.0	0.0	43.0	43.0	0.0
Total Split (%)	46.3%	46.3%	46.3%	46.3%	46.3%	0.0%	0.0%	53.8%	0.0%	53.8%	53.8%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0			4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0			2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None			Min		Min	Min	
Act Effct Green (s)	15.6	15.6	15.6		15.6			35.4		35.4	35.4	
Actuated g/C Ratio	0.26	0.26	0.26		0.26			0.61		0.61	0.61	
v/c Ratio	0.44	0.08	0.35		0.25			0.36		0.05	0.34	
Control Delay	16.2	10.6	4.7		8.1			6.8		7.2	6.8	
Queue Delay	0.0	0.0	0.0		0.0			0.0		0.0	0.0	
Total Delay	16.2	10.6	4.7		8.1			6.8		7.2	6.8	
LOS	B	B	A		A			A		A	A	
Approach Delay		9.9			8.1			6.8			6.8	
Approach LOS		A			A			A			A	
Queue Length 50th (ft)	28	6	3		11			46		2	44	
Queue Length 95th (ft)	63	19	32		3			102		11	98	
Internal Link Dist (ft)		349			162			294			408	
Turn Bay Length (ft)	250									125		
Base Capacity (vph)	612	860	822		732			2405		378	2407	
Starvation Cap Reductn	0	0	0		0			0		0	0	
Spillback Cap Reductn	0	0	0		0			0		0	0	
Storage Cap Reductn	0	0	0		0			0		0	0	
Reduced v/c Ratio	0.25	0.04	0.23		0.15			0.30		0.04	0.29	
Intersection Summary												
Cycle Length: 80												
Actuated Cycle Length: 58.3												
Natural Cycle: 40												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 0.44												
Intersection Signal Delay: 7.5						Intersection LOS: A						
Intersection Capacity Utilization 43.6%						ICU Level of Service A						
Analysis Period (min) 15												

6: Charles Street & Glen Cove Avenue

Existing
AM Peak

Splits and Phases: 6: Charles Street & Glen Cove Avenue

 ø2	 ø4
43 s	37 s
 ø6	 ø8
43 s	37 s

7: Morris Avenue & Glen Cove Avenue

Existing
AM Peak

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	←	→	←	→	→	←
Volume (vph)	63	26	39	560	680	115
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.82	0.82	0.86	0.86	0.85	0.85
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	7%	7%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Lane Group Flow (vph)	77	32	45	651	935	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Detector Phases	4	4	2	2	6	
Minimum Initial (s)	8.0	8.0	20.0	20.0	20.0	
Minimum Split (s)	20.0	20.0	30.0	30.0	30.0	
Total Split (s)	37.0	37.0	43.0	43.0	43.0	0.0
Total Split (%)	46.3%	46.3%	53.8%	53.8%	53.8%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	Min	Min	Min	
Act Effct Green (s)	13.1	13.1	43.3	43.3	43.3	
Actuated g/C Ratio	0.20	0.20	0.73	0.73	0.73	
v/c Ratio	0.23	0.10	0.17	0.28	0.39	
Control Delay	13.6	6.0	7.2	4.3	4.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	13.6	6.0	7.2	4.3	4.8	
LOS	B	A	A	A	A	
Approach Delay	11.4			4.5	4.8	
Approach LOS	B			A	A	
Queue Length 50th (ft)	13	0	4	35	54	
Queue Length 95th (ft)	32	11	19	62	90	
Internal Link Dist (ft)	135			701	294	
Turn Bay Length (ft)	150		75			
Base Capacity (vph)	705	649	289	2629	2652	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.11	0.05	0.16	0.25	0.35	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 59.7

Natural Cycle: 50

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.39

Intersection Signal Delay: 5.1

Intersection LOS: A

Intersection Capacity Utilization 45.7%

ICU Level of Service A

Analysis Period (min) 15

8/25/2009

Dutt Tarigoppula
Eschbacher EngineeringGlen Isle - FEIS
Lanes, Volumes, Timings

7: Morris Avenue & Glen Cove Avenue

Existing
AM Peak

Splits and Phases: 7: Morris Avenue & Glen Cove Avenue

  ø2	  ø4
43 s	37 s
 ø6	
43 s	

2: Herb Hill Road & Brewster Street

Existing

AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR	SBL
Lane Configurations												
Volume (vph)	10	13	58	9	2	26	35	6	87	691	9	20
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.81	0.81	0.81	0.82	0.82	0.82	0.82	0.89	0.89	0.89	0.89	0.88
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	7%	7%	7%	7%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%					0%		
Lane Group Flow (vph)	12	88	0	0	88	0	0	0	105	786	0	23
Turn Type	Perm			Perm				pm+pt	pm+pt			Perm
Protected Phases		4			8			5	5	2		
Permitted Phases	4			8				2	2			6
Detector Phases	4	4		8	8			5	5	2		6
Minimum Initial (s)	8.0	8.0		8.0	8.0			3.0	3.0	20.0		20.0
Minimum Split (s)	28.0	28.0		25.0	25.0			7.0	7.0	26.0		26.0
Total Split (s)	31.0	31.0	0.0	31.0	31.0	0.0	0.0	19.0	19.0	49.0	0.0	30.0
Total Split (%)	38.8%	38.8%	0.0%	38.8%	38.8%	0.0%	0.0%	23.8%	23.8%	61.3%	0.0%	37.5%
Yellow Time (s)	4.0	4.0		4.0	4.0			3.0	3.0	4.0		4.0
All-Red Time (s)	2.0	2.0		2.0	2.0			1.0	1.0	2.0		2.0
Lead/Lag								Lead	Lead			Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None			None	None	C-Min		C-Min
Act Effct Green (s)	10.8	10.8			10.8				64.0	64.8		55.9
Actuated g/C Ratio	0.14	0.14			0.14				0.80	0.81		0.70
v/c Ratio	0.07	0.33			0.35				0.35	0.29		0.05
Control Delay	30.4	14.4			22.0				5.7	3.0		2.4
Queue Delay	0.0	0.0			0.0				0.0	0.0		0.0
Total Delay	30.4	14.4			22.0				5.7	3.0		2.4
LOS	C	B			C				A	A		A
Approach Delay		16.3			22.0					3.3		
Approach LOS		B			C					A		
Queue Length 50th (ft)	5	7			21				9	44		1
Queue Length 95th (ft)	18	38			52				23	76		m3
Internal Link Dist (ft)		605			24					365		
Turn Bay Length (ft)									200			220
Base Capacity (vph)	433	562			568				446	2727		437
Starvation Cap Reductn	0	0			0				0	0		0
Spillback Cap Reductn	0	0			0				0	0		0
Storage Cap Reductn	0	0			0				0	0		0
Reduced v/c Ratio	0.03	0.16			0.15				0.24	0.29		0.05

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green, Master Intersection

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.39

Intersection Signal Delay: 4.4

Intersection LOS: A

Intersection Capacity Utilization 57.1%

ICU Level of Service B

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

8/25/2009

Dutt Tarigoppula

Eschbacher Engineering

Glen Isle - FEIS
Lanes, Volumes, Timings

2: Herb Hill Road & Brewster Street

Existing
AM Peak

Splits and Phases: 2: Herb Hill Road & Brewster Street

 ø2	 ø4
49 s	31 s
 ø5	 ø8
19 s	31 s



Lane Group	SBT	SBR	SBR2
Lane Configurations	↑↑		
Volume (vph)	809	13	17
Confl. Peds. (#/hr)			
Confl. Bikes (#/hr)			
Peak Hour Factor	0.88	0.88	0.88
Growth Factor	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%
Bus Blockages (#/hr)	0	0	0
Parking (#/hr)			
Mid-Block Traffic (%)	0%		
Lane Group Flow (vph)	953	0	0
Turn Type			
Protected Phases	6		
Permitted Phases			
Detector Phases	6		
Minimum Initial (s)	20.0		
Minimum Split (s)	26.0		
Total Split (s)	30.0	0.0	0.0
Total Split (%)	37.5%	0.0%	0.0%
Yellow Time (s)	4.0		
All-Red Time (s)	2.0		
Lead/Lag	Lag		
Lead-Lag Optimize?			
Recall Mode	C-Min		
Act Effct Green (s)	55.9		
Actuated g/C Ratio	0.70		
v/c Ratio	0.39		
Control Delay	2.7		
Queue Delay	0.0		
Total Delay	2.7		
LOS	A		
Approach Delay	2.7		
Approach LOS	A		
Queue Length 50th (ft)	26		
Queue Length 95th (ft)	42		
Internal Link Dist (ft)	354		
Turn Bay Length (ft)			
Base Capacity (vph)	2415		
Starvation Cap Reductn	0		
Spillback Cap Reductn	0		
Storage Cap Reductn	0		
Reduced v/c Ratio	0.39		
Intersection Summary			

8: Shore Road & Glen Cove Avenue

Existing
AM Peak



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	216	33	26	480	465	255
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.90	0.90	0.92	0.92	0.89	0.89
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	7%	7%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Lane Group Flow (vph)	240	37	28	522	809	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Detector Phases	4	4	2	2	6	
Minimum Initial (s)	8.0	8.0	20.0	20.0	20.0	
Minimum Split (s)	14.0	14.0	26.0	26.0	26.0	
Total Split (s)	25.0	25.0	55.0	55.0	55.0	0.0
Total Split (%)	31.3%	31.3%	68.8%	68.8%	68.8%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	Min	Min	Min	
Act Effct Green (s)	13.8	13.8	27.2	27.2	27.2	
Actuated g/C Ratio	0.29	0.29	0.60	0.60	0.60	
v/c Ratio	0.47	0.07	0.09	0.27	0.40	
Control Delay	15.3	4.8	7.8	6.8	5.4	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	15.3	4.8	7.8	6.8	5.4	
LOS	B	A	A	A	A	
Approach Delay	13.9			6.8	5.4	
Approach LOS	B			A	A	
Queue Length 50th (ft)	46	0	3	33	36	
Queue Length 95th (ft)	90	13	16	72	82	
Internal Link Dist (ft)	273			201	357	
Turn Bay Length (ft)			150			
Base Capacity (vph)	682	653	392	2473	2472	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.35	0.06	0.07	0.21	0.33	

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 45.3	
Natural Cycle: 40	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.47	
Intersection Signal Delay: 7.3	Intersection LOS: A
Intersection Capacity Utilization 40.2%	ICU Level of Service A
Analysis Period (min) 15	

8: Shore Road & Glen Cove Avenue

Existing
AM Peak

Splits and Phases: 8: Shore Road & Glen Cove Avenue

 ø2	 ø4
55 s	25 s
 ø6	
55 s	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	24	119	26	99	47	84	13	236	107	74	289	29
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.96	0.96	0.96	0.85	0.85	0.85	0.88	0.88	0.88	0.79	0.79	0.79
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	7%	7%	7%	4%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	25	151	0	116	154	0	0	405	0	0	497	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	4	4		8	8		2	2		6	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0		20.0	20.0		20.0	20.0	
Minimum Split (s)	10.0	10.0		10.0	10.0		26.0	26.0		26.0	26.0	
Total Split (s)	26.0	26.0	0.0	26.0	26.0	0.0	44.0	44.0	0.0	44.0	44.0	0.0
Total Split (%)	37.1%	37.1%	0.0%	37.1%	37.1%	0.0%	62.9%	62.9%	0.0%	62.9%	62.9%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)	15.8	15.8		15.8	15.8			40.9			40.9	
Actuated g/C Ratio	0.24	0.24		0.24	0.24			0.64			0.64	
v/c Ratio	0.09	0.32		0.47	0.36			0.34			0.54	
Control Delay	15.4	15.2		22.3	8.9			6.2			9.7	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	15.4	15.2		22.3	8.9			6.2			9.7	
LOS	B	B		C	A			A			A	
Approach Delay		15.2			14.7			6.2			9.7	
Approach LOS		B			B			A			A	
Queue Length 50th (ft)	4	24		22	10			42			71	
Queue Length 95th (ft)	24	84		76	51			118			163	
Internal Link Dist (ft)		645			488			861			659	
Turn Bay Length (ft)	150			200								
Base Capacity (vph)	400	655		350	571			1326			1038	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.06	0.23		0.33	0.27			0.31			0.48	

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 64

Natural Cycle: 40

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.54

Intersection Signal Delay: 10.4

Intersection LOS: B

Intersection Capacity Utilization 67.4%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 92: Sea Cliff Avenue & Glen Cove Avenue

 ø2	 ø4
44 s	26 s
 ø6	 ø8
44 s	26 s

9: Glenwood Road/Glen Head Road & Glen Cove Avenue

Existing
AM Peak

	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group												
Lane Configurations												
Volume (vph)	61	155	37	98	126	248	31	295	71	249	409	55
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.84	0.84	0.84	0.87	0.87	0.87	0.94	0.94	0.94	0.88	0.88	0.88
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	7%	7%	7%	4%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	302	0	0	543	0	33	390	0	283	527	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	4	4		8	8		2	2		6	6	
Minimum Initial (s)	8.0	8.0		8.0	8.0		20.0	20.0		20.0	20.0	
Minimum Split (s)	26.0	26.0		26.0	26.0		26.0	26.0		26.0	26.0	
Total Split (s)	31.0	31.0	0.0	31.0	31.0	0.0	39.0	39.0	0.0	39.0	39.0	0.0
Total Split (%)	44.3%	44.3%	0.0%	44.3%	44.3%	0.0%	55.7%	55.7%	0.0%	55.7%	55.7%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)		22.1			22.1		28.8	28.8		28.8	28.8	
Actuated g/C Ratio		0.37			0.37		0.49	0.49		0.49	0.49	
v/c Ratio		0.52			0.82		0.12	0.42		0.77	0.62	
Control Delay		18.3			26.7		10.7	11.5		30.6	15.5	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		18.3			26.7		10.7	11.5		30.6	15.5	
LOS		B			C		B	B		C	B	
Approach Delay		18.3			26.7			11.4			20.8	
Approach LOS		B			C			B			C	
Queue Length 50th (ft)		80			147		7	90		90	146	
Queue Length 95th (ft)		146			#314		22	152		#214	232	
Internal Link Dist (ft)		131			160			206			218	
Turn Bay Length (ft)							75			125		
Base Capacity (vph)		659			743		314	1034		409	941	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.46			0.73		0.11	0.38		0.69	0.56	
Intersection Summary												
Cycle Length: 70												
Actuated Cycle Length: 59.3												
Natural Cycle: 55												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 0.82												
Intersection Signal Delay: 20.1												
Intersection LOS: C												
Intersection Capacity Utilization 86.3%												
ICU Level of Service E												
Analysis Period (min) 15												
# 95th percentile volume exceeds capacity, queue may be longer.												
Queue shown is maximum after two cycles.												

9: Glenwood Road/Glen Head Road & Glen Cove Avenue

Existing
AM Peak

Splits and Phases: 9: Glenwood Road/Glen Head Road & Glen Cove Avenue

 ø2	 ø4
39 s	31 s
 ø6	 ø8
39 s	31 s

5: Glen Cove Road & Route 107

Existing
AM Peak

	↑	↶	↷	↓	↶	↷
Lane Group	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations	↑↑		↶	↑↑		
Volume (vph)	1159	0	634	1492	0	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	6%	6%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Lane Group Flow (vph)	1260	0	689	1622	0	0
Turn Type			Prot			
Protected Phases	2		4	2 4		
Permitted Phases						
Detector Phases	2		4	2 4		
Minimum Initial (s)	20.0		10.0			
Minimum Split (s)	27.0		17.0			
Total Split (s)	67.0	0.0	42.0	109.0	0.0	0.0
Total Split (%)	61.5%	0.0%	38.5%	100.0%	0.0%	0.0%
Yellow Time (s)	4.0		4.0			
All-Red Time (s)	3.0		3.0			
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	Max		None			
Act Effct Green (s)	63.0		38.0	109.0		
Actuated g/C Ratio	0.58		0.35	1.00		
v/c Ratio	0.63		1.09	0.48		
Control Delay	17.0		97.1	0.5		
Queue Delay	0.0		0.0	0.0		
Total Delay	17.0		97.1	0.5		
LOS	B		F	A		
Approach Delay	17.0			29.3		
Approach LOS	B			C		
Queue Length 50th (ft)	289		~543	0		
Queue Length 95th (ft)	358		#768	0		
Internal Link Dist (ft)	495			382	312	
Turn Bay Length (ft)			375			
Base Capacity (vph)	2006		633	3406		
Starvation Cap Reductn	0		0	0		
Spillback Cap Reductn	0		0	0		
Storage Cap Reductn	0		0	0		
Reduced v/c Ratio	0.63		1.09	0.48		
Intersection Summary						
Cycle Length: 109						
Actuated Cycle Length: 109						
Natural Cycle: 55						
Control Type: Semi Act-Uncoord						
Maximum v/c Ratio: 1.09						
Intersection Signal Delay: 24.9				Intersection LOS: C		
Intersection Capacity Utilization 73.8%				ICU Level of Service D		
Analysis Period (min) 15						
~ Volume exceeds capacity, queue is theoretically infinite.						
Queue shown is maximum after two cycles.						
# 95th percentile volume exceeds capacity, queue may be longer.						

5: Glen Cove Road & Route 107

Existing
AM Peak

Queue shown is maximum after two cycles.

Splits and Phases: 5: Glen Cove Road & Route 107



3: Glen Head Road & Glen Cove Road

Existing
AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	157	276	4	46	240	7	37	995	32	28	1304	160
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.83	0.83	0.83	0.84	0.84	0.84	0.84	0.84	0.84	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	9%	9%	9%	5%	5%	5%	4%	4%	4%	6%	6%	6%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	189	333	5	0	349	0	44	1185	38	29	1541	0
Turn Type	Split		Free	Split			Perm		Perm	Perm		
Protected Phases	4	4		8	8			2			6	
Permitted Phases			Free				2		2	6		
Detector Phases	4	4		8	8		2	2	2	6	6	
Minimum Initial (s)	8.0	8.0		8.0	8.0		20.0	20.0	20.0	20.0	20.0	
Minimum Split (s)	26.0	26.0		27.0	27.0		27.0	27.0	27.0	27.0	27.0	
Total Split (s)	26.0	26.0	0.0	27.0	27.0	0.0	72.0	72.0	72.0	72.0	72.0	0.0
Total Split (%)	20.8%	20.8%	0.0%	21.6%	21.6%	0.0%	57.6%	57.6%	57.6%	57.6%	57.6%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	
Act Effct Green (s)	22.1	22.1	119.7		23.1		62.5	62.5	62.5	62.5	62.5	
Actuated g/C Ratio	0.18	0.18	1.00		0.19		0.52	0.52	0.52	0.52	0.52	
v/c Ratio	0.66	1.11	0.00		1.01		0.75	0.63	0.05	0.24	0.88	
Control Delay	59.2	130.5	0.0		100.3		90.3	22.0	13.8	21.0	31.6	
Queue Delay	0.0	0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	59.2	130.5	0.0		100.3		90.3	22.0	13.8	21.0	31.6	
LOS	E	F	A		F		F	C	B	C	C	
Approach Delay		103.7			100.3			24.1			31.4	
Approach LOS		F			F			C			C	
Queue Length 50th (ft)	145	~319	0		~310		26	330	14	12	525	
Queue Length 95th (ft)	208	#449	0		#449		#95	358	29	35	635	
Internal Link Dist (ft)		203			244			256			524	
Turn Bay Length (ft)			75				200		75	150		
Base Capacity (vph)	285	300	1482		345		61	1951	788	128	1831	
Starvation Cap Reductn	0	0	0		0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0		0		0	0	0	0	0	
Storage Cap Reductn	0	0	0		0		0	0	0	0	0	
Reduced v/c Ratio	0.66	1.11	0.00		1.01		0.72	0.61	0.05	0.23	0.84	
Intersection Summary												
Cycle Length: 125												
Actuated Cycle Length: 119.7												
Natural Cycle: 100												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 1.11												
Intersection Signal Delay: 45.6						Intersection LOS: D						
Intersection Capacity Utilization 81.3%						ICU Level of Service D						
Analysis Period (min) 15												
~ Volume exceeds capacity, queue is theoretically infinite.												
Queue shown is maximum after two cycles.												
# 95th percentile volume exceeds capacity, queue may be longer.												

3: Glen Head Road & Glen Cove Road

Existing
AM Peak

Queue shown is maximum after two cycles.

Splits and Phases: 3: Glen Head Road & Glen Cove Road

 02	 04	 08
72 s	26 s	27 s
 06		
72 s		

2: Back Road & Glen Cove Road

Existing
AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	55	0	355	5	2	3	293	1061	10	12	1430	176
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.89	0.89	0.89	0.50	0.50	0.50	0.90	0.90	0.90	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	4%	4%	4%	5%	5%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	114	347	0	20	0	326	1190	0	13	1538	189
Turn Type	Split		pt+ov	Split			Prot			Perm		pm+ov
Protected Phases	3	3	3 5	4	4		5	2			6	3
Permitted Phases										6		6
Detector Phases	3	3	3 5	4	4		5	2		6	6	3
Minimum Initial (s)	8.0	8.0		8.0	8.0		5.0	10.0		10.0	10.0	8.0
Minimum Split (s)	24.0	24.0		38.3	38.3		12.8	24.8		24.8	24.8	24.0
Total Split (s)	25.5	25.5	61.5	38.3	38.3	0.0	36.0	94.8	0.0	58.8	58.8	25.5
Total Split (%)	16.1%	16.1%	38.8%	24.1%	24.1%	0.0%	22.7%	59.8%	0.0%	37.1%	37.1%	16.1%
Yellow Time (s)	3.5	3.5		3.5	3.5		4.0	4.0		4.0	4.0	3.5
All-Red Time (s)	2.0	2.0		4.8	4.8		2.0	4.8		4.8	4.8	2.0
Lead/Lag	Lead	Lead		Lag	Lag		Lead			Lag	Lag	Lead
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	Max		Max	Max	None
Act Effct Green (s)		13.8	41.9		12.3		25.5	91.7		62.2	62.2	80.0
Actuated g/C Ratio		0.12	0.35		0.10		0.21	0.77		0.52	0.52	0.67
v/c Ratio		0.59	0.48		0.11		0.78	0.45		0.06	0.86	0.19
Control Delay		53.9	4.1		44.6		58.3	7.1		23.5	33.9	4.8
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		53.9	4.1		44.6		58.3	7.1		23.5	33.9	4.8
LOS		D	A		D		E	A		C	C	A
Approach Delay		16.4			44.6			18.1			30.6	
Approach LOS		B			D			B			C	
Queue Length 50th (ft)		66	0		9		217	97		4	450	14
Queue Length 95th (ft)		144	45		19		377	314		23	#962	62
Internal Link Dist (ft)		345			160			143			316	
Turn Bay Length (ft)												
Base Capacity (vph)		275	795		440		502	2663		201	1791	1024
Starvation Cap Reductn		0	0		0		0	0		0	0	0
Spillback Cap Reductn		0	0		0		0	0		0	0	0
Storage Cap Reductn		0	0		0		0	0		0	0	0
Reduced v/c Ratio		0.41	0.44		0.05		0.65	0.45		0.06	0.86	0.18

Intersection Summary

Cycle Length: 158.6

Actuated Cycle Length: 119.4

Natural Cycle: 150

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.86

Intersection Signal Delay: 23.9

Intersection LOS: C

Intersection Capacity Utilization 77.2%

ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

8/25/2009

Dutt Tarigoppula
Eschbacher EngineeringGlen Isle - FEIS
Lanes, Volumes, Timings

2: Back Road & Glen Cove Road

Existing
AM Peak

Splits and Phases: 2: Back Road & Glen Cove Road

 ø2	 ø3	 ø4
94.8 s	25.5 s	38.3 s
 ø5	 ø6	
36 s	58.8 s	

3: Pratt Blvd & Bridge Street

Existing

AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	36	767	23	33	619	52	13	65	62	91	60	38
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.91	0.91	0.91	0.96	0.96	0.96	0.78	0.78	0.78	0.84	0.84	0.84
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	12%	12%	12%	12%	12%	12%	2%	2%	2%	5%	5%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	40	868	0	34	699	0	17	162	0	0	179	45
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		4
Detector Phases	2	2		6	6		8	8		4	4	4
Minimum Initial (s)	5.0	5.0		5.0	5.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	26.0	26.0		26.0	26.0		25.5	25.5		25.5	25.5	25.5
Total Split (s)	43.5	43.5	0.0	43.5	43.5	0.0	26.5	26.5	0.0	26.5	26.5	26.5
Total Split (%)	62.1%	62.1%	0.0%	62.1%	62.1%	0.0%	37.9%	37.9%	0.0%	37.9%	37.9%	37.9%
Yellow Time (s)	4.0	4.0		4.0	4.0		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Min	Min		Min	Min		None	None		None	None	None
Act Effect Green (s)	33.4	33.4		33.4	33.4		14.1	14.1			14.1	14.1
Actuated g/C Ratio	0.64	0.64		0.64	0.64		0.26	0.26			0.26	0.26
v/c Ratio	0.11	0.44		0.12	0.36		0.06	0.35			0.52	0.11
Control Delay	7.2	7.4		7.7	6.6		15.6	11.3			21.7	6.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Total Delay	7.2	7.4		7.7	6.6		15.6	11.3			21.7	6.6
LOS	A	A		A	A		B	B			C	A
Approach Delay		7.4			6.7			11.7			18.7	
Approach LOS		A			A			B			B	
Queue Length 50th (ft)	4	63		4	46		3	17			38	0
Queue Length 95th (ft)	21	147		20	110		16	56			104	18
Internal Link Dist (ft)		458			137			80			142	
Turn Bay Length (ft)	120											
Base Capacity (vph)	404	2198		307	2184		387	634			489	590
Starvation Cap Reductn	0	0		0	0		0	0			0	0
Spillback Cap Reductn	0	0		0	0		0	0			0	0
Storage Cap Reductn	0	0		0	0		0	0			0	0
Reduced v/c Ratio	0.10	0.39		0.11	0.32		0.04	0.26			0.37	0.08

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 52.5

Natural Cycle: 55

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.52

Intersection Signal Delay: 8.8

Intersection Capacity Utilization 54.8%

Analysis Period (min) 15

Intersection LOS: A

ICU Level of Service A

8/25/2009

Dutt Tarigoppula

Eschbacher Engineering

Glen Isle - FEIS
Lanes, Volumes, Timings

3: Pratt Blvd & Bridge Street

Existing
AM Peak

Splits and Phases: 3: Pratt Blvd & Bridge Street

 ø2	 ø4
43.5 s	26.5 s
 ø6	 ø8
43.5 s	26.5 s

1: Cottage Row Road & Brewster Street

Existing
AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	155	146	271	23	90	175	82	595	22	160	693	90
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.89	0.89	0.89	0.88	0.88	0.88	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	7%	7%	7%	4%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	327	295	0	127	197	93	701	0	176	861	0
Turn Type	Perm		Free	Perm		Perm	pm+pt			pm+pt		
Protected Phases		3			7		5	2		1	6	
Permitted Phases	3		Free	7		7	2			6		
Detector Phases	3	3		7	7	7	5	2		1	6	
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0	4.0	20.0		4.0	20.0	
Minimum Split (s)	28.0	28.0		28.0	28.0	28.0	8.0	26.0		8.0	26.0	
Total Split (s)	31.0	31.0	0.0	31.0	31.0	31.0	12.0	37.0	0.0	12.0	37.0	0.0
Total Split (%)	38.8%	38.8%	0.0%	38.8%	38.8%	38.8%	15.0%	46.3%	0.0%	15.0%	46.3%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	3.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	1.0	2.0		1.0	2.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None		None	None	None	None	C-Min		None	C-Min	
Act Effct Green (s)		22.9	80.0		22.9	22.9	43.7	37.5		47.1	40.6	
Actuated g/C Ratio		0.29	1.00		0.29	0.29	0.55	0.47		0.59	0.51	
v/c Ratio		0.72	0.18		0.26	0.43	0.33	0.45		0.43	0.50	
Control Delay		34.4	0.2		21.8	25.0	9.3	15.2		11.7	16.2	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		34.4	0.2		21.8	25.0	9.3	15.2		11.7	16.2	
LOS		C	A		C	C	A	B		B	B	
Approach Delay		18.2			23.8			14.5			15.4	
Approach LOS		B			C			B			B	
Queue Length 50th (ft)		146	0		49	80	10	123		34	143	
Queue Length 95th (ft)		205	0		78	118	46	196		79	248	
Internal Link Dist (ft)		294			184			614			362	
Turn Bay Length (ft)			250			100	175			175		
Base Capacity (vph)		547	1636		580	550	315	1581		419	1744	
Starvation Cap Reductn		0	0		0	0	0	0		0	0	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.60	0.18		0.22	0.36	0.30	0.44		0.42	0.49	
Intersection Summary												
Cycle Length: 80												
Actuated Cycle Length: 80												
Offset: 30 (38%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green												
Natural Cycle: 65												
Control Type: Actuated-Coordinated												
Maximum v/c Ratio: 0.72												
Intersection Signal Delay: 16.7						Intersection LOS: B						
Intersection Capacity Utilization 61.2%						ICU Level of Service B						
Analysis Period (min) 15												

1: Cottage Row Road & Brewster Street

Existing
AM Peak

Splits and Phases: 1: Cottage Row Road & Brewster Street

 ø1	 ø2	 ø3
12 s	37 s	31 s
 ø5	 ø6	 ø7
12 s	37 s	31 s

5: Herb Hill Road & Charles Street

Existing
AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	9	52	1	15	6	40	78	1	95	294	7
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.92	0.92	0.92	0.80	0.80	0.80	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	10	58	0	24	0	50	98	1	100	316	0
Turn Type	Perm		pt+ov	Perm			Split		Perm	Split		
Protected Phases		4	4 6		8		6	6		2	2	
Permitted Phases	4			8					6			
Detector Phases	4	4	4 6	8	8		6	6	6	2	2	
Minimum Initial (s)	8.0	8.0		8.0	8.0		25.0	25.0	25.0	8.0	8.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		31.0	31.0	31.0	14.0	14.0	
Total Split (s)	26.0	26.0	57.0	26.0	26.0	0.0	31.0	31.0	31.0	31.0	31.0	0.0
Total Split (%)	29.5%	29.5%	64.8%	29.5%	29.5%	0.0%	35.2%	35.2%	35.2%	35.2%	35.2%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min	Min	None	None	
Act Effct Green (s)		10.1	41.3		10.1		28.2	28.2	28.2	17.8	17.8	
Actuated g/C Ratio		0.15	0.61		0.15		0.46	0.46	0.46	0.29	0.29	
v/c Ratio		0.04	0.05		0.09		0.06	0.11	0.00	0.20	0.61	
Control Delay		28.0	2.6		23.5		14.5	14.6	12.0	18.5	25.1	
Queue Delay		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		28.0	2.6		23.5		14.5	14.6	12.0	18.5	25.1	
LOS		C	A		C		B	B	B	B	C	
Approach Delay		6.3			23.5			14.6			23.5	
Approach LOS		A			C			B			C	
Queue Length 50th (ft)		4	0		6		12	25	0	32	114	
Queue Length 95th (ft)		18	15		28		33	55	3	65	187	
Internal Link Dist (ft)		1071			319			407			212	
Turn Bay Length (ft)									125	125		
Base Capacity (vph)		520	1226		502		811	853	726	663	696	
Starvation Cap Reductn		0	0		0		0	0	0	0	0	
Spillback Cap Reductn		0	0		0		0	0	0	0	0	
Storage Cap Reductn		0	0		0		0	0	0	0	0	
Reduced v/c Ratio		0.02	0.05		0.05		0.06	0.11	0.00	0.15	0.45	

Intersection Summary	
Cycle Length: 88	
Actuated Cycle Length: 61.6	
Natural Cycle: 70	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.61	
Intersection Signal Delay: 19.7	Intersection LOS: B
Intersection Capacity Utilization 46.6%	ICU Level of Service A
Analysis Period (min) 15	

5: Herb Hill Road & Charles Street

Existing
AM Peak

Splits and Phases: 5: Herb Hill Road & Charles Street

 02	 06	 04
31 s	31 s	26 s
		 08
		26 s

91: Forest Avenue & Lattingtown Road

Existing

AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	137	379	14	5	222	8	19	10	5	4	1	206
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.83	0.83	0.83	0.88	0.88	0.88	0.71	0.71	0.71	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	165	474	0	0	267	0	0	48	0	0	5	222
Turn Type	pm+pt			Perm			Perm			Perm		Free
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6			8			4		Free
Detector Phases	5	2		6	6		8	8		4	4	
Minimum Initial (s)	4.0	20.0		20.0	20.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	8.0	26.0		26.0	26.0		10.0	10.0		10.0	10.0	
Total Split (s)	9.0	65.0	0.0	56.0	56.0	0.0	15.0	15.0	0.0	15.0	15.0	0.0
Total Split (%)	11.3%	81.3%	0.0%	70.0%	70.0%	0.0%	18.8%	18.8%	0.0%	18.8%	18.8%	0.0%
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?												
Recall Mode	None	Min		Min	Min		None	None		None	None	
Act Effct Green (s)	40.5	42.8			31.7			9.5			9.3	50.2
Actuated g/C Ratio	0.78	0.85			0.63			0.17			0.16	1.00
v/c Ratio	0.20	0.32			0.24			0.17			0.02	0.13
Control Delay	3.2	3.4			6.9			16.1			15.8	0.2
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	3.2	3.4			6.9			16.1			15.8	0.2
LOS	A	A			A			B			B	A
Approach Delay		3.4			6.9			16.1			0.5	
Approach LOS		A			A			B			A	
Queue Length 50th (ft)	0	0			15			6			1	0
Queue Length 95th (ft)	31	91			87			23			8	0
Internal Link Dist (ft)		631			639			463			627	
Turn Bay Length (ft)												25
Base Capacity (vph)	812	1581			1397			329			323	1689
Starvation Cap Reductn	0	0			0			0			0	0
Spillback Cap Reductn	0	0			0			0			0	0
Storage Cap Reductn	0	0			0			0			0	0
Reduced v/c Ratio	0.20	0.30			0.19			0.15			0.02	0.13

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 50.2

Natural Cycle: 45

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.32

Intersection Signal Delay: 4.1

Intersection Capacity Utilization 56.0%

Analysis Period (min) 15

Intersection LOS: A

ICU Level of Service B

8/25/2009

Dutt Tarigoppula

Eschbacher Engineering

Glen Isle - FEIS
Lanes, Volumes, Timings

91: Forest Avenue & Lattingtown Road

Existing
AM Peak

Splits and Phases: 91: Forest Avenue & Lattingtown Road

 ø2		 ø4	
65 s		15 s	
 ø5	 ø6	 ø8	
9 s	56 s	15 s	

8: Northern Boulevard & Glen Cove Road

Existing
AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	315	541	78	286	1066	31	135	740	263	24	973	452
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.86	0.86	0.86	0.93	0.93	0.93	0.98	0.98	0.98	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	6%	6%	6%	3%	3%	3%	4%	4%	4%	5%	5%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	366	720	0	308	1179	0	138	755	268	26	1046	486
Turn Type	Prot			Prot			Prot		pt+ov	Prot		pt+ov
Protected Phases	5	2		1	6		7	4	4 1	3	8	8 5
Permitted Phases												
Detector Phases	5	2		1	6		7	4	4 1	3	8	8 5
Minimum Initial (s)	8.0	24.0		5.0	24.0		7.0	20.0		3.0	20.0	
Minimum Split (s)	13.0	37.5		10.0	37.5		13.0	34.3		9.0	34.3	
Total Split (s)	25.5	50.3	0.0	23.5	48.3	0.0	21.7	61.5	85.0	9.7	49.5	75.0
Total Split (%)	17.6%	34.7%	0.0%	16.2%	33.3%	0.0%	15.0%	42.4%	58.6%	6.7%	34.1%	51.7%
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.3		3.0	4.3	
All-Red Time (s)	2.0	2.5		2.0	2.5		3.0	3.0		3.0	3.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	20.7	47.5		18.3	45.1		16.7	61.4	83.7	5.7	46.5	71.2
Actuated g/C Ratio	0.14	0.33		0.13	0.31		0.12	0.42	0.58	0.04	0.32	0.49
v/c Ratio	0.80	0.66		0.77	1.12		0.74	0.53	0.32	0.41	0.98	0.38
Control Delay	74.3	45.6		74.5	113.0		85.1	33.5	17.7	87.5	72.0	24.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.3	45.6		74.5	113.0		85.1	33.5	17.7	87.5	72.0	24.2
LOS	E	D		E	F		F	C	B	F	E	C
Approach Delay		55.3			105.0			36.0			57.3	
Approach LOS		E			F			D			E	
Queue Length 50th (ft)	173	311		145	~684		127	290	133	24	~524	160
Queue Length 95th (ft)	220	361		199	#823		#220	356	194	59	#678	209
Internal Link Dist (ft)		319			439			466			338	
Turn Bay Length (ft)	400			300			300		420	325		300
Base Capacity (vph)	473	1094		427	1051		198	1420	848	63	1066	1300
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.66		0.72	1.12		0.70	0.53	0.32	0.41	0.98	0.37

Intersection Summary

Cycle Length: 145

Actuated Cycle Length: 145

Offset: 132 (91%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow

Natural Cycle: 110

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.12

Intersection Signal Delay: 65.6

Intersection LOS: E

Intersection Capacity Utilization 87.1%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

8/25/2009

Dutt Tarigoppula
Eschbacher EngineeringGlen Isle - FEIS
Lanes, Volumes, Timings

8: Northern Boulevard & Glen Cove Road

Existing
AM Peak

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 8: Northern Boulevard & Glen Cove Road

 Ø1	 Ø2	 Ø3	 Ø4
23.5 s	50.3 s	9.7 s	51.5 s
 Ø5	 Ø6	 Ø7	 Ø8
25.5 s	48.3 s	21.7 s	49.5 s

1: Driveway/Witte Lane & Bryant Avenue

Existing
AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1	3	284	10	8	11	329	28	409	619	4
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.38	0.38	0.38	0.87	0.87	0.87	0.89	0.89	0.89	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	11	0	326	20	0	0	413	0	440	670	0
Turn Type	Perm			Perm			Perm			pm+pt		
Protected Phases		8			4			2		1	6	
Permitted Phases	8			4			2			6		
Detector Phases	8	8		4	4		2	2		1	6	
Minimum Initial (s)	12.0	12.0		12.0	12.0		45.0	45.0		4.0	45.0	
Minimum Split (s)	17.5	17.5		17.5	17.5		50.0	50.0		9.0	50.0	
Total Split (s)	27.0	27.0	0.0	27.0	27.0	0.0	51.0	51.0	0.0	12.0	63.0	0.0
Total Split (%)	30.0%	30.0%	0.0%	30.0%	30.0%	0.0%	56.7%	56.7%	0.0%	13.3%	70.0%	0.0%
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5	1.5		1.5	1.5	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Recall Mode	None	None		None	None		None	None		None	None	
Act Effct Green (s)		23.0		23.0	23.0			46.0		58.0	58.0	
Actuated g/C Ratio		0.26		0.26	0.26			0.52		0.65	0.65	
v/c Ratio		0.02		0.96	0.05			0.45		0.83	0.61	
Control Delay		16.5		75.1	18.3			15.3		25.5	11.9	
Queue Delay		0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay		16.5		75.1	18.3			15.3		25.5	11.9	
LOS		B		E	B			B		C	B	
Approach Delay		16.5			71.8			15.3			17.3	
Approach LOS		B			E			B			B	
Queue Length 50th (ft)		1		181	5			136		107	193	
Queue Length 95th (ft)		4		#329	21			207		#219	295	
Internal Link Dist (ft)		52			208			183			261	
Turn Bay Length (ft)										125		
Base Capacity (vph)		442		339	428			920		529	1106	
Starvation Cap Reductn		0		0	0			0		0	0	
Spillback Cap Reductn		0		0	0			0		0	0	
Storage Cap Reductn		0		0	0			0		0	0	
Reduced v/c Ratio		0.02		0.96	0.05			0.45		0.83	0.61	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 89

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.96

Intersection Signal Delay: 26.9

Intersection LOS: C

Intersection Capacity Utilization 107.4%

ICU Level of Service G

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

8/25/2009

Dutt Tarigoppula
Eschbacher Engineering

Glen Isle - FEIS
Lanes, Volumes, Timings

1: Driveway/Witte Lane & Bryant Avenue

Existing
AM Peak

Splits and Phases: 1: Driveway/Witte Lane & Bryant Avenue

 ø1	 ø2	 ø4
12 s	51 s	27 s
 ø6		 ø8
63 s		27 s

Existing
PM Peak

4: Pratt Blvd & Glen Cove Avenue

Existing

PM Peak

											
Lane Group	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER
Lane Configurations											
Volume (vph)	239	59	511	129	565	307	400	452	3	0	0
Confl. Peds. (#/hr)											
Confl. Bikes (#/hr)											
Peak Hour Factor	0.86	0.86	0.86	0.96	0.96	0.96	0.93	0.93	0.93	0.25	0.25
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)											
Mid-Block Traffic (%)		0%			0%			0%		0%	
Lane Group Flow (vph)	139	208	594	134	589	320	430	489	0	0	0
Turn Type	Split		pm+ov	pm+pt		pm+ov	Prot				
Protected Phases	4	4	1	5	2	4	1	6			
Permitted Phases			4	2		2					
Detector Phases	4	4	1	5	2	4	1	6			
Minimum Initial (s)	8.0	8.0	8.0	4.0	23.0	8.0	8.0	23.0			
Minimum Split (s)	22.0	22.0	15.0	10.0	41.0	22.0	15.0	41.0			
Total Split (s)	26.0	26.0	31.0	18.0	66.0	26.0	31.0	79.0	0.0	0.0	0.0
Total Split (%)	21.1%	21.1%	25.2%	14.6%	53.7%	21.1%	25.2%	64.2%	0.0%	0.0%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0			
Lead/Lag			Lead	Lead	Lag		Lead	Lag			
Lead-Lag Optimize?											
Recall Mode	None	None	Min	None	Min	None	Min	Min			
Act Effct Green (s)	16.3	16.3	41.2	35.1	25.5	45.8	20.9	39.3			
Actuated g/C Ratio	0.22	0.22	0.55	0.46	0.34	0.61	0.28	0.53			
v/c Ratio	0.42	0.31	0.40	0.29	0.52	0.36	0.48	0.28			
Control Delay	30.3	26.3	10.1	9.1	23.7	9.5	24.6	12.3			
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0			
Total Delay	30.3	26.3	10.1	9.1	23.7	9.6	24.6	12.3			
LOS	C	C	B	A	C	A	C	B			
Approach Delay		16.6			17.5			18.1			
Approach LOS		B			B			B			
Queue Length 50th (ft)	61	44	81	19	115	67	85	68			
Queue Length 95th (ft)	118	76	107	45	198	136	136	120			
Internal Link Dist (ft)		458			408			365		404	
Turn Bay Length (ft)	75	75	350	220		100	150				
Base Capacity (vph)	416	862	1485	526	1857	917	1083	2259			
Starvation Cap Reductn	0	0	0	0	0	97	0	0			
Spillback Cap Reductn	0	0	0	0	0	0	0	0			
Storage Cap Reductn	0	0	0	0	0	0	0	0			
Reduced v/c Ratio	0.33	0.24	0.40	0.25	0.32	0.39	0.40	0.22			

Intersection Summary

Cycle Length: 123

Actuated Cycle Length: 74.8

Natural Cycle: 80

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.52

Intersection Signal Delay: 17.4

Intersection LOS: B

Intersection Capacity Utilization 47.2%

ICU Level of Service A

Analysis Period (min) 15

8/25/2009

Dutt Tarigoppula
Eschbacher EngineeringGlen Isle - FEIS
Lanes, Volumes, Timings

4: Pratt Blvd & Glen Cove Avenue

Existing
PM Peak

Splits and Phases: 4: Pratt Blvd & Glen Cove Avenue

 ø1	 ø2	 ø4
31 s	66 s	26 s
 ø5	 ø6	
18 s	79 s	

6: Charles Street & Glen Cove Avenue

Existing

PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	93	30	149	39	0	37	0	924	38	22	692	0
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.86	0.86	0.86	0.86	0.25	0.86	0.25	0.94	0.94	0.90	0.90	0.25
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	108	35	173	0	88	0	0	1023	0	24	769	0
Turn Type	Perm		Perm	Perm						Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8						6		
Detector Phases	4	4	4	8	8			2		6	6	
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0			20.0		20.0	20.0	
Minimum Split (s)	12.0	12.0	12.0	12.0	12.0			26.0		26.0	26.0	
Total Split (s)	37.0	37.0	37.0	37.0	37.0	0.0	0.0	43.0	0.0	43.0	43.0	0.0
Total Split (%)	46.3%	46.3%	46.3%	46.3%	46.3%	0.0%	0.0%	53.8%	0.0%	53.8%	53.8%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0			4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0			2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None			Min		Min	Min	
Act Effct Green (s)	13.9	13.9	13.9		13.9			36.3		36.3	36.3	
Actuated g/C Ratio	0.23	0.23	0.23		0.23			0.63		0.63	0.63	
v/c Ratio	0.34	0.08	0.37		0.22			0.48		0.12	0.37	
Control Delay	15.4	11.8	6.4		8.3			6.8		7.8	6.1	
Queue Delay	0.0	0.0	0.0		0.0			0.0		0.0	0.0	
Total Delay	15.4	11.8	6.4		8.3			6.8		7.8	6.1	
LOS	B	B	A		A			A		A	A	
Approach Delay		10.1			8.3			6.8			6.1	
Approach LOS		B			A			A			A	
Queue Length 50th (ft)	20	6	6		8			65		2	45	
Queue Length 95th (ft)	48	20	36		2			137		14	97	
Internal Link Dist (ft)		349			162			294			408	
Turn Bay Length (ft)	250									125		
Base Capacity (vph)	625	852	798		739			2505		226	2435	
Starvation Cap Reductn	0	0	0		0			17		0	0	
Spillback Cap Reductn	0	0	0		0			0		0	0	
Storage Cap Reductn	0	0	0		0			0		0	0	
Reduced v/c Ratio	0.17	0.04	0.22		0.12			0.41		0.11	0.32	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 57.8

Natural Cycle: 40

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.48

Intersection Signal Delay: 7.1

Intersection LOS: A

Intersection Capacity Utilization 44.5%

ICU Level of Service A

Analysis Period (min) 15

8/25/2009

Dutt Tarigoppula

Eschbacher Engineering

Glen Isle - FEIS
Lanes, Volumes, Timings

6: Charles Street & Glen Cove Avenue

Existing
PM Peak

Splits and Phases: 6: Charles Street & Glen Cove Avenue

 02 43 s	 04 37 s
 06 43 s	 08 37 s

7: Morris Avenue & Glen Cove Avenue

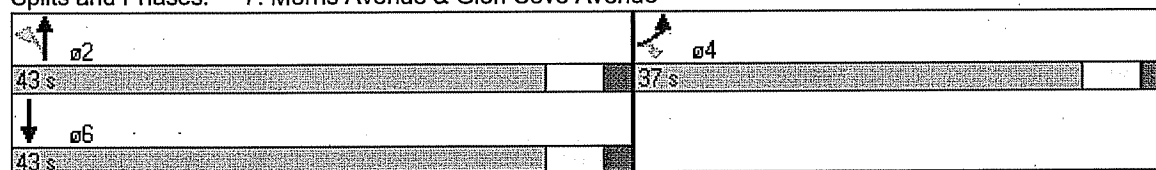
Existing
PM Peak

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	80	26	10	718	708	36
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.60	1.00	0.96	0.96	0.87	0.87
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	5%	5%	5%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Lane Group Flow (vph)	133	26	10	748	855	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Detector Phases	4	4	2	2	6	
Minimum Initial (s)	8.0	8.0	20.0	20.0	20.0	
Minimum Split (s)	20.0	20.0	30.0	30.0	30.0	
Total Split (s)	37.0	37.0	43.0	43.0	43.0	0.0
Total Split (%)	46.3%	46.3%	53.8%	53.8%	53.8%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	Min	Min	Min	
Act Effct Green (s)	12.7	12.7	32.2	32.2	32.2	
Actuated g/C Ratio	0.24	0.24	0.63	0.63	0.63	
v/c Ratio	0.34	0.07	0.04	0.36	0.41	
Control Delay	14.4	5.8	5.9	6.0	6.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	14.4	5.8	5.9	6.0	6.3	
LOS	B	A	A	A	A	
Approach Delay	13.0			6.0	6.3	
Approach LOS	B			A	A	
Queue Length 50th (ft)	24	0	1	44	52	
Queue Length 95th (ft)	34	12	7	88	98	
Internal Link Dist (ft)	135			701	294	
Turn Bay Length (ft)	150		75			
Base Capacity (vph)	770	704	309	2434	2420	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.17	0.04	0.03	0.31	0.35	
Intersection Summary						
Cycle Length: 80						
Actuated Cycle Length: 50.8						
Natural Cycle: 50						
Control Type: Semi Act-Uncoord						
Maximum v/c Ratio: 0.41						
Intersection Signal Delay: 6.8				Intersection LOS: A		
Intersection Capacity Utilization 34.0%				ICU Level of Service A		
Analysis Period (min) 15						

7: Morris Avenue & Glen Cove Avenue

Existing
PM Peak

Splits and Phases: 7: Morris Avenue & Glen Cove Avenue



2: Herb Hill Road & Brewster Street

Existing

PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR	SBL
Lane Configurations												
Volume (vph)	7	27	28	11	2	55	64	6	234	890	30	22
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.74	0.74	0.74	0.80	0.80	0.80	0.80	0.96	0.96	0.96	0.96	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%					0%		
Lane Group Flow (vph)	9	74	0	0	165	0	0	0	250	958	0	24
Turn Type	Perm			Perm				pm+pt	pm+pt			Perm
Protected Phases		4			8			5	5	2		
Permitted Phases	4			8				2	2			6
Detector Phases	4	4		8	8			5	5	2		6
Minimum Initial (s)	8.0	8.0		8.0	8.0			3.0	3.0	20.0		20.0
Minimum Split (s)	28.0	28.0		25.0	25.0			7.0	7.0	26.0		26.0
Total Split (s)	31.0	31.0	0.0	31.0	31.0	0.0	0.0	19.0	19.0	49.0	0.0	30.0
Total Split (%)	38.8%	38.8%	0.0%	38.8%	38.8%	0.0%	0.0%	23.8%	23.8%	61.3%	0.0%	37.5%
Yellow Time (s)	4.0	4.0		4.0	4.0			3.0	3.0	4.0		4.0
All-Red Time (s)	2.0	2.0		2.0	2.0			1.0	1.0	2.0		2.0
Lead/Lag								Lead	Lead			Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None			None	None	C-Min		C-Min
Act Effct Green (s)	12.7	12.7			12.7				59.3	59.3		44.2
Actuated g/C Ratio	0.16	0.16			0.16				0.74	0.74		0.55
v/c Ratio	0.05	0.26			0.54				0.68	0.38		0.08
Control Delay	27.1	18.4			25.0				18.2	4.5		3.7
Queue Delay	0.0	0.0			0.0				0.0	0.3		0.0
Total Delay	27.1	18.4			25.0				18.2	4.8		3.7
LOS	C	B			C				B	A		A
Approach Delay		19.3			25.0					7.6		
Approach LOS		B			C					A		
Queue Length 50th (ft)	4	16			46				36	67		1
Queue Length 95th (ft)	13	36			81				116	125		m3
Internal Link Dist (ft)		605			24					365		
Turn Bay Length (ft)									200			220
Base Capacity (vph)	364	567			583				452	2537		289
Starvation Cap Reductn	0	0			0				0	856		0
Spillback Cap Reductn	0	0			0				0	0		0
Storage Cap Reductn	0	0			0				0	0		0
Reduced v/c Ratio	0.02	0.13			0.28				0.55	0.57		0.08

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green, Master Intersection

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.68

Intersection Signal Delay: 7.8

Intersection LOS: A

Intersection Capacity Utilization 67.0%

ICU Level of Service C

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

8/25/2009

Dutt Tarigoppula

Eschbacher Engineering

Glen Isle - FEIS
Lanes, Volumes, Timings

2: Herb Hill Road & Brewster Street

Existing
PM Peak

Splits and Phases: 2: Herb Hill Road & Brewster Street

 02	 04
49 s	31 s
 05	 08
19 s	31 s



Lane Group	SBT	SBR	SBR2
Lane Configurations	↑↑		
Volume (vph)	824	4	23
Confl. Peds. (#/hr)			
Confl. Bikes (#/hr)			
Peak Hour Factor	0.93	0.93	0.93
Growth Factor	100%	100%	100%
Heavy Vehicles (%)	5%	5%	5%
Bus Blockages (#/hr)	0	0	0
Parking (#/hr)			
Mid-Block Traffic (%)	0%		
Lane Group Flow (vph)	915	0	0
Turn Type			
Protected Phases	6		
Permitted Phases			
Detector Phases	6		
Minimum Initial (s)	20.0		
Minimum Split (s)	26.0		
Total Split (s)	30.0	0.0	0.0
Total Split (%)	37.5%	0.0%	0.0%
Yellow Time (s)	4.0		
All-Red Time (s)	2.0		
Lead/Lag	Lag		
Lead-Lag Optimize?			
Recall Mode	C-Min		
Act Effct Green (s)	44.2		
Actuated g/C Ratio	0.55		
v/c Ratio	0.48		
Control Delay	4.1		
Queue Delay	0.0		
Total Delay	4.1		
LOS	A		
Approach Delay	4.1		
Approach LOS	A		
Queue Length 50th (ft)	25		
Queue Length 95th (ft)	62		
Internal Link Dist (ft)	354		
Turn Bay Length (ft)			
Base Capacity (vph)	1893		
Starvation Cap Reductn	0		
Spillback Cap Reductn	0		
Storage Cap Reductn	0		
Reduced v/c Ratio	0.48		
Intersection Summary			

8: Shore Road & Glen Cove Avenue

Existing
PM Peak

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	362	40	43	596	607	282
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.80	0.80	0.95	0.95	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	5%	5%	5%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Lane Group Flow (vph)	452	50	45	627	987	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Detector Phases	4	4	2	2	6	
Minimum Initial (s)	8.0	8.0	20.0	20.0	20.0	
Minimum Split (s)	14.0	14.0	26.0	26.0	26.0	
Total Split (s)	25.0	25.0	55.0	55.0	55.0	0.0
Total Split (%)	31.3%	31.3%	68.8%	68.8%	68.8%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	Min	Min	Min	
Act Effct Green (s)	20.6	20.6	22.6	22.6	22.6	
Actuated g/C Ratio	0.40	0.40	0.44	0.44	0.44	
v/c Ratio	0.63	0.07	0.25	0.43	0.66	
Control Delay	17.4	4.1	13.3	11.0	11.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	17.4	4.1	13.3	11.0	11.5	
LOS	B	A	B	B	B	
Approach Delay	16.1			11.2	11.5	
Approach LOS	B			B	B	
Queue Length 50th (ft)	101	0	8	64	91	
Queue Length 95th (ft)	167	13	28	98	144	
Internal Link Dist (ft)	273			201	357	
Turn Bay Length (ft)			150			
Base Capacity (vph)	720	695	266	2128	2095	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.63	0.07	0.17	0.29	0.47	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 51.3

Natural Cycle: 45

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 12.5

Intersection LOS: B

Intersection Capacity Utilization 62.5%

ICU Level of Service B

Analysis Period (min) 15

8/25/2009

Dutt Tarigoppula
Eschbacher EngineeringGlen Isle - FEIS
Lanes, Volumes, Timings

8: Shore Road & Glen Cove Avenue

Existing
PM Peak

Splits and Phases: 8: Shore Road & Glen Cove Avenue

 ø2	 ø4
55 s	25 s
 ø6	
55 s	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	23	112	33	99	60	105	33	306	120	98	276	44
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.84	0.84	0.84	0.86	0.86	0.86	0.90	0.90	0.90	0.82	0.82	0.82
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	5%	5%	5%	5%	5%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	27	172	0	115	192	0	0	510	0	0	511	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	4	4		8	8		2	2		6	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0		20.0	20.0		20.0	20.0	
Minimum Split (s)	10.0	10.0		10.0	10.0		26.0	26.0		26.0	26.0	
Total Split (s)	26.0	26.0	0.0	26.0	26.0	0.0	44.0	44.0	0.0	44.0	44.0	0.0
Total Split (%)	37.1%	37.1%	0.0%	37.1%	37.1%	0.0%	62.9%	62.9%	0.0%	62.9%	62.9%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)	14.4	14.4		14.4	14.4			36.6			36.6	
Actuated g/C Ratio	0.24	0.24		0.24	0.24			0.64			0.64	
v/c Ratio	0.10	0.36		0.48	0.42			0.43			0.59	
Control Delay	16.4	15.8		23.7	9.7			7.5			11.3	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	16.4	15.8		23.7	9.7			7.5			11.3	
LOS	B	B		C	A			A			B	
Approach Delay		15.9			15.0			7.5			11.3	
Approach LOS		B			B			A			B	
Queue Length 50th (ft)	5	28		22	13			62			78	
Queue Length 95th (ft)	23	85		77	61			175			198	
Internal Link Dist (ft)		645			488			861			659	
Turn Bay Length (ft)	150			200								
Base Capacity (vph)	371	665		338	594			1302			953	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.07	0.26		0.34	0.32			0.39			0.54	

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 56.8

Natural Cycle: 40

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.59

Intersection Signal Delay: 11.3

Intersection Capacity Utilization 72.2%

Analysis Period (min) 15

Intersection LOS: B

ICU Level of Service C

Splits and Phases: 92: Sea Cliff Avenue & Glen Cove Avenue

 ø2	 ø4
44 s	26 s
 ø6	 ø8
44 s	26 s

9: Glenwood Road/Glen Head Road & Glen Cove Avenue

Existing
PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	78	161	46	111	140	246	30	429	91	204	381	54
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.83	0.83	0.83	0.96	0.96	0.96	0.96	0.96	0.96	0.91	0.91	0.91
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	343	0	0	518	0	31	542	0	224	478	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	4	4		8	8		2	2		6	6	
Minimum Initial (s)	8.0	8.0		8.0	8.0		20.0	20.0		20.0	20.0	
Minimum Split (s)	26.0	26.0		26.0	26.0		26.0	26.0		26.0	26.0	
Total Split (s)	31.0	31.0	0.0	31.0	31.0	0.0	39.0	39.0	0.0	39.0	39.0	0.0
Total Split (%)	44.3%	44.3%	0.0%	44.3%	44.3%	0.0%	55.7%	55.7%	0.0%	55.7%	55.7%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)		22.1			22.1		30.4	30.4		30.4	30.4	
Actuated g/C Ratio		0.36			0.36		0.50	0.50		0.50	0.50	
v/c Ratio		0.63			0.81		0.09	0.55		0.84	0.55	
Control Delay		22.0			26.9		10.1	13.5		45.5	14.0	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		22.0			26.9		10.1	13.5		45.5	14.0	
LOS		C			C		B	B		D	B	
Approach Delay		22.0			26.9			13.3			24.1	
Approach LOS		C			C			B			C	
Queue Length 50th (ft)		109			160		7	144		78	129	
Queue Length 95th (ft)		169			#316		20	230		#209	212	
Internal Link Dist (ft)		131			160			206			218	
Turn Bay Length (ft)							75			125		
Base Capacity (vph)		618			721		360	1056		288	932	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.56			0.72		0.09	0.51		0.78	0.51	

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 60.8

Natural Cycle: 60

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.84

Intersection Signal Delay: 21.5

Intersection LOS: C

Intersection Capacity Utilization 90.4%

ICU Level of Service E

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

8/25/2009

Dutt Tarigoppula
Eschbacher EngineeringGlen Isle - FEIS
Lanes, Volumes, Timings

9: Glenwood Road/Glen Head Road & Glen Cove Avenue

Existing
PM Peak

Splits and Phases: 9: Glenwood Road/Glen Head Road & Glen Cove Avenue

 ø2	 ø4
39 s	31 s
 ø6	 ø8
39 s	31 s

5: Glen Cove Road & Route 107

Existing
PM Peak

	↑	↖	↙	↓	↘	↗
Lane Group	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations	↑↑		↖	↑↑		
Volume (vph)	1418	0	564	1185	0	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Lane Group Flow (vph)	1541	0	613	1288	0	0
Turn Type			Prot			
Protected Phases	2		4	2 4		
Permitted Phases						
Detector Phases	2		4	2 4		
Minimum Initial (s)	20.0		10.0			
Minimum Split (s)	27.0		17.0			
Total Split (s)	67.0	0.0	42.0	109.0	0.0	0.0
Total Split (%)	61.5%	0.0%	38.5%	100.0%	0.0%	0.0%
Yellow Time (s)	4.0		4.0			
All-Red Time (s)	3.0		3.0			
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	Max		None			
Act Effct Green (s)	63.0		38.0	109.0		
Actuated g/C Ratio	0.58		0.35	1.00		
v/c Ratio	0.75		0.93	0.36		
Control Delay	20.2		57.0	0.3		
Queue Delay	0.0		0.0	0.0		
Total Delay	20.2		57.0	0.3		
LOS	C		E	A		
Approach Delay	20.2			18.6		
Approach LOS	C			B		
Queue Length 50th (ft)	398		410	0		
Queue Length 95th (ft)	490		#632	0		
Internal Link Dist (ft)	495			382	312	
Turn Bay Length (ft)			375			
Base Capacity (vph)	2045		658	3539		
Starvation Cap Reductn	0		0	0		
Spillback Cap Reductn	0		0	0		
Storage Cap Reductn	0		0	0		
Reduced v/c Ratio	0.75		0.93	0.36		

Intersection Summary

Cycle Length: 109

Actuated Cycle Length: 109

Natural Cycle: 60

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.93

Intersection Signal Delay: 19.3

Intersection LOS: B

Intersection Capacity Utilization 77.1%

ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

8/25/2009

Dutt Tarigoppula
Eschbacher EngineeringGlen Isle - FEIS
Lanes, Volumes, Timings

5: Glen Cove Road & Route 107

Existing
PM Peak

Splits and Phases: 5: Glen Cove Road & Route 107

 ø2	 ø4
67 s	42 s

3: Glen Head Road & Glen Cove Road

Existing
PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations				51		16						
Volume (vph)	233	258	18	51	255	16	26	1169	60	11	972	202
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.90	0.90	0.90	0.87	0.87	0.87	0.92	0.92	0.92	0.82	0.82	0.82
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	259	287	20	0	370	0	28	1271	65	13	1431	0
Turn Type	Split		Free	Split			Perm		Perm	Perm		
Protected Phases	4	4		8	8			2				6
Permitted Phases			Free				2		2	6		
Detector Phases	4	4		8	8		2	2	2	6	6	
Minimum Initial (s)	8.0	8.0		8.0	8.0		20.0	20.0	20.0	20.0	20.0	
Minimum Split (s)	26.0	26.0		27.0	27.0		27.0	27.0	27.0	27.0	27.0	
Total Split (s)	44.0	44.0	0.0	44.0	44.0	0.0	72.0	72.0	72.0	72.0	72.0	0.0
Total Split (%)	27.5%	27.5%	0.0%	27.5%	27.5%	0.0%	45.0%	45.0%	45.0%	45.0%	45.0%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	
Act Effct Green (s)	31.1	31.1	141.7		34.2		63.9	63.9	63.9	63.9	63.9	
Actuated g/C Ratio	0.22	0.22	1.00		0.24		0.45	0.45	0.45	0.45	0.45	
v/c Ratio	0.73	0.77	0.01		0.84		0.56	0.77	0.10	0.29	0.91	
Control Delay	65.7	67.8	0.0		69.9		79.8	38.5	26.6	51.3	47.4	
Queue Delay	0.0	0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	65.7	67.8	0.0		69.9		79.8	38.5	26.6	51.3	47.4	
LOS	E	E	A		E		E	D	C	D	D	
Approach Delay		64.4			69.9			38.8				47.4
Approach LOS		E			E			D				D
Queue Length 50th (ft)	243	272	0		347		21	564	37	8	699	
Queue Length 95th (ft)	350	383	0		475		#84	707	74	31	744	
Internal Link Dist (ft)		203			244			256			523	
Turn Bay Length (ft)			75				200		75	150		
Base Capacity (vph)	438	461	1553		507		52	1723	696	47	1634	
Starvation Cap Reductn	0	0	0		0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0		0		0	0	0	0	0	
Storage Cap Reductn	0	0	0		0		0	0	0	0	0	
Reduced v/c Ratio	0.59	0.62	0.01		0.73		0.54	0.74	0.09	0.28	0.88	

Intersection Summary

Cycle Length: 160

Actuated Cycle Length: 141.7

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.91

Intersection Signal Delay: 49.1

Intersection LOS: D

Intersection Capacity Utilization 74.1%

ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

8/25/2009

Dutt Tarigoppula
Eschbacher Engineering

Glen Isle - FEIS
Lanes, Volumes, Timings

3: Glen Head Road & Glen Cove Road

Existing
PM Peak

Splits and Phases: 3: Glen Head Road & Glen Cove Road

  ø2	  ø4	  ø8
72 s	44 s	44 s
  ø6		
72 s		

2: Back Road & Glen Cove Road

Existing
PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	163	4	268	3	3	4	393	1656	7	8	1157	168
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.50	0.50	0.50	0.96	0.96	0.96	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	181	291	0	20	0	409	1732	0	9	1244	181
Turn Type	Split		pt+ov	Split			Prot			Perm		pm+ov
Protected Phases	3	3	3 5	4	4		5	2			6	3
Permitted Phases										6		6
Detector Phases	3	3	3 5	4	4		5	2		6	6	3
Minimum Initial (s)	8.0	8.0		8.0	8.0		5.0	10.0		10.0	10.0	8.0
Minimum Split (s)	24.0	24.0		38.3	38.3		12.8	24.8		24.8	24.8	24.0
Total Split (s)	25.5	25.5	61.5	38.3	38.3	0.0	36.0	94.8	0.0	58.8	58.8	25.5
Total Split (%)	16.1%	16.1%	38.8%	24.1%	24.1%	0.0%	22.7%	59.8%	0.0%	37.1%	37.1%	16.1%
Yellow Time (s)	3.5	3.5		3.5	3.5		4.0	4.0		4.0	4.0	3.5
All-Red Time (s)	2.0	2.0		4.8	4.8		2.0	4.8		4.8	4.8	2.0
Lead/Lag	Lead	Lead		Lag	Lag		Lead			Lag	Lag	Lead
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	Max		Max	Max	None
Act Effct Green (s)		19.0	53.0		12.3		32.2	91.5		55.2	55.2	78.3
Actuated g/C Ratio		0.15	0.42		0.09		0.25	0.72		0.43	0.43	0.61
v/c Ratio		0.77	0.38		0.11		0.81	0.68		0.17	0.81	0.19
Control Delay		74.9	3.4		41.8		60.0	13.6		37.0	38.5	3.9
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		74.9	3.4		41.8		60.0	13.6		37.0	38.5	3.9
LOS		E	A		D		E	B		D	D	A
Approach Delay		30.8			41.8			22.5			34.2	
Approach LOS		C			D			C			C	
Queue Length 50th (ft)		163	0		10		352	494		5	531	15
Queue Length 95th (ft)		#273	45		17		#529	581		22	632	48
Internal Link Dist (ft)		345			160			143			316	
Turn Bay Length (ft)												
Base Capacity (vph)		263	769		426		507	2534		53	1531	970
Starvation Cap Reductn		0	0		0		0	0		0	0	0
Spillback Cap Reductn		0	0		0		0	0		0	0	0
Storage Cap Reductn		0	0		0		0	0		0	0	0
Reduced v/c Ratio		0.69	0.38		0.05		0.81	0.68		0.17	0.81	0.19

Intersection Summary

Cycle Length: 158.6

Actuated Cycle Length: 127.7

Natural Cycle: 150

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.81

Intersection Signal Delay: 27.7

Intersection LOS: C

Intersection Capacity Utilization 85.7%

ICU Level of Service E

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

8/25/2009

Dutt Tarigoppula
Eschbacher Engineering

Glen Isle - FEIS
Lanes, Volumes, Timings

2: Back Road & Glen Cove Road

Existing
PM Peak

Splits and Phases: 2: Back Road & Glen Cove Road

 ø2	 ø3	 ø4
94.8 s	25.5 s	38.3 s
 ø5	 ø6	
36 s	58.8 s	

3: Pratt Blvd & Bridge Street

Existing
PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	78	668	16	58	616	73	23	50	53	142	44	133
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.87	0.87	0.87	0.87	0.87	0.87	0.88	0.88	0.88	0.83	0.83	0.83
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	5%	5%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	90	786	0	67	792	0	26	117	0	0	224	160
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		4
Detector Phases	2	2		6	6		8	8		4	4	4
Minimum Initial (s)	5.0	5.0		5.0	5.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	26.0	26.0		26.0	26.0		25.5	25.5		25.5	25.5	25.5
Total Split (s)	43.5	43.5	0.0	43.5	43.5	0.0	26.5	26.5	0.0	26.5	26.5	26.5
Total Split (%)	62.1%	62.1%	0.0%	62.1%	62.1%	0.0%	37.9%	37.9%	0.0%	37.9%	37.9%	37.9%
Yellow Time (s)	4.0	4.0		4.0	4.0		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Min	Min		Min	Min		None	None		None	None	None
Act Effct Green (s)	32.5	32.5		32.5	32.5		15.6	15.6		15.6	15.6	15.6
Actuated g/C Ratio	0.61	0.61		0.61	0.61		0.28	0.28		0.28	0.28	0.28
v/c Ratio	0.28	0.39		0.21	0.39		0.10	0.24		0.63	0.29	0.29
Control Delay	10.6	7.8		9.6	7.6		15.0	9.2		23.8	4.7	4.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	10.6	7.8		9.6	7.6		15.0	9.2		23.8	4.7	4.7
LOS	B	A		A	A		B	A		C	A	A
Approach Delay		8.0			7.7			10.2			15.9	
Approach LOS		A			A			B			B	
Queue Length 50th (ft)	12	61		9	59		5	10		47	0	0
Queue Length 95th (ft)	45	122		34	121		23	48		126	29	29
Internal Link Dist (ft)		458			137			80			142	
Turn Bay Length (ft)	120											
Base Capacity (vph)	371	2302		361	2280		351	634		471	672	672
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.24	0.34		0.19	0.35		0.07	0.18		0.48	0.24	0.24
Intersection Summary												
Cycle Length: 70												
Actuated Cycle Length: 53.1												
Natural Cycle: 55												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 0.63												
Intersection Signal Delay: 9.4						Intersection LOS: A						
Intersection Capacity Utilization 50.5%						ICU Level of Service A						
Analysis Period (min) 15												

3: Pratt Blvd & Bridge Street

Existing
PM Peak

Splits and Phases: 3: Pratt Blvd & Bridge Street

 ø2	 ø4
43.5 s	26.5 s
 ø6	 ø8
43.5 s	26.5 s

1: Cottage Row Road & Brewster Street

Existing

PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	123	147	186	28	175	302	148	876	106	219	817	161
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93	0.89	0.89	0.89
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	294	202	0	220	328	159	1056	0	246	1099	0
Turn Type	Perm		Free	Perm		Perm	pm+pt			pm+pt		
Protected Phases		3			7		5	2		1	6	
Permitted Phases	3		Free	7		7	2			6		
Detector Phases	3	3		7	7	7	5	2		1	6	
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0	4.0	20.0		4.0	20.0	
Minimum Split (s)	28.0	28.0		28.0	28.0	28.0	8.0	26.0		8.0	26.0	
Total Split (s)	31.0	31.0	0.0	31.0	31.0	31.0	12.0	37.0	0.0	12.0	37.0	0.0
Total Split (%)	38.8%	38.8%	0.0%	38.8%	38.8%	38.8%	15.0%	46.3%	0.0%	15.0%	46.3%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	3.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	1.0	2.0		1.0	2.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None		None	None	None	None	C-Min		None	C-Min	
Act Effct Green (s)		22.4	80.0		22.4	22.4	41.6	34.2		48.0	38.1	
Actuated g/C Ratio		0.28	1.00		0.28	0.28	0.52	0.43		0.60	0.48	
v/c Ratio		0.76	0.12		0.45	0.74	0.68	0.74		0.73	0.69	
Control Delay		38.7	0.2		25.9	35.9	25.1	21.2		30.9	19.9	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		38.7	0.2		25.9	35.9	25.1	21.2		30.9	19.9	
LOS		D	A		C	D	C	C		C	B	
Approach Delay		23.0			31.9			21.7			21.9	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)		132	0		89	147	17	251		56	220	
Queue Length 95th (ft)		207	0		141	221	#102	310		#210	313	
Internal Link Dist (ft)		294			184			618			362	
Turn Bay Length (ft)			250			100	175			175		
Base Capacity (vph)		467	1636		586	536	247	1456		337	1592	
Starvation Cap Reductn		0	0		0	0	0	0		0	0	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.63	0.12		0.38	0.61	0.64	0.73		0.73	0.69	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 30 (38%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.76

Intersection Signal Delay: 23.5

Intersection LOS: C

Intersection Capacity Utilization 78.4%

ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

8/25/2009

Dutt Tarigoppula
Eschbacher EngineeringGlen Isle - FEIS
Lanes, Volumes, Timings

1: Cottage Row Road & Brewster Street

Existing
PM Peak

Splits and Phases: 1: Cottage Row Road & Brewster Street

 ø1	 ø2	 ø3
12 s	37 s	31 s
 ø5	 ø6	 ø7
12 s	37 s	31 s

5: Herb Hill Road & Charles Street

Existing

PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	4	9	59	1	6	2	44	160	3	43	196	5
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.69	0.69	0.69	0.32	0.32	0.32	0.83	0.83	0.83	0.79	0.79	0.79
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	19	86	0	28	0	53	193	4	54	254	0
Turn Type	Perm		pt+ov	Perm			Split		Perm	Split		
Protected Phases		4	4 6		8		6	6		2	2	
Permitted Phases	4			8					6			
Detector Phases	4	4	4 6	8	8		6	6	6	2	2	
Minimum Initial (s)	8.0	8.0		8.0	8.0		25.0	25.0	25.0	8.0	8.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		31.0	31.0	31.0	14.0	14.0	
Total Split (s)	26.0	26.0	57.0	26.0	26.0	0.0	31.0	31.0	31.0	31.0	31.0	0.0
Total Split (%)	29.5%	29.5%	64.8%	29.5%	29.5%	0.0%	35.2%	35.2%	35.2%	35.2%	35.2%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min	Min	None	None	
Act Effct Green (s)		10.1	41.7		10.1		28.2	28.2	28.2	16.0	16.0	
Actuated g/C Ratio		0.15	0.63		0.15		0.45	0.45	0.45	0.25	0.25	
v/c Ratio		0.07	0.07		0.10		0.07	0.23	0.01	0.12	0.56	
Control Delay		26.5	1.9		23.0		13.5	14.5	9.3	19.1	25.8	
Queue Delay		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		26.5	1.9		23.0		13.5	14.5	9.3	19.1	25.8	
LOS		C	A		C		B	B	A	B	C	
Approach Delay		6.4			23.0			14.2			24.6	
Approach LOS		A			C			B			C	
Queue Length 50th (ft)		7	0		8		12	48	0	17	88	
Queue Length 95th (ft)		19	9		9		33	95	5	35	129	
Internal Link Dist (ft)		1067			319			407			212	
Turn Bay Length (ft)									125	125		
Base Capacity (vph)		498	1263		508		792	834	711	629	660	
Starvation Cap Reductn		0	0		0		0	0	0	0	0	
Spillback Cap Reductn		0	0		0		0	0	0	0	0	
Storage Cap Reductn		0	0		0		0	0	0	0	0	
Reduced v/c Ratio		0.04	0.07		0.06		0.07	0.23	0.01	0.09	0.38	

Intersection Summary

Cycle Length: 88

Actuated Cycle Length: 63

Natural Cycle: 65

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.56

Intersection Signal Delay: 18.0

Intersection LOS: B

Intersection Capacity Utilization 48.1%

ICU Level of Service A

Analysis Period (min) 15

8/25/2009

Dutt Tarigoppula
Eschbacher EngineeringGlen Isle - FEIS
Lanes, Volumes, Timings

5: Herb Hill Road & Charles Street

Existing
PM Peak

Splits and Phases: 5: Herb Hill Road & Charles Street

 02	 06	 04
31 s	31 s	26 s
		 08
		26 s

91: Forest Avenue & Lattingtown Road

Existing

PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	222	486	22	4	449	6	20	11	7	4	2	190
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.94	0.94	0.94	0.80	0.80	0.80	0.73	0.73	0.73	0.86	0.86	0.86
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	236	540	0	0	574	0	0	52	0	0	7	221
Turn Type	pm+pt			Perm			Perm			Perm		Free
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6			8			4		Free
Detector Phases	5	2		6	6		8	8		4	4	
Minimum Initial (s)	4.0	20.0		20.0	20.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	8.0	26.0		26.0	26.0		10.0	10.0		10.0	10.0	
Total Split (s)	9.0	65.0	0.0	56.0	56.0	0.0	15.0	15.0	0.0	15.0	15.0	0.0
Total Split (%)	11.3%	81.3%	0.0%	70.0%	70.0%	0.0%	18.8%	18.8%	0.0%	18.8%	18.8%	0.0%
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?												
Recall Mode	None	Min		Min	Min		None	None		None	None	
Act Effct Green (s)	39.7	42.5			32.3			8.9			8.8	48.6
Actuated g/C Ratio	0.79	0.87			0.66			0.16			0.16	1.00
v/c Ratio	0.38	0.35			0.48			0.19			0.03	0.13
Control Delay	4.1	3.2			8.3			19.0			20.3	0.2
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	4.1	3.2			8.3			19.0			20.3	0.2
LOS	A	A			A			B			C	A
Approach Delay		3.5			8.3			19.0			0.8	
Approach LOS		A			A			B			A	
Queue Length 50th (ft)	0	0			41			6			1	0
Queue Length 95th (ft)	46	116			174			32			11	0
Internal Link Dist (ft)		631			639			463			627	
Turn Bay Length (ft)												25
Base Capacity (vph)	625	1579			1408			325			319	1689
Starvation Cap Reductn	0	0			0			0			0	0
Spillback Cap Reductn	0	0			0			0			0	0
Storage Cap Reductn	0	0			0			0			0	0
Reduced v/c Ratio	0.38	0.34			0.41			0.16			0.02	0.13

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 48.6

Natural Cycle: 45

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.48

Intersection Signal Delay: 5.3

Intersection Capacity Utilization 69.9%

Analysis Period (min) 15

Intersection LOS: A

ICU Level of Service C

8/25/2009

Dutt Tarigoppula

Eschbacher Engineering

Glen Isle - FEIS
Lanes, Volumes, Timings

91: Forest Avenue & Lattingtown Road

Existing
PM Peak

Splits and Phases: 91: Forest Avenue & Lattingtown Road

 ø2		 ø4	
65 s		15 s	
 ø5	 ø6	 ø8	
9 s	56 s	15 s	

8: Northern Boulevard & Glen Cove Road

Existing
PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	469	1081	113	391	751	104	175	906	230	37	891	285
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.94	0.94	0.94	0.89	0.89	0.89	0.87	0.87	0.87	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	499	1270	0	439	961	0	201	1041	264	39	938	300
Turn Type	Prot			Prot			Prot		pt+ov	Prot		pt+ov
Protected Phases	5	2		1	6		7	4	4 1	3	8	8 5
Permitted Phases												
Detector Phases	5	2		1	6		7	4	4 1	3	8	8 5
Minimum Initial (s)	8.0	24.0		5.0	24.0		7.0	20.0		3.0	20.0	
Minimum Split (s)	13.0	37.5		10.0	37.5		13.0	34.3		9.0	34.3	
Total Split (s)	31.5	57.3	0.0	31.5	57.3	0.0	27.7	56.5	88.0	9.7	38.5	70.0
Total Split (%)	20.3%	37.0%	0.0%	20.3%	37.0%	0.0%	17.9%	36.5%	56.8%	6.3%	24.8%	45.2%
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.3		3.0	4.3	
All-Red Time (s)	2.0	2.5		2.0	2.5		3.0	3.0		3.0	3.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	26.7	55.0		25.8	54.1		22.6	54.4	84.2	5.7	35.6	66.2
Actuated g/C Ratio	0.17	0.35		0.17	0.35		0.15	0.35	0.54	0.04	0.23	0.43
v/c Ratio	0.87	1.03		0.83	0.82		0.83	0.87	0.33	0.64	1.19	0.26
Control Delay	79.2	80.5		76.0	53.1		91.4	56.1	21.2	114.5	149.7	29.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	79.2	80.5		76.0	53.1		91.4	56.1	21.2	114.5	149.7	29.4
LOS	E	F		E	D		F	E	C	F	F	C
Approach Delay		80.1			60.3			54.7			120.4	
Approach LOS		F			E			D			F	
Queue Length 50th (ft)	255	~740		221	471		199	527	145	40	~615	110
Queue Length 95th (ft)	#339	#881		281	552		#306	593	201	#104	#753	150
Internal Link Dist (ft)		319			439			466			338	
Turn Bay Length (ft)	425			300			300		420	325		300
Base Capacity (vph)	589	1239		568	1173		253	1202	819	61	785	1166
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.85	1.03		0.77	0.82		0.79	0.87	0.32	0.64	1.19	0.26

Intersection Summary

Cycle Length: 155

Actuated Cycle Length: 155

Offset: 135 (87%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.19

Intersection Signal Delay: 77.6

Intersection LOS: E

Intersection Capacity Utilization 92.3%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

8/25/2009

Dutt Tarigoppula
Eschbacher EngineeringGlen Isle - FEIS
Lanes, Volumes, Timings

8: Northern Boulevard & Glen Cove Road

Existing
PM Peak

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 8: Northern Boulevard & Glen Cove Road

 ø1	 ø2	 ø3	 ø4
31.5 s	57.3 s	9.7 s	56.5 s
 ø5	 ø6	 ø7	 ø8
31.5 s	57.3 s	27.7 s	38.5 s

1: Driveway/Witte Lane & Bryant Avenue

Existing
PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	3	24	183	1	28	1	752	25	162	353	1
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.38	0.38	0.38	0.88	0.88	0.88	0.96	0.96	0.96	0.97	0.97	0.97
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	79	0	208	33	0	0	810	0	167	365	0
Turn Type	Perm			Perm			Perm			pm+pt		
Protected Phases		8			4			2		1	6	
Permitted Phases	8			4			2			6		
Detector Phases	8	8		4	4		2	2		1	6	
Minimum Initial (s)	12.0	12.0		12.0	12.0		45.0	45.0		4.0	45.0	
Minimum Split (s)	17.5	17.5		17.5	17.5		50.0	50.0		9.0	50.0	
Total Split (s)	25.0	25.0	0.0	25.0	25.0	0.0	56.0	56.0	0.0	9.0	65.0	0.0
Total Split (%)	27.8%	27.8%	0.0%	27.8%	27.8%	0.0%	62.2%	62.2%	0.0%	10.0%	72.2%	0.0%
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5	1.5		1.5	1.5	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Recall Mode	None	None		None	None		None	None		None	None	
Act Effct Green (s)		18.6		18.6	18.6			48.5		57.5	57.5	
Actuated g/C Ratio		0.22		0.22	0.22			0.58		0.68	0.68	
v/c Ratio		0.19		0.74	0.09			0.78		0.46	0.32	
Control Delay		11.6		48.4	11.0			20.7		9.3	6.6	
Queue Delay		0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay		11.6		48.4	11.0			20.7		9.3	6.6	
LOS		B		D	B			C		A	A	
Approach Delay		11.6			43.3			20.7			7.4	
Approach LOS		B			D			C			A	
Queue Length 50th (ft)		6		99	0			326		30	74	
Queue Length 95th (ft)		1		#200	23			493		53	116	
Internal Link Dist (ft)		52			208			183			261	
Turn Bay Length (ft)										125		
Base Capacity (vph)		445		308	388			1071		367	1176	
Starvation Cap Reductn		0		0	0			0		0	0	
Spillback Cap Reductn		0		0	0			0		0	0	
Storage Cap Reductn		0		0	0			0		0	0	
Reduced v/c Ratio		0.18		0.68	0.09			0.76		0.46	0.31	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 84.1

Natural Cycle: 80

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 19.3

Intersection LOS: B

Intersection Capacity Utilization 105.5%

ICU Level of Service G

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

8/25/2009

Dutt Tarigoppula

Eschbacher Engineering

Glen Isle - FEIS
Lanes, Volumes, Timings

1: Driveway/Witte Lane & Bryant Avenue

Existing
PM Peak

Splits and Phases: 1: Driveway/Witte Lane & Bryant Avenue

 ø1	 ø2	 ø4
9 s	56 s	25 s
 ø6		 ø8
65 s		25 s

Existing Saturday Peak

4: Pratt Blvd & Glen Cove Avenue

Existing
Saturday Peak

											
Lane Group	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER
Lane Configurations											
Volume (vph)	232	24	406	99	598	349	499	537	4	0	0
Confl. Peds. (#/hr)											
Confl. Bikes (#/hr)											
Peak Hour Factor	0.90	0.90	0.90	0.96	0.96	0.96	0.97	0.97	0.97	0.25	0.25
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	5%	5%	5%	4%	4%	4%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)											
Mid-Block Traffic (%)		0%			0%			0%		0%	
Lane Group Flow (vph)	129	156	451	103	623	364	514	558	0	0	0
Turn Type	Split		pm+ov	pm+pt		pm+ov	Prot				
Protected Phases	4	4	1	5	2	4	1	6			
Permitted Phases			4	2		2					
Detector Phases	4	4	1	5	2	4	1	6			
Minimum Initial (s)	8.0	8.0	8.0	4.0	23.0	8.0	8.0	23.0			
Minimum Split (s)	22.0	22.0	15.0	10.0	41.0	22.0	15.0	41.0			
Total Split (s)	26.0	26.0	31.0	18.0	66.0	26.0	31.0	79.0	0.0	0.0	0.0
Total Split (%)	21.1%	21.1%	25.2%	14.6%	53.7%	21.1%	25.2%	64.2%	0.0%	0.0%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0			
Lead/Lag			Lead	Lead	Lag		Lead	Lag			
Lead-Lag Optimize?											
Recall Mode	None	None	Min	None	Min	None	Min	Min			
Act Effct Green (s)	15.4	15.4	41.2	34.7	25.7	45.1	21.7	41.0			
Actuated g/C Ratio	0.21	0.21	0.55	0.45	0.34	0.60	0.29	0.55			
v/c Ratio	0.41	0.24	0.30	0.24	0.55	0.42	0.54	0.30			
Control Delay	31.0	26.5	9.3	8.8	23.9	10.5	25.2	11.5			
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0			
Total Delay	31.0	26.5	9.3	8.8	23.9	10.7	25.2	11.5			
LOS	C	C	A	A	C	B	C	B			
Approach Delay		16.8			18.1			18.1			
Approach LOS		B			B			B			
Queue Length 50th (ft)	58	34	57	13	125	85	101	74			
Queue Length 95th (ft)	119	64	88	36	210	159	167	133			
Internal Link Dist (ft)		458			408			365		404	
Turn Bay Length (ft)	75	75	350	220		100	150				
Base Capacity (vph)	415	858	1480	507	1857	909	1103	2312			
Starvation Cap Reductn	0	0	0	0	0	84	0	0			
Spillback Cap Reductn	0	0	0	0	0	0	0	0			
Storage Cap Reductn	0	0	0	0	0	0	0	0			
Reduced v/c Ratio	0.31	0.18	0.30	0.20	0.34	0.44	0.47	0.24			

Intersection Summary	
Cycle Length: 123	
Actuated Cycle Length: 75	
Natural Cycle: 80	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.55	
Intersection Signal Delay: 17.7	Intersection LOS: B
Intersection Capacity Utilization 50.1%	ICU Level of Service A
Analysis Period (min) 15	

4: Pratt Blvd & Glen Cove Avenue

Existing
Saturday Peak

Splits and Phases: 4: Pratt Blvd & Glen Cove Avenue

 ø1	 ø2	 ø4
31 s	66 s	26 s
 ø5	 ø6	
18 s	79 s	

6: Charles Street & Glen Cove Avenue

Existing
Saturday Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	119	20	172	21	0	32	0	738	29	20	767	0
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.94	0.94	0.94	0.88	0.25	0.88	0.25	0.93	0.93	0.94	0.94	0.25
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	4%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	127	21	183	0	60	0	0	825	0	21	816	0
Turn Type	Perm		Perm	Perm						Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8						6		
Detector Phases	4	4	4	8	8			2		6	6	
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0			20.0		20.0	20.0	
Minimum Split (s)	12.0	12.0	12.0	12.0	12.0			26.0		26.0	26.0	
Total Split (s)	37.0	37.0	37.0	37.0	37.0	0.0	0.0	43.0	0.0	43.0	43.0	0.0
Total Split (%)	46.3%	46.3%	46.3%	46.3%	46.3%	0.0%	0.0%	53.8%	0.0%	53.8%	53.8%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0			4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0			2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None			Min		Min	Min	
Act Effct Green (s)	14.8	14.8	14.8		14.8			35.7		35.7	35.7	
Actuated g/C Ratio	0.25	0.25	0.25		0.25			0.62		0.62	0.62	
v/c Ratio	0.39	0.05	0.38		0.14			0.39		0.08	0.39	
Control Delay	15.5	10.6	7.1		7.0			6.6		7.1	6.7	
Queue Delay	0.0	0.0	0.0		0.0			0.0		0.0	0.0	
Total Delay	15.5	10.6	7.1		7.0			6.6		7.1	6.7	
LOS	B	B	A		A			A		A	A	
Approach Delay		10.5			7.0			6.6			6.7	
Approach LOS		B			A			A			A	
Queue Length 50th (ft)	23	4	11		4			51		2	51	
Queue Length 95th (ft)	54	14	43		1			111		12	111	
Internal Link Dist (ft)		349			162			294			408	
Turn Bay Length (ft)	250									125		
Base Capacity (vph)	616	859	794		767			2481		324	2434	
Starvation Cap Reductn	0	0	0		0			0		0	0	
Spillback Cap Reductn	0	0	0		0			0		0	0	
Storage Cap Reductn	0	0	0		0			0		0	0	
Reduced v/c Ratio	0.21	0.02	0.23		0.08			0.33		0.06	0.34	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 58

Natural Cycle: 40

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.39

Intersection Signal Delay: 7.3

Intersection LOS: A

Intersection Capacity Utilization 46.9%

ICU Level of Service A

Analysis Period (min) 15

8/25/2009

Dutt Tarigoppula
Eschbacher EngineeringGlen Isle - FEIS
Lanes, Volumes, Timings

6: Charles Street & Glen Cove Avenue

Existing
Saturday Peak

Splits and Phases: 6: Charles Street & Glen Cove Avenue

 Ø2	 Ø4
43 s	37 s
 Ø6	 Ø8
43 s	37 s

7: Morris Avenue & Glen Cove Avenue

Existing
Saturday Peak

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	22	17	16	627	685	28
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.65	0.65	0.97	0.97	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	5%	5%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Lane Group Flow (vph)	34	26	16	646	743	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Detector Phases	4	4	2	2	6	
Minimum Initial (s)	8.0	8.0	20.0	20.0	20.0	
Minimum Split (s)	20.0	20.0	30.0	30.0	30.0	
Total Split (s)	37.0	37.0	43.0	43.0	43.0	0.0
Total Split (%)	46.3%	46.3%	53.8%	53.8%	53.8%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	Min	Min	Min	
Act Effct Green (s)	13.4	13.4	56.5	56.5	56.5	
Actuated g/C Ratio	0.17	0.17	0.75	0.75	0.75	
v/c Ratio	0.12	0.10	0.04	0.26	0.30	
Control Delay	12.7	6.5	4.4	3.7	3.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	12.7	6.5	4.4	3.7	3.9	
LOS	B	A	A	A	A	
Approach Delay	10.0			3.7	3.9	
Approach LOS	A			A	A	
Queue Length 50th (ft)	9	0	1	35	41	
Queue Length 95th (ft)	14	7	7	57	66	
Internal Link Dist (ft)	135			701	294	
Turn Bay Length (ft)	150		75			
Base Capacity (vph)	626	576	411	2694	2704	
Starvation Cap Reductn	0	0	0	0	400	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.05	0.05	0.04	0.24	0.32	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 74.9

Natural Cycle: 50

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.30

Intersection Signal Delay: 4.1

Intersection LOS: A

Intersection Capacity Utilization 33.2%

ICU Level of Service A

Analysis Period (min) 15

8/25/2009

Dutt Tarigoppula
Eschbacher EngineeringGlen Isle - FEIS
Lanes, Volumes, Timings

7: Morris Avenue & Glen Cove Avenue

Existing
Saturday Peak

Splits and Phases: 7: Morris Avenue & Glen Cove Avenue

 Ø2	 Ø4
43 s	37 s
 Ø6	
43 s	

2: Herb Hill Road & Brewster Street

Existing
Saturday Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR	SBL
Lane Configurations												
Volume (vph)	14	15	23	16	4	50	44	2	133	851	22	23
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.93	0.93	0.93	0.77	0.77	0.77	0.77	0.94	0.94	0.94	0.94	0.94
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%					0%		
Lane Group Flow (vph)	15	41	0	0	148	0	0	0	143	928	0	24
Turn Type	Perm			Perm				pm+pt	pm+pt			Perm
Protected Phases		4			8			5	5	2		
Permitted Phases	4			8				2	2			6
Detector Phases	4	4		8	8			5	5	2		6
Minimum Initial (s)	8.0	8.0		8.0	8.0			3.0	3.0	20.0		20.0
Minimum Split (s)	28.0	28.0		25.0	25.0			7.0	7.0	26.0		26.0
Total Split (s)	31.0	31.0	0.0	31.0	31.0	0.0	0.0	19.0	19.0	49.0	0.0	30.0
Total Split (%)	38.8%	38.8%	0.0%	38.8%	38.8%	0.0%	0.0%	23.8%	23.8%	61.3%	0.0%	37.5%
Yellow Time (s)	4.0	4.0		4.0	4.0			3.0	3.0	4.0		4.0
All-Red Time (s)	2.0	2.0		2.0	2.0			1.0	1.0	2.0		2.0
Lead/Lag								Lead	Lead			Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None			None	None	C-Min		C-Min
Act Effct Green (s)	12.8	12.8			12.8				62.0	62.8		50.4
Actuated g/C Ratio	0.16	0.16			0.16				0.78	0.78		0.63
v/c Ratio	0.08	0.15			0.51				0.45	0.34		0.07
Control Delay	27.8	16.6			27.3				8.5	4.1		3.2
Queue Delay	0.0	0.0			0.0				0.0	0.2		0.0
Total Delay	27.8	16.6			27.3				8.5	4.3		3.2
LOS	C	B			C				A	A		A
Approach Delay		19.6			27.3					4.8		
Approach LOS		B			C					A		
Queue Length 50th (ft)	7	7			48				15	65		1
Queue Length 95th (ft)	22	31			77				45	120		m3
Internal Link Dist (ft)		605			24					365		
Turn Bay Length (ft)									200			220
Base Capacity (vph)	379	550			568				448	2690		343
Starvation Cap Reductn	0	0			0				0	867		0
Spillback Cap Reductn	0	0			0				0	0		0
Storage Cap Reductn	0	0			0				0	0		0
Reduced v/c Ratio	0.04	0.07			0.26				0.32	0.51		0.07

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green, Master Intersection

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.51

Intersection Signal Delay: 5.9

Intersection LOS: A

Intersection Capacity Utilization 64.5%

ICU Level of Service C

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

8/25/2009

Dutt Tarigoppula

Eschbacher Engineering

Glen Isle - FEIS
Lanes, Volumes, Timings

2: Herb Hill Road & Brewster Street

Existing
Saturday Peak

Splits and Phases: 2: Herb Hill Road & Brewster Street

 ø2	 ø4
49 s	31 s
 ø5	 ø6
19 s	30 s
	 ø8
	31 s



Lane Group	SBT	SBR	SBR2
Lane Configurations	↑↑		
Volume (vph)	882	1	22
Confl. Peds. (#/hr)			
Confl. Bikes (#/hr)			
Peak Hour Factor	0.94	0.94	0.94
Growth Factor	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%
Bus Blockages (#/hr)	0	0	0
Parking (#/hr)			
Mid-Block Traffic (%)	0%		
Lane Group Flow (vph)	962	0	0
Turn Type			
Protected Phases	6		
Permitted Phases			
Detector Phases	6		
Minimum Initial (s)	20.0		
Minimum Split (s)	26.0		
Total Split (s)	30.0	0.0	0.0
Total Split (%)	37.5%	0.0%	0.0%
Yellow Time (s)	4.0		
All-Red Time (s)	2.0		
Lead/Lag	Lag		
Lead-Lag Optimize?			
Recall Mode	C-Min		
Act Effct Green (s)	50.4		
Actuated g/C Ratio	0.63		
v/c Ratio	0.44		
Control Delay	3.0		
Queue Delay	0.0		
Total Delay	3.0		
LOS	A		
Approach Delay	3.0		
Approach LOS	A		
Queue Length 50th (ft)	28		
Queue Length 95th (ft)	46		
Internal Link Dist (ft)	354		
Turn Bay Length (ft)			
Base Capacity (vph)	2180		
Starvation Cap Reductn	0		
Spillback Cap Reductn	0		
Storage Cap Reductn	0		
Reduced v/c Ratio	0.44		
Intersection Summary			

8: Shore Road & Glen Cove Avenue

Existing
Saturday Peak

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	260	53	50	551	527	209
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.82	0.82	0.94	0.94	0.86	0.86
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	5%	5%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Lane Group Flow (vph)	317	65	53	586	856	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Detector Phases	4	4	2	2	6	
Minimum Initial (s)	8.0	8.0	20.0	20.0	20.0	
Minimum Split (s)	14.0	14.0	26.0	26.0	26.0	
Total Split (s)	25.0	25.0	55.0	55.0	55.0	0.0
Total Split (%)	31.3%	31.3%	68.8%	68.8%	68.8%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	Min	Min	Min	
Act Effct Green (s)	15.0	15.0	22.1	22.1	22.1	
Actuated g/C Ratio	0.33	0.33	0.49	0.49	0.49	
v/c Ratio	0.54	0.11	0.22	0.36	0.52	
Control Delay	15.7	3.8	11.1	8.8	8.6	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	15.7	3.8	11.1	8.8	8.6	
LOS	B	A	B	A	A	
Approach Delay	13.7			9.0	8.6	
Approach LOS	B			A	A	
Queue Length 50th (ft)	64	0	7	44	56	
Queue Length 95th (ft)	104	14	31	92	114	
Internal Link Dist (ft)	273			201	357	
Turn Bay Length (ft)			150			
Base Capacity (vph)	729	712	342	2289	2257	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.43	0.09	0.15	0.26	0.38	

Intersection Summary	
Cycle Length: 80	
Actuated Cycle Length: 45.2	
Natural Cycle: 40	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.54	
Intersection Signal Delay: 9.8	Intersection LOS: A
Intersection Capacity Utilization 62.3%	ICU Level of Service B
Analysis Period (min) 15	

8: Shore Road & Glen Cove Avenue

Existing
Saturday Peak

Splits and Phases: 8: Shore Road & Glen Cove Avenue

 Ø2	 Ø4
55 s	25 s
 Ø6	
55 s	

92: Sea Cliff Avenue & Glen Cove Avenue

Existing
Saturday Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	49	72	50	106	104	87	45	380	103	81	359	65
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.93	0.93	0.93	0.84	0.84	0.84	0.91	0.91	0.91	0.83	0.83	0.83
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	5%	5%	5%	4%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	53	131	0	126	228	0	0	580	0	0	609	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	4	4		8	8		2	2		6	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0		20.0	20.0		20.0	20.0	
Minimum Split (s)	10.0	10.0		10.0	10.0		26.0	26.0		26.0	26.0	
Total Split (s)	26.0	26.0	0.0	26.0	26.0	0.0	44.0	44.0	0.0	44.0	44.0	0.0
Total Split (%)	37.1%	37.1%	0.0%	37.1%	37.1%	0.0%	62.9%	62.9%	0.0%	62.9%	62.9%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effect Green (s)	14.1	14.1		14.1	14.1			37.1			37.1	
Actuated g/C Ratio	0.24	0.24		0.24	0.24			0.66			0.66	
v/c Ratio	0.23	0.27		0.49	0.55			0.49			0.65	
Control Delay	19.4	12.0		24.6	18.0			8.4			12.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	19.4	12.0		24.6	18.0			8.4			12.4	
LOS	B	B		C	B			A			B	
Approach Delay		14.2			20.4			8.4			12.4	
Approach LOS		B			C			A			B	
Queue Length 50th (ft)	11	17		29	38			83			106	
Queue Length 95th (ft)	42	60		80	101			218			254	
Internal Link Dist (ft)		645			488			861			659	
Turn Bay Length (ft)	150			200								
Base Capacity (vph)	331	656		362	562			1270			1010	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.16	0.20		0.35	0.41			0.46			0.60	

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 56.4

Natural Cycle: 40

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.65

Intersection Signal Delay: 12.9

Intersection LOS: B

Intersection Capacity Utilization 69.0%

ICU Level of Service C

Analysis Period (min) 15

92: Sea Cliff Avenue & Glen Cove Avenue

Existing
Saturday Peak

Splits and Phases: 92: Sea Cliff Avenue & Glen Cove Avenue

 ø2	 ø4
44 s	26 s
 ø6	 ø8
44 s	26 s

9: Glenwood Road/Glen Head Road & Glen Cove Avenue

Existing
Saturday Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	88	164	54	130	147	227	46	326	116	240	396	39
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.83	0.83	0.83	0.95	0.95	0.95	0.84	0.84	0.84	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	5%	5%	5%	4%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	369	0	0	531	0	55	526	0	253	458	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	4	4		8	8		2	2		6	6	
Minimum Initial (s)	8.0	8.0		8.0	8.0		20.0	20.0		20.0	20.0	
Minimum Split (s)	26.0	26.0		26.0	26.0		26.0	26.0		26.0	26.0	
Total Split (s)	31.0	31.0	0.0	31.0	31.0	0.0	39.0	39.0	0.0	39.0	39.0	0.0
Total Split (%)	44.3%	44.3%	0.0%	44.3%	44.3%	0.0%	55.7%	55.7%	0.0%	55.7%	55.7%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)		24.0			24.0		32.4	32.4		32.4	32.4	
Actuated g/C Ratio		0.37			0.37		0.50	0.50		0.50	0.50	
v/c Ratio		0.68			0.86		0.16	0.54		0.90	0.52	
Control Delay		24.3			33.6		11.0	13.2		54.1	13.8	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		24.3			33.6		11.0	13.2		54.1	13.8	
LOS		C			C		B	B		D	B	
Approach Delay		24.3			33.6			13.0			28.2	
Approach LOS		C			C			B			C	
Queue Length 50th (ft)		121			177		12	134		93	122	
Queue Length 95th (ft)		187			#354		29	193		#236	200	
Internal Link Dist (ft)		131			160			206			218	
Turn Bay Length (ft)							75			125		
Base Capacity (vph)		585			661		366	1020		294	918	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.63			0.80		0.15	0.52		0.86	0.50	

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 64.6

Natural Cycle: 60

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.90

Intersection Signal Delay: 24.8

Intersection LOS: C

Intersection Capacity Utilization 87.8%

ICU Level of Service E

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

9: Glenwood Road/Glen Head Road & Glen Cove Avenue

Existing
Saturday Peak

Splits and Phases: 9: Glenwood Road/Glen Head Road & Glen Cove Avenue

 ø2 39 s	 ø4 31 s
 ø6 39 s	 ø8 31 s

5: Glen Cove Road & Route 107

Existing
Saturday Peak

						
Lane Group	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations	↑↑		↓	↑↑		
Volume (vph)	1089	0	403	1464	0	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Lane Group Flow (vph)	1184	0	438	1591	0	0
Turn Type			Prot			
Protected Phases	2		4	2 4		
Permitted Phases						
Detector Phases	2		4	2 4		
Minimum Initial (s)	20.0		10.0			
Minimum Split (s)	27.0		17.0			
Total Split (s)	67.0	0.0	42.0	109.0	0.0	0.0
Total Split (%)	61.5%	0.0%	38.5%	100.0%	0.0%	0.0%
Yellow Time (s)	4.0		4.0			
All-Red Time (s)	3.0		3.0			
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	Max		None			
Act Effct Green (s)	63.1		35.9	107.0		
Actuated g/C Ratio	0.59		0.34	1.00		
v/c Ratio	0.58		0.69	0.45		
Control Delay	15.5		37.2	0.4		
Queue Delay	0.0		0.0	0.0		
Total Delay	15.5		37.2	0.4		
LOS	B		D	A		
Approach Delay	15.5			8.4		
Approach LOS	B			A		
Queue Length 50th (ft)	263		258	0		
Queue Length 95th (ft)	326		370	0		
Internal Link Dist (ft)	495			382	312	
Turn Bay Length (ft)			375			
Base Capacity (vph)	2046		658	3539		
Starvation Cap Reductn	0		0	0		
Spillback Cap Reductn	0		0	0		
Storage Cap Reductn	0		0	0		
Reduced v/c Ratio	0.58		0.67	0.45		

Intersection Summary

Cycle Length: 109

Actuated Cycle Length: 107

Natural Cycle: 45

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 11.0

Intersection LOS: B

Intersection Capacity Utilization 59.1%

ICU Level of Service B

Analysis Period (min) 15

8/25/2009

Dutt Tarigoppula
Eschbacher EngineeringGlen Isle - FEIS
Lanes, Volumes, Timings

5: Glen Cove Road & Route 107

Existing
Saturday Peak

Splits and Phases: 5: Glen Cove Road & Route 107

 02	 04
67 s	42 s

3: Glen Head Road & Glen Cove Road

Existing
Saturday Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	194	203	40	42	238	29	56	866	56	21	1266	177
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.89	0.89	0.89	0.77	0.77	0.77	0.88	0.88	0.88	0.82	0.82	0.82
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	4%	4%	4%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	218	228	45	0	402	0	64	984	64	26	1760	0
Turn Type	Split		Free	Split			Perm		Perm	Perm		
Protected Phases	4	4		8	8			2			6	
Permitted Phases			Free				2		2	6		
Detector Phases	4	4		8	8		2	2	2	6	6	
Minimum Initial (s)	8.0	8.0		8.0	8.0		20.0	20.0	20.0	20.0	20.0	
Minimum Split (s)	26.0	26.0		27.0	27.0		27.0	27.0	27.0	27.0	27.0	
Total Split (s)	34.0	34.0	0.0	34.0	34.0	0.0	72.0	72.0	72.0	72.0	72.0	0.0
Total Split (%)	24.3%	24.3%	0.0%	24.3%	24.3%	0.0%	51.4%	51.4%	51.4%	51.4%	51.4%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	
Act Effct Green (s)	25.2	25.2	135.3		30.0		68.1	68.1	68.1	68.1	68.1	
Actuated g/C Ratio	0.19	0.19	1.00		0.22		0.50	0.50	0.50	0.50	0.50	
v/c Ratio	0.72	0.72	0.03		0.99		1.19	0.55	0.09	0.17	1.00	
Control Delay	65.9	65.0	0.0		95.4		214.9	25.0	19.1	23.4	55.6	
Queue Delay	0.0	0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	65.9	65.0	0.0		95.4		214.9	25.0	19.1	23.4	55.6	
LOS	E	E	A		F		F	C	B	C	E	
Approach Delay		59.4			95.4			35.6			55.1	
Approach LOS		E			F			D			E	
Queue Length 50th (ft)	182	190	0		~360		~68	309	29	12	~825	
Queue Length 95th (ft)	269	279	0		#458		#121	380	57	32	#873	
Internal Link Dist (ft)		203			244			256			523	
Turn Bay Length (ft)			75				200		75	150		
Base Capacity (vph)	347	365	1553		405		54	1804	729	155	1756	
Starvation Cap Reductn	0	0	0		0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0		0		0	0	0	0	0	
Storage Cap Reductn	0	0	0		0		0	0	0	0	0	
Reduced v/c Ratio	0.63	0.62	0.03		0.99		1.19	0.55	0.09	0.17	1.00	

Intersection Summary	
Cycle Length: 140	
Actuated Cycle Length: 135.3	
Natural Cycle: 130	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 1.19	
Intersection Signal Delay: 54.2	Intersection LOS: D
Intersection Capacity Utilization 83.9%	ICU Level of Service E
Analysis Period (min) 15	
~ Volume exceeds capacity, queue is theoretically infinite.	
Queue shown is maximum after two cycles.	
# 95th percentile volume exceeds capacity, queue may be longer.	

3: Glen Head Road & Glen Cove Road

Existing
Saturday Peak

Queue shown is maximum after two cycles.

Splits and Phases: 3: Glen Head Road & Glen Cove Road

  ø2	  ø4	  ø8
72 s	34 s	34 s
  ø6		
72 s		

2: Back Road & Glen Cove Road

Existing
Saturday Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	59	1	347	1	2	1	365	1247	3	27	1082	92
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.84	0.84	0.84	0.50	0.50	0.50	0.98	0.98	0.98	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	5%	5%	5%	3%	3%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	117	367	0	8	0	372	1275	0	28	1127	96
Turn Type	Split		pt+ov	Split			Prot			Perm		pm+ov
Protected Phases	3	3	3 5	4	4		5	2			6	3
Permitted Phases										6		6
Detector Phases	3	3	3 5	4	4		5	2		6	6	3
Minimum Initial (s)	8.0	8.0		8.0	8.0		5.0	10.0		10.0	10.0	8.0
Minimum Split (s)	24.0	24.0		38.3	38.3		12.8	24.8		24.8	24.8	24.0
Total Split (s)	25.5	25.5	61.5	38.3	38.3	0.0	36.0	94.8	0.0	58.8	58.8	25.5
Total Split (%)	16.1%	16.1%	38.8%	24.1%	24.1%	0.0%	22.7%	59.8%	0.0%	37.1%	37.1%	16.1%
Yellow Time (s)	3.5	3.5		3.5	3.5		4.0	4.0		4.0	4.0	3.5
All-Red Time (s)	2.0	2.0		4.8	4.8		2.0	4.8		4.8	4.8	2.0
Lead/Lag	Lead	Lead		Lag	Lag		Lead			Lag	Lag	Lead
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	Max		Max	Max	None
Act Effct Green (s)		14.0	46.3		12.3		29.0	91.5		58.4	58.4	76.4
Actuated g/C Ratio		0.12	0.40		0.10		0.25	0.79		0.50	0.50	0.66
v/c Ratio		0.59	0.47		0.04		0.77	0.47		0.16	0.64	0.10
Control Delay		54.5	3.8		49.5		52.5	6.2		23.8	25.7	3.1
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		54.5	3.8		49.5		52.5	6.2		23.8	25.7	3.1
LOS		D	A		D		D	A		C	C	A
Approach Delay		16.1			49.5			16.6			23.9	
Approach LOS		B			D			B			C	
Queue Length 50th (ft)		72	0		4		240	113		11	304	3
Queue Length 95th (ft)		141	33		12		#468	351		43	551	29
Internal Link Dist (ft)		345			160			143			316	
Turn Bay Length (ft)												
Base Capacity (vph)		279	837		445		525	2704		180	1761	1017
Starvation Cap Reductn		0	0		0		0	0		0	0	0
Spillback Cap Reductn		0	0		0		0	0		0	0	0
Storage Cap Reductn		0	0		0		0	0		0	0	0
Reduced v/c Ratio		0.42	0.44		0.02		0.71	0.47		0.16	0.64	0.09

Intersection Summary

Cycle Length: 158.6

Actuated Cycle Length: 116.3

Natural Cycle: 140

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 19.3

Intersection LOS: B

Intersection Capacity Utilization 75.8%

ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

8/25/2009

Dutt Tarigoppula
Eschbacher EngineeringGlen Isle - FEIS
Lanes, Volumes, Timings

2: Back Road & Glen Cove Road

Existing
Saturday Peak

Splits and Phases: 2: Back Road & Glen Cove Road

 ø2	 ø3	 ø4
94.8 s	25.5 s	38.3 s
 ø5	 ø6	
36 s	58.8 s	

3: Pratt Blvd & Bridge Street

Existing
Saturday Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	143	668	33	52	556	62	20	63	72	100	43	154
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.97	0.97	0.97	0.90	0.90	0.90	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	5%	5%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	147	723	0	58	687	0	21	142	0	0	150	162
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		4
Detector Phases	2	2		6	6		8	8		4	4	4
Minimum Initial (s)	5.0	5.0		5.0	5.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	26.0	26.0		26.0	26.0		25.5	25.5		25.5	25.5	25.5
Total Split (s)	43.5	43.5	0.0	43.5	43.5	0.0	26.5	26.5	0.0	26.5	26.5	26.5
Total Split (%)	62.1%	62.1%	0.0%	62.1%	62.1%	0.0%	37.9%	37.9%	0.0%	37.9%	37.9%	37.9%
Yellow Time (s)	4.0	4.0		4.0	4.0		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Min	Min		Min	Min		None	None		None	None	None
Act Effct Green (s)	40.1	40.1		40.1	40.1		15.5	15.5		15.5	15.5	15.5
Actuated g/C Ratio	0.64	0.64		0.64	0.64		0.24	0.24		0.24	0.24	0.24
v/c Ratio	0.37	0.34		0.16	0.33		0.08	0.32		0.48	0.33	0.33
Control Delay	9.7	6.0		7.1	5.8		16.0	10.0		20.8	5.4	5.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	9.7	6.0		7.1	5.8		16.0	10.0		20.8	5.4	5.4
LOS	A	A		A	A		B	A		C	A	A
Approach Delay		6.6			5.9			10.8			12.8	
Approach LOS		A			A			B			B	
Queue Length 50th (ft)	18	44		6	40		4	11		28	0	0
Queue Length 95th (ft)	70	103		27	95		21	59		97	38	38
Internal Link Dist (ft)		458			137			80			142	
Turn Bay Length (ft)	120											
Base Capacity (vph)	449	2396		413	2381		398	610		460	645	645
Starvation Cap Reductn	0	0		0	0		0	0		0	0	0
Spillback Cap Reductn	0	0		0	0		0	0		0	0	0
Storage Cap Reductn	0	0		0	0		0	0		0	0	0
Reduced v/c Ratio	0.33	0.30		0.14	0.29		0.05	0.23		0.33	0.25	0.25

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 63

Natural Cycle: 55

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.48

Intersection Signal Delay: 7.6

Intersection LOS: A

Intersection Capacity Utilization 54.1%

ICU Level of Service A

Analysis Period (min) 15

8/25/2009

Dutt Tarigoppula
Eschbacher Engineering

Glen Isle - FEIS
Lanes, Volumes, Timings

3: Pratt Blvd & Bridge Street

Existing
Saturday Peak

Splits and Phases: 3: Pratt Blvd & Bridge Street

 ø2	 ø4
43.5 s	26.5 s
 ø6	 ø8
43.5 s	26.5 s

1: Cottage Row Road & Brewster Street

Existing
Saturday Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	116	147	182	45	138	265	90	732	83	251	773	112
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.93	0.93	0.93	0.84	0.84	0.84	0.83	0.83	0.83	0.90	0.90	0.90
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	5%	5%	5%	4%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	283	196	0	218	315	108	982	0	279	983	0
Turn Type	Perm		Free	Perm		Perm	pm+pt			pm+pt		
Protected Phases		3			7		5	2		1	6	
Permitted Phases	3		Free	7		7	2			6		
Detector Phases	3	3		7	7	7	5	2		1	6	
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0	4.0	20.0		4.0	20.0	
Minimum Split (s)	28.0	28.0		28.0	28.0	28.0	8.0	26.0		8.0	26.0	
Total Split (s)	31.0	31.0	0.0	31.0	31.0	31.0	12.0	37.0	0.0	12.0	37.0	0.0
Total Split (%)	38.8%	38.8%	0.0%	38.8%	38.8%	38.8%	15.0%	46.3%	0.0%	15.0%	46.3%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	3.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	1.0	2.0		1.0	2.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None		None	None	None	None	C-Min		None	C-Min	
Act Effct Green (s)		21.8	80.0		21.8	21.8	39.0	32.5		49.4	41.6	
Actuated g/C Ratio		0.27	1.00		0.27	0.27	0.49	0.41		0.62	0.52	
v/c Ratio		0.73	0.12		0.50	0.73	0.46	0.72		0.69	0.56	
Control Delay		37.3	0.1		27.8	36.2	11.7	21.7		23.7	16.2	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		37.3	0.1		27.8	36.2	11.7	21.7		23.7	16.2	
LOS		D	A		C	D	B	C		C	B	
Approach Delay		22.1			32.8			20.7			17.9	
Approach LOS		C			C			C			B	
Queue Length 50th (ft)		127	0		91	141	10	230		57	172	
Queue Length 95th (ft)		196	0		131	192	22	248		#233	272	
Internal Link Dist (ft)		294			184			614			362	
Turn Bay Length (ft)			250			100	175			175		
Base Capacity (vph)		481	1636		537	536	264	1429		407	1756	
Starvation Cap Reductn		0	0		0	0	0	0		0	0	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.59	0.12		0.41	0.59	0.41	0.69		0.69	0.56	
Intersection Summary												
Cycle Length: 80												
Actuated Cycle Length: 80												
Offset: 30 (38%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green												
Natural Cycle: 70												
Control Type: Actuated-Coordinated												
Maximum v/c Ratio: 0.73												
Intersection Signal Delay: 21.7						Intersection LOS: C						
Intersection Capacity Utilization 74.0%						ICU Level of Service D						
Analysis Period (min) 15												
# 95th percentile volume exceeds capacity, queue may be longer.												
Queue shown is maximum after two cycles.												

1: Cottage Row Road & Brewster Street

Existing
Saturday Peak

Splits and Phases: 1: Cottage Row Road & Brewster Street

 ø1	 ø2	 ø3
12 s	37 s	31 s
 ø5	 ø6	 ø7
12 s	37 s	31 s

5: Herb Hill Road & Charles Street

Existing
Saturday Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	2	4	38	1	6	2	34	115	3	64	220	3
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.79	0.79	0.79	0.75	0.75	0.75	0.84	0.84	0.84	0.89	0.89	0.89
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	8	48	0	12	0	40	137	4	72	250	0
Turn Type	Perm		pt+ov	Perm			Split		Perm	Split		
Protected Phases		4	4 6		8		6	6		2	2	
Permitted Phases	4			8					6			
Detector Phases	4	4	4 6	8	8		6	6	6	2	2	
Minimum Initial (s)	8.0	8.0		8.0	8.0		25.0	25.0	25.0	8.0	8.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		31.0	31.0	31.0	14.0	14.0	
Total Split (s)	26.0	26.0	57.0	26.0	26.0	0.0	31.0	31.0	31.0	31.0	31.0	0.0
Total Split (%)	29.5%	29.5%	64.8%	29.5%	29.5%	0.0%	35.2%	35.2%	35.2%	35.2%	35.2%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min	Min	None	None	
Act Effct Green (s)		10.0	41.5		10.0		28.4	28.4	28.4	15.5	15.5	
Actuated g/C Ratio		0.15	0.64		0.15		0.48	0.48	0.48	0.26	0.26	
v/c Ratio		0.03	0.04		0.04		0.05	0.15	0.01	0.16	0.53	
Control Delay		26.0	2.3		23.3		13.0	13.2	9.3	19.0	24.3	
Queue Delay		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		26.0	2.3		23.3		13.0	13.2	9.3	19.0	24.3	
LOS		C	A		C		B	B	A	B	C	
Approach Delay		5.7			23.3			13.1			23.1	
Approach LOS		A			C			B			C	
Queue Length 50th (ft)		3	0		3		9	33	0	22	86	
Queue Length 95th (ft)		13	9		14		27	70	5	50	147	
Internal Link Dist (ft)		1079			319			407			212	
Turn Bay Length (ft)									125	125		
Base Capacity (vph)		504	1260		511		845	889	758	658	692	
Starvation Cap Reductn		0	0		0		0	0	0	0	0	
Spillback Cap Reductn		0	0		0		0	0	0	0	0	
Storage Cap Reductn		0	0		0		0	0	0	0	0	
Reduced v/c Ratio		0.02	0.04		0.02		0.05	0.15	0.01	0.11	0.36	
Intersection Summary												
Cycle Length: 88												
Actuated Cycle Length: 59.5												
Natural Cycle: 65												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 0.53												
Intersection Signal Delay: 18.2						Intersection LOS: B						
Intersection Capacity Utilization 44.2%						ICU Level of Service A						
Analysis Period (min) 15												

5: Herb Hill Road & Charles Street

Existing
Saturday Peak

Splits and Phases: 5: Herb Hill Road & Charles Street

 ø2	 ø6	 ø4
31 s	31 s	26 s
		 ø8
		26 s

91: Forest Avenue & Lattingtown Road

Existing
Saturday Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	171	413	12	3	458	5	20	9	6	3	9	217
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.87	0.87	0.87	0.95	0.95	0.95	0.73	0.73	0.73	0.85	0.85	0.85
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	197	489	0	0	490	0	0	47	0	0	15	255
Turn Type	pm+pt			Perm			Perm			Perm		Free
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6			8			4		Free
Detector Phases	5	2		6	6		8	8		4	4	
Minimum Initial (s)	4.0	20.0		20.0	20.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	8.0	26.0		26.0	26.0		10.0	10.0		10.0	10.0	
Total Split (s)	9.0	65.0	0.0	56.0	56.0	0.0	15.0	15.0	0.0	15.0	15.0	0.0
Total Split (%)	11.3%	81.3%	0.0%	70.0%	70.0%	0.0%	18.8%	18.8%	0.0%	18.8%	18.8%	0.0%
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?												
Recall Mode	None	Min		Min	Min		None	None		None	None	
Act Effct Green (s)	42.9	45.3			34.0			9.5			9.3	52.5
Actuated g/C Ratio	0.79	0.86			0.65			0.16			0.16	1.00
v/c Ratio	0.29	0.32			0.42			0.18			0.05	0.15
Control Delay	3.5	3.2			7.9			17.6			18.5	0.2
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	3.5	3.2			7.9			17.6			18.5	0.2
LOS	A	A			A			B			B	A
Approach Delay		3.3			7.9			17.6			1.2	
Approach LOS		A			A			B			A	
Queue Length 50th (ft)	0	0			33			6			2	0
Queue Length 95th (ft)	38	98			174			27			16	0
Internal Link Dist (ft)		631			639			463			627	
Turn Bay Length (ft)												25
Base Capacity (vph)	671	1582			1412			314			352	1689
Starvation Cap Reductn	0	0			0			0			0	0
Spillback Cap Reductn	0	0			0			0			0	0
Storage Cap Reductn	0	0			0			0			0	0
Reduced v/c Ratio	0.29	0.31			0.35			0.15			0.04	0.15

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 52.5

Natural Cycle: 45

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.42

Intersection Signal Delay: 4.9

Intersection Capacity Utilization 65.7%

Analysis Period (min) 15

Intersection LOS: A

ICU Level of Service C

8/25/2009

Dutt Tarigoppula
Eschbacher EngineeringGlen Isle - FEIS
Lanes, Volumes, Timings

Splits and Phases: 91: Forest Avenue & Lattingtown Road

 Ø2	 Ø4
65 s	15 s
 Ø5	 Ø8
9 s	15 s
 Ø6	
56 s	

8: Northern Boulevard & Glen Cove Road

Existing
Saturday Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	441	622	214	580	859	144	224	866	235	46	807	331
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.86	0.86	0.86	0.94	0.94	0.94	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	5%	5%	5%	3%	3%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	464	880	0	674	1166	0	238	921	250	47	823	338
Turn Type	Prot			Prot			Prot		pt+ov	Prot		pt+ov
Protected Phases	5	2		1	6		7	4	4 1	3	8	8 5
Permitted Phases												
Detector Phases	5	2		1	6		7	4	4 1	3	8	8 5
Minimum Initial (s)	8.0	24.0		5.0	24.0		7.0	20.0		3.0	20.0	
Minimum Split (s)	13.0	37.5		10.0	37.5		13.0	34.3		9.0	34.3	
Total Split (s)	23.5	39.3	0.0	23.5	39.3	0.0	17.7	49.5	73.0	17.7	49.5	73.0
Total Split (%)	18.1%	30.2%	0.0%	18.1%	30.2%	0.0%	13.6%	38.1%	56.2%	13.6%	38.1%	56.2%
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.3		3.0	4.3	
All-Red Time (s)	2.0	2.5		2.0	2.5		3.0	3.0		3.0	3.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	20.9	35.3		22.5	36.9		13.7	47.6	74.1	10.9	42.5	67.4
Actuated g/C Ratio	0.16	0.27		0.17	0.28		0.11	0.37	0.57	0.08	0.33	0.52
v/c Ratio	0.89	0.98		1.21	1.23		1.41	0.76	0.31	0.35	0.74	0.24
Control Delay	74.1	72.6		156.5	151.1		256.7	41.4	16.9	62.3	43.3	17.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.1	72.6		156.5	151.1		256.7	41.4	16.9	62.3	43.3	17.5
LOS	E	E		F	F		F	D	B	E	D	B
Approach Delay		73.1			153.1			73.4			36.8	
Approach LOS		E			F			E			D	
Queue Length 50th (ft)	202	388		~391	~655		~269	353	110	38	312	84
Queue Length 95th (ft)	#309	#528		#480	#739		#439	450	176	77	386	116
Internal Link Dist (ft)		443			439			466			338	
Turn Bay Length (ft)	425			300			300		420	325		300
Base Capacity (vph)	519	898		556	951		169	1218	811	172	1186	1383
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.89	0.98		1.21	1.23		1.41	0.76	0.31	0.27	0.69	0.24

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 117 (90%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow

Natural Cycle: 130

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.41

Intersection Signal Delay: 91.0

Intersection LOS: F

Intersection Capacity Utilization 89.0%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

8/25/2009

Dutt Tarigoppula
Eschbacher EngineeringGlen Isle - FEIS
Lanes, Volumes, Timings

8: Northern Boulevard & Glen Cove Road

Existing
Saturday Peak

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 8: Northern Boulevard & Glen Cove Road

 ø1	 ø2	 ø3	 ø4
23.5 s	39.3 s	17.7 s	49.5 s
 ø5	 ø6	 ø7	 ø8
23.5 s	39.3 s	17.7 s	49.5 s

1: Driveway/Witte Lane & Bryant Avenue

Existing
Saturday Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1	1	3	182	1	24	2	395	26	177	296	1
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.33	0.33	0.33	0.94	0.94	0.94	0.94	0.94	0.94	0.99	0.99	0.99
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	15	0	194	27	0	0	450	0	179	300	0
Turn Type	Perm			Perm			Perm			pm+pt		
Protected Phases		8			4			2		1	6	
Permitted Phases	8			4			2			6		
Detector Phases	8	8		4	4		2	2		1	6	
Minimum Initial (s)	12.0	12.0		12.0	12.0		45.0	45.0		4.0	45.0	
Minimum Split (s)	17.5	17.5		17.5	17.5		50.0	50.0		9.0	50.0	
Total Split (s)	27.5	27.5	0.0	27.5	27.5	0.0	51.5	51.5	0.0	11.0	62.5	0.0
Total Split (%)	30.6%	30.6%	0.0%	30.6%	30.6%	0.0%	57.2%	57.2%	0.0%	12.2%	69.4%	0.0%
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5	1.5		1.5	1.5	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Recall Mode	None	None		None	None		None	None		None	None	
Act Effct Green (s)		18.8		18.8	18.8			46.1		57.2	57.2	
Actuated g/C Ratio		0.22		0.22	0.22			0.55		0.68	0.68	
v/c Ratio		0.04		0.66	0.08			0.46		0.34	0.26	
Control Delay		17.2		41.1	10.6			13.8		7.4	6.5	
Queue Delay		0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay		17.2		41.1	10.6			13.8		7.4	6.5	
LOS		B		D	B			B		A	A	
Approach Delay		17.2			37.4			13.8			6.9	
Approach LOS		B			D			B			A	
Queue Length 50th (ft)		3		93	0			133		30	54	
Queue Length 95th (ft)		4		164	20			230		62	104	
Internal Link Dist (ft)		52			208			183			261	
Turn Bay Length (ft)										125		
Base Capacity (vph)		450		347	417			1001		523	1159	
Starvation Cap Reductn		0		0	0			0		0	0	
Spillback Cap Reductn		0		0	0			0		0	0	
Storage Cap Reductn		0		0	0			0		0	0	
Reduced v/c Ratio		0.03		0.56	0.06			0.45		0.34	0.26	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 84

Natural Cycle: 80

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.66

Intersection Signal Delay: 15.5

Intersection LOS: B

Intersection Capacity Utilization 101.7%

ICU Level of Service G

Analysis Period (min) 15

8/25/2009

Dutt Tarigoppula
Eschbacher EngineeringGlen Isle - FEIS
Lanes, Volumes, Timings

1: Driveway/Witte Lane & Bryant Avenue

Existing
Saturday Peak

Splits and Phases: 1: Driveway/Witte Lane & Bryant Avenue

 Ø1	 Ø2	 Ø4
11 s	51.5 s	27.5 s
 Ø6		 Ø8
62.5 s		27.5 s

No Build AM Peak

4: Pratt Blvd & Glen Cove Avenue

No Build 2016

AM Peak

											
Lane Group	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER
Lane Configurations											
Volume (vph)	214	77	429	153	445	341	530	419	3	0	0
Confl. Peds. (#/hr)											
Confl. Bikes (#/hr)											
Peak Hour Factor	0.94	0.94	0.94	0.92	0.92	0.92	0.96	0.96	0.96	0.25	0.25
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	12%	12%	12%	7%	7%	7%	4%	4%	4%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)											
Mid-Block Traffic (%)		0%			0%			0%		0%	
Lane Group Flow (vph)	114	196	456	166	484	371	552	439	0	0	0
Turn Type	Split		pm+ov	pm+pt		pm+ov	Prot				
Protected Phases	4	4	1	5	2	4	1	6			
Permitted Phases			4	2		2					
Detector Phases	4	4	1	5	2	4	1	6			
Minimum Initial (s)	8.0	8.0	8.0	4.0	23.0	8.0	8.0	23.0			
Minimum Split (s)	22.0	22.0	15.0	10.0	41.0	22.0	15.0	41.0			
Total Split (s)	26.0	26.0	31.0	18.0	66.0	26.0	31.0	79.0	0.0	0.0	0.0
Total Split (%)	21.1%	21.1%	25.2%	14.6%	53.7%	21.1%	25.2%	64.2%	0.0%	0.0%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0			
Lead/Lag			Lead	Lead	Lag		Lead	Lag			
Lead-Lag Optimize?											
Recall Mode	None	None	Min	None	Min	None	Min	Min			
Act Effct Green (s)	15.9	15.9	42.5	35.7	25.4	45.3	22.6	40.4			
Actuated g/C Ratio	0.21	0.21	0.56	0.46	0.33	0.60	0.30	0.53			
v/c Ratio	0.39	0.32	0.32	0.35	0.44	0.44	0.57	0.25			
Control Delay	30.6	27.3	9.2	9.7	23.2	11.1	25.5	12.2			
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0			
Total Delay	30.6	27.3	9.2	9.7	23.2	11.2	25.5	12.2			
LOS	C	C	A	A	C	B	C	B			
Approach Delay		17.1			16.7			19.6			
Approach LOS		B			B			B			
Queue Length 50th (ft)	52	44	59	24	96	92	112	60			
Queue Length 95th (ft)	106	76	86	55	162	165	176	110			
Internal Link Dist (ft)		458			408			365		404	
Turn Bay Length (ft)	75	75	350	220		100	150				
Base Capacity (vph)	383	791	1411	523	1801	881	1100	2278			
Starvation Cap Reductn	0	0	0	0	0	73	0	0			
Spillback Cap Reductn	0	0	0	0	0	0	0	0			
Storage Cap Reductn	0	0	0	0	0	0	0	0			
Reduced v/c Ratio	0.30	0.25	0.32	0.32	0.27	0.46	0.50	0.19			

Intersection Summary

Cycle Length: 123

Actuated Cycle Length: 76

Natural Cycle: 80

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.57

Intersection Signal Delay: 17.8

Intersection LOS: B

Intersection Capacity Utilization 51.0%

ICU Level of Service A

Analysis Period (min) 15

8/25/2009

Dutt Tarigoppula

Eschbacher Engineering

Glen Isle - FEIS
Lanes, Volumes, Timings

Splits and Phases: 4: Pratt Blvd & Glen Cove Avenue

 ø1	 ø2	 ø4
31 s	66 s	26 s
 ø5	 ø6	
18 s	79 s	

6: Charles Street & Glen Cove Avenue

No Build 2016

AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	167	38	206	38	0	34	0	731	31	16	658	0
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.99	0.99	0.99	0.92	0.25	0.92	0.25	0.92	0.92	0.92	0.92	0.25
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	7%	7%	7%	4%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	169	38	208	0	78	0	0	829	0	17	715	0
Turn Type	Perm		Perm	Perm						Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8	8					6		
Detector Phases	4	4	4	8	8			2		6	6	
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0			20.0		20.0	20.0	
Minimum Split (s)	12.0	12.0	12.0	12.0	12.0			26.0		26.0	26.0	
Total Split (s)	37.0	37.0	37.0	37.0	37.0	0.0	0.0	43.0	0.0	43.0	43.0	0.0
Total Split (%)	46.3%	46.3%	46.3%	46.3%	46.3%	0.0%	0.0%	53.8%	0.0%	53.8%	53.8%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0			4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0			2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None			Min		Min	Min	
Act Effct Green (s)	13.5	13.5	13.5		13.5			28.6		28.6	28.6	
Actuated g/C Ratio	0.27	0.27	0.27		0.27			0.60		0.60	0.60	
v/c Ratio	0.45	0.08	0.38		0.17			0.41		0.06	0.35	
Control Delay	15.9	10.6	5.9		7.6			7.5		7.6	7.2	
Queue Delay	0.0	0.0	0.0		0.0			0.0		0.0	0.0	
Total Delay	15.9	10.6	5.9		7.6			7.5		7.6	7.2	
LOS	B	B	A		A			A		A	A	
Approach Delay		10.4			7.6			7.5			7.2	
Approach LOS		B			A			A			A	
Queue Length 50th (ft)	32	7	8		7			56		2	47	
Queue Length 95th (ft)	69	20	41		2			124		12	104	
Internal Link Dist (ft)		349			162			294			408	
Turn Bay Length (ft)	250									125		
Base Capacity (vph)	675	906	851		781			2398		317	2397	
Starvation Cap Reductn	0	0	0		0			0		0	0	
Spillback Cap Reductn	0	0	0		0			0		0	0	
Storage Cap Reductn	0	0	0		0			0		0	0	
Reduced v/c Ratio	0.25	0.04	0.24		0.10			0.35		0.05	0.30	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 47.3

Natural Cycle: 40

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.45

Intersection Signal Delay: 8.0

Intersection LOS: A

Intersection Capacity Utilization 45.9%

ICU Level of Service A

Analysis Period (min) 15

8/25/2009

Dutt Tarigoppula

Eschbacher Engineering

Glen Isle - FEIS
Lanes, Volumes, Timings

Splits and Phases: 6: Charles Street & Glen Cove Avenue

 ø2	 ø4
43 s	37 s
 ø6	 ø8
43 s	37 s



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	66	27	41	658	730	121
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	7%	7%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Lane Group Flow (vph)	72	29	45	715	925	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Detector Phases	4	4	2	2	6	
Minimum Initial (s)	8.0	8.0	20.0	20.0	20.0	
Minimum Split (s)	20.0	20.0	30.0	30.0	30.0	
Total Split (s)	37.0	37.0	43.0	43.0	43.0	0.0
Total Split (%)	46.3%	46.3%	53.8%	53.8%	53.8%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	Min	Min	Min	
Act Effct Green (s)	13.0	13.0	43.8	43.8	43.8	
Actuated g/C Ratio	0.20	0.20	0.73	0.73	0.73	
v/c Ratio	0.22	0.09	0.17	0.30	0.39	
Control Delay	13.5	6.1	6.9	4.4	4.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	13.5	6.1	6.9	4.4	4.7	
LOS	B	A	A	A	A	
Approach Delay	11.4			4.6	4.7	
Approach LOS	B			A	A	
Queue Length 50th (ft)	13	0	4	40	54	
Queue Length 95th (ft)	34	13	20	72	96	
Internal Link Dist (ft)	135			701	294	
Turn Bay Length (ft)	150		75			
Base Capacity (vph)	701	644	295	2632	2657	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.10	0.05	0.15	0.27	0.35	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 60.3

Natural Cycle: 50

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.39

Intersection Signal Delay: 5.0

Intersection LOS: A

Intersection Capacity Utilization 47.4%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 7: Morris Avenue & Glen Cove Avenue

 ø2	 ø4
43 s	37 s
 ø6	
43 s	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR	SBL
Lane Configurations												
Volume (vph)	11	14	61	9	2	27	37	6	97	733	9	21
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	7%	7%	7%	7%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%					0%		
Lane Group Flow (vph)	12	81	0	0	81	0	0	0	112	807	0	23
Turn Type	Perm			Perm				pm+pt	pm+pt			Perm
Protected Phases		4			8			5	5	2		
Permitted Phases	4			8				2	2			6
Detector Phases	4	4		8	8			5	5	2		6
Minimum Initial (s)	8.0	8.0		8.0	8.0			3.0	3.0	20.0		20.0
Minimum Split (s)	28.0	28.0		25.0	25.0			7.0	7.0	26.0		26.0
Total Split (s)	31.0	31.0	0.0	31.0	31.0	0.0	0.0	19.0	19.0	49.0	0.0	30.0
Total Split (%)	38.8%	38.8%	0.0%	38.8%	38.8%	0.0%	0.0%	23.8%	23.8%	61.3%	0.0%	37.5%
Yellow Time (s)	4.0	4.0		4.0	4.0			3.0	3.0	4.0		4.0
All-Red Time (s)	2.0	2.0		2.0	2.0			1.0	1.0	2.0		2.0
Lead/Lag								Lead	Lead			Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None			None	None	C-Min		C-Min
Act Effect Green (s)	10.7	10.7			10.7				64.1	64.9		55.9
Actuated g/C Ratio	0.13	0.13			0.13				0.80	0.81		0.70
v/c Ratio	0.07	0.31			0.33				0.37	0.30		0.05
Control Delay	30.6	14.6			21.9				5.9	2.9		2.5
Queue Delay	0.0	0.0			0.0				0.0	0.0		0.0
Total Delay	30.6	14.6			21.9				5.9	2.9		2.5
LOS	C	B			C				A	A		A
Approach Delay		16.7			21.9					3.3		
Approach LOS		B			C					A		
Queue Length 50th (ft)	5	7			19				10	46		1
Queue Length 95th (ft)	20	44			56				24	77		m4
Internal Link Dist (ft)		605			24					365		
Turn Bay Length (ft)									200			220
Base Capacity (vph)	440	559			567				446	2732		429
Starvation Cap Reductn	0	0			0				0	0		0
Spillback Cap Reductn	0	0			0				0	0		0
Storage Cap Reductn	0	0			0				0	0		0
Reduced v/c Ratio	0.03	0.14			0.14				0.25	0.30		0.05

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green, Master Intersection

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.43

Intersection Signal Delay: 4.3

Intersection LOS: A

Intersection Capacity Utilization 58.4%

ICU Level of Service B

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Herb Hill Road & Brewster Street

 ø2	 ø4
49 s	31 s
 ø5	 ø8
19 s	31 s



Lane Group	SBT	SBR	SBR2
Lane Configurations	 		
Volume (vph)	871	50	18
Confl. Peds. (#/hr)			
Confl. Bikes (#/hr)			
Peak Hour Factor	0.92	0.92	0.92
Growth Factor	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%
Bus Blockages (#/hr)	0	0	0
Parking (#/hr)			
Mid-Block Traffic (%)	0%		
Lane Group Flow (vph)	1021	0	0
Turn Type			
Protected Phases	6		
Permitted Phases			
Detector Phases	6		
Minimum Initial (s)	20.0		
Minimum Split (s)	26.0		
Total Split (s)	30.0	0.0	0.0
Total Split (%)	37.5%	0.0%	0.0%
Yellow Time (s)	4.0		
All-Red Time (s)	2.0		
Lead/Lag	Lag		
Lead-Lag Optimize?			
Recall Mode	C-Min		
Act Effct Green (s)	55.9		
Actuated g/C Ratio	0.70		
v/c Ratio	0.43		
Control Delay	2.8		
Queue Delay	0.0		
Total Delay	2.8		
LOS	A		
Approach Delay	2.7		
Approach LOS	A		
Queue Length 50th (ft)	30		
Queue Length 95th (ft)	49		
Internal Link Dist (ft)	354		
Turn Bay Length (ft)			
Base Capacity (vph)	2402		
Starvation Cap Reductn	0		
Spillback Cap Reductn	0		
Storage Cap Reductn	0		
Reduced v/c Ratio	0.43		

Intersection Summary



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	247	35	31	555	499	273
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	7%	7%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Lane Group Flow (vph)	268	38	34	603	839	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Detector Phases	4	4	2	2	6	
Minimum Initial (s)	8.0	8.0	20.0	20.0	20.0	
Minimum Split (s)	14.0	14.0	26.0	26.0	26.0	
Total Split (s)	25.0	25.0	55.0	55.0	55.0	0.0
Total Split (%)	31.3%	31.3%	68.8%	68.8%	68.8%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	Min	Min	Min	
Act Effect Green (s)	14.1	14.1	26.2	26.2	26.2	
Actuated g/C Ratio	0.30	0.30	0.59	0.59	0.59	
v/c Ratio	0.50	0.07	0.12	0.31	0.42	
Control Delay	15.5	4.6	8.7	7.5	5.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	15.5	4.6	8.7	7.5	5.9	
LOS	B	A	A	A	A	
Approach Delay	14.2			7.6	5.9	
Approach LOS	B			A	A	
Queue Length 50th (ft)	53	0	4	42	41	
Queue Length 95th (ft)	100	13	19	89	95	
Internal Link Dist (ft)	273			201	357	
Turn Bay Length (ft)			150			
Base Capacity (vph)	696	666	374	2453	2453	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.39	0.06	0.09	0.25	0.34	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 44.2

Natural Cycle: 40

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.50

Intersection Signal Delay: 7.9

Intersection Capacity Utilization 46.1%

Analysis Period (min) 15

Intersection LOS: A

ICU Level of Service A

Splits and Phases: 8: Shore Road & Glen Cove Avenue

 ø2	 ø4
55 s	25 s
 ø6	
55 s	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	25	125	27	104	50	89	14	250	113	94	322	31
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.96	0.96	0.96	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	7%	7%	7%	4%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	26	158	0	113	151	0	0	410	0	0	486	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	4	4		8	8		2	2		6	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0		20.0	20.0		20.0	20.0	
Minimum Split (s)	10.0	10.0		10.0	10.0		26.0	26.0		26.0	26.0	
Total Split (s)	26.0	26.0	0.0	26.0	26.0	0.0	44.0	44.0	0.0	44.0	44.0	0.0
Total Split (%)	37.1%	37.1%	0.0%	37.1%	37.1%	0.0%	62.9%	62.9%	0.0%	62.9%	62.9%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)	15.8	15.8		15.8	15.8			40.9			40.9	
Actuated g/C Ratio	0.24	0.24		0.24	0.24			0.64			0.64	
v/c Ratio	0.09	0.34		0.47	0.35			0.34			0.53	
Control Delay	15.4	15.4		22.3	8.9			6.2			9.8	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	15.4	15.4		22.3	8.9			6.2			9.8	
LOS	B	B		C	A			A			A	
Approach Delay		15.4			14.7			6.2			9.8	
Approach LOS		B			B			A			A	
Queue Length 50th (ft)	4	26		21	9			43			69	
Queue Length 95th (ft)	24	88		80	56			124			203	
Internal Link Dist (ft)		645			488			861			659	
Turn Bay Length (ft)	150			200								
Base Capacity (vph)	404	656		344	570			1329			1019	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.06	0.24		0.33	0.26			0.31			0.48	

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 64

Natural Cycle: 40

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.53

Intersection Signal Delay: 10.4

Intersection LOS: B

Intersection Capacity Utilization 72.2%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 92: Sea Cliff Avenue & Glen Cove Avenue

 ø2	 ø4
44 s	26 s
 ø6	 ø8
44 s	26 s

9: Glenwood Road/Glen Head Road & Glen Cove Avenue

No Build 2016

AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	64	163	39	103	133	261	33	312	75	264	446	58
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.94	0.94	0.94	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	7%	7%	7%	4%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	289	0	0	541	0	35	412	0	287	548	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	4	4		8	8		2	2		6	6	
Minimum Initial (s)	8.0	8.0		8.0	8.0		20.0	20.0		20.0	20.0	
Minimum Split (s)	26.0	26.0		26.0	26.0		26.0	26.0		26.0	26.0	
Total Split (s)	31.0	31.0	0.0	31.0	31.0	0.0	39.0	39.0	0.0	39.0	39.0	0.0
Total Split (%)	44.3%	44.3%	0.0%	44.3%	44.3%	0.0%	55.7%	55.7%	0.0%	55.7%	55.7%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effect Green (s)		22.1			22.1		29.6	29.6		29.6	29.6	
Actuated g/C Ratio		0.37			0.37		0.49	0.49		0.49	0.49	
v/c Ratio		0.50			0.82		0.13	0.43		0.80	0.64	
Control Delay		18.2			27.0		10.9	11.6		34.4	15.8	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		18.2			27.0		10.9	11.6		34.4	15.8	
LOS		B			C		B	B		C	B	
Approach Delay		18.2			27.0			11.6			22.2	
Approach LOS		B			C			B			C	
Queue Length 50th (ft)		84			162		8	98		96	157	
Queue Length 95th (ft)		153			#332		23	162		#235	256	
Internal Link Dist (ft)		131			160			206			218	
Turn Bay Length (ft)							75			125		
Base Capacity (vph)		656			743		298	1036		392	944	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.44			0.73		0.12	0.40		0.73	0.58	

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 60

Natural Cycle: 60

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 20.6

Intersection LOS: C

Intersection Capacity Utilization 90.2%

ICU Level of Service E

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

8/25/2009

Dutt Tarigoppula

Eschbacher Engineering

Glen Isle - FEIS
Lanes, Volumes, Timings

Splits and Phases: 9: Glenwood Road/Glen Head Road & Glen Cove Avenue

 ø2	 ø4
39 s	31 s
 ø6	 ø8
39 s	31 s

						
Lane Group	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations	↑↑		↘	↑↑		
Volume (vph)	1223	0	682	1589	0	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	6%	6%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Lane Group Flow (vph)	1329	0	741	1727	0	0
Turn Type			Prot			
Protected Phases	2		4	2 4		
Permitted Phases						
Detector Phases	2		4	2 4		
Minimum Initial (s)	20.0		10.0			
Minimum Split (s)	27.0		17.0			
Total Split (s)	67.0	0.0	42.0	109.0	0.0	0.0
Total Split (%)	61.5%	0.0%	38.5%	100.0%	0.0%	0.0%
Yellow Time (s)	4.0		4.0			
All-Red Time (s)	3.0		3.0			
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	Max		None			
Act Effct Green (s)	63.0		38.0	109.0		
Actuated g/C Ratio	0.58		0.35	1.00		
v/c Ratio	0.66		1.17	0.51		
Control Delay	17.8		126.5	0.5		
Queue Delay	0.0		0.0	0.0		
Total Delay	17.8		126.5	0.5		
LOS	B		F	A		
Approach Delay	17.8			38.3		
Approach LOS	B			D		
Queue Length 50th (ft)	315		~619	0		
Queue Length 95th (ft)	389		#848	0		
Internal Link Dist (ft)	495			382	312	
Turn Bay Length (ft)			375			
Base Capacity (vph)	2006		633	3406		
Starvation Cap Reductn	0		0	0		
Spillback Cap Reductn	0		0	0		
Storage Cap Reductn	0		0	0		
Reduced v/c Ratio	0.66		1.17	0.51		
Intersection Summary						
Cycle Length: 109						
Actuated Cycle Length: 109						
Natural Cycle: 65						
Control Type: Semi Act-Uncoord						
Maximum v/c Ratio: 1.17						
Intersection Signal Delay: 31.1				Intersection LOS: C		
Intersection Capacity Utilization 78.3%				ICU Level of Service D		
Analysis Period (min) 15						
~ Volume exceeds capacity, queue is theoretically infinite.						
Queue shown is maximum after two cycles.						
# 95th percentile volume exceeds capacity, queue may be longer.						

8/25/2009

Dutt Tarigoppula
Eschbacher EngineeringGlen Isle - FEIS
Lanes, Volumes, Timings

Queue shown is maximum after two cycles.

Splits and Phases: 5: Glen Cove Road & Route 107



3: Glen Head Road & Glen Cove Road

No Build 2016

AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	165	293	4	48	253	7	39	1050	34	30	1390	169
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	9%	9%	9%	5%	5%	5%	4%	4%	4%	6%	6%	6%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	179	318	4	0	335	0	42	1141	37	32	1641	0
Turn Type	Split		Free	Split			Perm		Perm	Perm		
Protected Phases	4	4		8	8			2			6	
Permitted Phases			Free				2		2	6		
Detector Phases	4	4		8	8		2	2	2	6	6	
Minimum Initial (s)	8.0	8.0		8.0	8.0		20.0	20.0	20.0	20.0	20.0	
Minimum Split (s)	26.0	26.0		27.0	27.0		27.0	27.0	27.0	27.0	27.0	
Total Split (s)	26.0	26.0	0.0	27.0	27.0	0.0	72.0	72.0	72.0	72.0	72.0	0.0
Total Split (%)	20.8%	20.8%	0.0%	21.6%	21.6%	0.0%	57.6%	57.6%	57.6%	57.6%	57.6%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	
Act Effect Green (s)	22.0	22.0	122.7		23.0		65.6	65.6	65.6	65.6	65.6	
Actuated g/C Ratio	0.18	0.18	1.00		0.19		0.53	0.53	0.53	0.53	0.53	
v/c Ratio	0.64	1.09	0.00		1.00		0.72	0.59	0.05	0.23	0.91	
Control Delay	59.3	125.9	0.0		98.9		86.2	20.9	13.6	20.4	34.6	
Queue Delay	0.0	0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	59.3	125.9	0.0		98.9		86.2	20.9	13.6	20.4	34.6	
LOS	E	F	A		F		F	C	B	C	C	
Approach Delay		101.1			98.9			23.0			34.3	
Approach LOS		F			F			C			C	
Queue Length 50th (ft)	136	~294	0		~286		24	311	13	13	593	
Queue Length 95th (ft)	218	#479	0		#475		#100	378	31	37	716	
Internal Link Dist (ft)		203			244			256			524	
Turn Bay Length (ft)			75				200		75	150		
Base Capacity (vph)	278	292	1482		336		59	1951	788	139	1830	
Starvation Cap Reductn	0	0	0		0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0		0		0	0	0	0	0	
Storage Cap Reductn	0	0	0		0		0	0	0	0	0	
Reduced v/c Ratio	0.64	1.09	0.00		1.00		0.71	0.58	0.05	0.23	0.90	

Intersection Summary

Cycle Length: 125

Actuated Cycle Length: 122.7

Natural Cycle: 110

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.09

Intersection Signal Delay: 45.4

Intersection LOS: D

Intersection Capacity Utilization 85.6%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

8/25/2009

Dutt Tarigoppula

Eschbacher Engineering

Glen Isle - FEIS
Lanes, Volumes, Timings

Queue shown is maximum after two cycles.

Splits and Phases: 3: Glen Head Road & Glen Cove Road

 Ø2	 Ø4	 Ø8
72 s	26 s	27 s
 Ø6		
72 s		

2: Back Road & Glen Cove Road

No Build 2016

AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	58	0	389	5	2	3	310	1119	11	13	1512	186
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	4%	4%	4%	5%	5%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	119	367	0	10	0	337	1228	0	14	1626	200
Turn Type	Split		pt+ov	Split			Prot			Perm		pm+ov
Protected Phases	3	3	3 5	4	4		5	2			6	3
Permitted Phases										6		6
Detector Phases	3	3	3 5	4	4		5	2		6	6	3
Minimum Initial (s)	8.0	8.0		8.0	8.0		5.0	10.0		10.0	10.0	8.0
Minimum Split (s)	24.0	24.0		38.3	38.3		12.8	24.8		24.8	24.8	24.0
Total Split (s)	25.5	25.5	61.5	38.3	38.3	0.0	36.0	94.8	0.0	58.8	58.8	25.5
Total Split (%)	16.1%	16.1%	38.8%	24.1%	24.1%	0.0%	22.7%	59.8%	0.0%	37.1%	37.1%	16.1%
Yellow Time (s)	3.5	3.5		3.5	3.5		4.0	4.0		4.0	4.0	3.5
All-Red Time (s)	2.0	2.0		4.8	4.8		2.0	4.8		4.8	4.8	2.0
Lead/Lag	Lead	Lead		Lag	Lag		Lead			Lag	Lag	Lead
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	Max		Max	Max	None
Act Effct Green (s)		14.0	43.2		12.3		25.9	91.4		61.6	61.6	79.6
Actuated g/C Ratio		0.12	0.37		0.10		0.22	0.79		0.53	0.53	0.68
v/c Ratio		0.59	0.49		0.05		0.77	0.45		0.07	0.89	0.20
Control Delay		51.8	4.1		47.2		55.5	6.0		21.5	34.2	4.3
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		51.8	4.1		47.2		55.5	6.0		21.5	34.2	4.3
LOS		D	A		D		E	A		C	C	A
Approach Delay		15.7			47.2			16.6			30.9	
Approach LOS		B			D			B			C	
Queue Length 50th (ft)		69	0		5		224	105		5	514	17
Queue Length 95th (ft)		151	49		25		392	330		24	#1047	68
Internal Link Dist (ft)		345			160			143			316	
Turn Bay Length (ft)												
Base Capacity (vph)		282	826		438		516	2727		197	1820	1042
Starvation Cap Reductn		0	0		0		0	0		0	0	0
Spillback Cap Reductn		0	0		0		0	0		0	0	0
Storage Cap Reductn		0	0		0		0	0		0	0	0
Reduced v/c Ratio		0.42	0.44		0.02		0.65	0.45		0.07	0.89	0.19

Intersection Summary

Cycle Length: 158.6

Actuated Cycle Length: 116.3

Natural Cycle: 150

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.89

Intersection Signal Delay: 23.3

Intersection LOS: C

Intersection Capacity Utilization 81.3%

ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

8/25/2009

Dutt Tarigoppula

Eschbacher Engineering

Glen Isle - FEIS
Lanes, Volumes, Timings

Splits and Phases: 2: Back Road & Glen Cove Road

 ø2	 ø3	 ø4
94.8 s	25.5 s	38.3 s
 ø5	 ø6	
36 s	58.8 s	

3: Pratt Blvd & Bridge Street

No Build 2016

AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	39	841	24	35	689	55	14	69	65	96	63	46
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.96	0.96	0.96	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	12%	12%	12%	12%	12%	12%	2%	2%	2%	5%	5%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	42	940	0	36	775	0	15	146	0	0	172	50
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		4
Detector Phases	2	2		6	6		8	8		4	4	4
Minimum Initial (s)	5.0	5.0		5.0	5.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	26.0	26.0		26.0	26.0		25.5	25.5		25.5	25.5	25.5
Total Split (s)	43.5	43.5	0.0	43.5	43.5	0.0	26.5	26.5	0.0	26.5	26.5	26.5
Total Split (%)	62.1%	62.1%	0.0%	62.1%	62.1%	0.0%	37.9%	37.9%	0.0%	37.9%	37.9%	37.9%
Yellow Time (s)	4.0	4.0		4.0	4.0		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Min	Min		Min	Min		None	None		None	None	None
Act Effct Green (s)	35.4	35.4		35.4	35.4		13.9	13.9		13.9	13.9	13.9
Actuated g/C Ratio	0.65	0.65		0.65	0.65		0.25	0.25		0.25	0.25	0.25
v/c Ratio	0.13	0.46		0.14	0.38		0.06	0.33		0.52	0.12	0.12
Control Delay	7.2	7.4		7.9	6.6		16.4	11.2		22.6	6.7	6.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	7.2	7.4		7.9	6.6		16.4	11.2		22.6	6.7	6.7
LOS	A	A		A	A		B	B		C	A	A
Approach Delay		7.4			6.7			11.7			19.0	
Approach LOS		A			A			B			B	
Queue Length 50th (ft)	5	70		4	53		3	15		39	0	0
Queue Length 95th (ft)	22	159		21	122		17	62		109	21	21
Internal Link Dist (ft)		458			137			80			142	
Turn Bay Length (ft)	120											
Base Capacity (vph)	364	2201		276	2189		380	615		479	575	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.12	0.43		0.13	0.35		0.04	0.24		0.36	0.09	
Intersection Summary												
Cycle Length: 70												
Actuated Cycle Length: 54.1												
Natural Cycle: 55												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 0.52												
Intersection Signal Delay: 8.6						Intersection LOS: A						
Intersection Capacity Utilization 57.7%						ICU Level of Service B						
Analysis Period (min) 15												

8/25/2009

Dutt Tarigoppula
Eschbacher EngineeringGlen Isle - FEIS
Lanes, Volumes, Timings

Splits and Phases: 3: Pratt Blvd & Bridge Street

 ø2	 ø4
43.5 s	26.5 s
 ø6	 ø8
43.5 s	26.5 s

1: Cottage Row Road & Brewster Street

No Build 2016

AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	177	163	304	24	97	184	87	631	23	169	730	97
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	7%	7%	7%	4%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	369	330	0	131	200	95	711	0	184	898	0
Turn Type	Perm		Free	Perm		Perm	pm+pt			pm+pt		
Protected Phases		3			7		5	2		1	6	
Permitted Phases	3		Free	7		7	2			6		
Detector Phases	3	3		7	7	7	5	2		1	6	
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0	4.0	20.0		4.0	20.0	
Minimum Split (s)	28.0	28.0		28.0	28.0	28.0	8.0	26.0		8.0	26.0	
Total Split (s)	31.0	31.0	0.0	31.0	31.0	31.0	12.0	37.0	0.0	12.0	37.0	0.0
Total Split (%)	38.8%	38.8%	0.0%	38.8%	38.8%	38.8%	15.0%	46.3%	0.0%	15.0%	46.3%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	3.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	1.0	2.0		1.0	2.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None		None	None	None	None	C-Min		None	C-Min	
Act Effct Green (s)		24.6	80.0		24.6	24.6	41.9	35.4		45.5	38.6	
Actuated g/C Ratio		0.31	1.00		0.31	0.31	0.52	0.44		0.57	0.48	
v/c Ratio		0.77	0.20		0.26	0.41	0.36	0.49		0.46	0.55	
Control Delay		35.8	0.3		20.8	23.5	10.4	16.7		12.8	17.8	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		35.8	0.3		20.8	23.5	10.4	16.7		12.8	17.8	
LOS		D	A		C	C	B	B		B	B	
Approach Delay		19.0			22.5			16.0			17.0	
Approach LOS		B			C			B			B	
Queue Length 50th (ft)		164	0		48	77	10	134		39	165	
Queue Length 95th (ft)		246	0		84	125	48	199		79	253	
Internal Link Dist (ft)		294			184			618			362	
Turn Bay Length (ft)			250			100	175			175		
Base Capacity (vph)		547	1636		582	555	295	1520		408	1674	
Starvation Cap Reductn		0	0		0	0	0	0		0	0	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.67	0.20		0.23	0.36	0.32	0.47		0.45	0.54	
Intersection Summary												
Cycle Length: 80												
Actuated Cycle Length: 80												
Offset: 30 (38%), Referenced to phase 2:NBT and 6:SBTL, Start of Green												
Natural Cycle: 65												
Control Type: Actuated-Coordinated												
Maximum v/c Ratio: 0.77												
Intersection Signal Delay: 17.8						Intersection LOS: B						
Intersection Capacity Utilization 63.9%						ICU Level of Service B						
Analysis Period (min) 15												

1: Cottage Row Road & Brewster Street

No Build 2016

AM Peak

Splits and Phases: 1: Cottage Row Road & Brewster Street

 ø1	 ø2	 ø3
12 s	37 s	31 s
 ø5	 ø6	 ø7
12 s	37 s	31 s

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	9	55	1	52	6	142	83	1	100	333	7
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	10	60	0	65	0	154	90	1	105	358	0
Turn Type	Perm		pt+ov	Perm			Split		Perm	Split		
Protected Phases		4	4 6		8		6	6		2	2	
Permitted Phases	4			8					6			
Detector Phases	4	4	4 6	8	8		6	6	6	2	2	
Minimum Initial (s)	8.0	8.0		8.0	8.0		25.0	25.0	25.0	8.0	8.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		31.0	31.0	31.0	14.0	14.0	
Total Split (s)	26.0	26.0	57.0	26.0	26.0	0.0	31.0	31.0	31.0	31.0	31.0	0.0
Total Split (%)	29.5%	29.5%	64.8%	29.5%	29.5%	0.0%	35.2%	35.2%	35.2%	35.2%	35.2%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min	Min	None	None	
Act Effct Green (s)		10.7	42.0		10.7		28.3	28.3	28.3	19.1	19.1	
Actuated g/C Ratio		0.15	0.61		0.15		0.44	0.44	0.44	0.30	0.30	
v/c Ratio		0.03	0.05		0.22		0.20	0.11	0.00	0.20	0.66	
Control Delay		27.8	2.5		27.5		16.2	15.7	13.0	18.9	27.0	
Queue Delay		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		27.8	2.5		27.5		16.2	15.7	13.0	18.9	27.0	
LOS		C	A		C		B	B	B	B	C	
Approach Delay		6.1			27.5			16.0			25.1	
Approach LOS		A			C			B			C	
Queue Length 50th (ft)		4	0		22		43	24	0	33	133	
Queue Length 95th (ft)		18	15		60		98	62	3	71	227	
Internal Link Dist (ft)		1071			319			407			212	
Turn Bay Length (ft)									125	125		
Base Capacity (vph)		512	1208		508		788	830	706	657	690	
Starvation Cap Reductn		0	0		0		0	0	0	0	0	
Spillback Cap Reductn		0	0		0		0	0	0	0	0	
Storage Cap Reductn		0	0		0		0	0	0	0	0	
Reduced v/c Ratio		0.02	0.05		0.13		0.20	0.11	0.00	0.16	0.52	
Intersection Summary												
Cycle Length: 88												
Actuated Cycle Length: 63.6												
Natural Cycle: 70												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 0.66												
Intersection Signal Delay: 21.1						Intersection LOS: C						
Intersection Capacity Utilization 55.5%						ICU Level of Service B						
Analysis Period (min) 15												

5: Herb Hill Road & Charles Street

No Build 2016

AM Peak

Splits and Phases: 5: Herb Hill Road & Charles Street

 Ø2	 Ø6	 Ø4
31 s	31 s	26 s
		 Ø8
		26 s

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	144	399	15	5	234	8	20	11	5	4	1	217
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	157	450	0	0	268	0	0	39	0	0	5	233
Turn Type	pm+pt			Perm			Perm			Perm		Free
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6			8			4		Free
Detector Phases	5	2		6	6		8	8		4	4	
Minimum Initial (s)	4.0	20.0		20.0	20.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	8.0	26.0		26.0	26.0		10.0	10.0		10.0	10.0	
Total Split (s)	9.0	65.0	0.0	56.0	56.0	0.0	15.0	15.0	0.0	15.0	15.0	0.0
Total Split (%)	11.3%	81.3%	0.0%	70.0%	70.0%	0.0%	18.8%	18.8%	0.0%	18.8%	18.8%	0.0%
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?												
Recall Mode	None	Min		Min	Min		None	None		None	None	
Act Effct Green (s)	40.0	42.3			31.3			9.2			9.1	49.5
Actuated g/C Ratio	0.78	0.85			0.63			0.16			0.16	1.00
v/c Ratio	0.19	0.30			0.24			0.14			0.02	0.14
Control Delay	3.1	3.2			6.8			16.1			16.0	0.2
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	3.1	3.2			6.8			16.1			16.0	0.2
LOS	A	A			A			B			B	A
Approach Delay		3.2			6.8			16.1			0.5	
Approach LOS		A			A			B			A	
Queue Length 50th (ft)	0	0			15			5			1	0
Queue Length 95th (ft)	32	93			87			27			8	0
Internal Link Dist (ft)		631			639			463			627	
Turn Bay Length (ft)												25
Base Capacity (vph)	814	1584			1403			332			326	1689
Starvation Cap Reductn	0	0			0			0			0	0
Spillback Cap Reductn	0	0			0			0			0	0
Storage Cap Reductn	0	0			0			0			0	0
Reduced v/c Ratio	0.19	0.28			0.19			0.12			0.02	0.14
Intersection Summary												
Cycle Length: 80												
Actuated Cycle Length: 49.5												
Natural Cycle: 45												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 0.30												
Intersection Signal Delay: 3.9						Intersection LOS: A						
Intersection Capacity Utilization 57.2%						ICU Level of Service B						
Analysis Period (min) 15												

Splits and Phases: 91: Forest Avenue & Lattingtown Road

 ø2		 ø4	
65 s		15 s	
 ø5	 ø6	 ø8	
9 s	56 s	15 s	

8: Northern Boulevard & Glen Cove Road

No Build 2016

AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	332	570	82	301	1124	33	142	782	277	25	1057	476
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.98	0.98	0.98	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	6%	6%	6%	3%	3%	3%	4%	4%	4%	5%	5%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	361	709	0	324	1244	0	145	798	283	27	1137	512
Turn Type	Prot			Prot			Prot		pt+ov	Prot		pt+ov
Protected Phases	5	2		1	6		7	4	4 1	3	8	8 5
Permitted Phases												
Detector Phases	5	2		1	6		7	4	4 1	3	8	8 5
Minimum Initial (s)	8.0	24.0		5.0	24.0		7.0	20.0		3.0	20.0	
Minimum Split (s)	13.0	37.5		10.0	37.5		13.0	34.3		9.0	34.3	
Total Split (s)	25.5	50.3	0.0	23.5	48.3	0.0	21.7	61.5	85.0	9.7	49.5	75.0
Total Split (%)	17.6%	34.7%	0.0%	16.2%	33.3%	0.0%	15.0%	42.4%	58.6%	6.7%	34.1%	51.7%
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.3		3.0	4.3	
All-Red Time (s)	2.0	2.5		2.0	2.5		3.0	3.0		3.0	3.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	20.7	47.2		18.6	45.1		16.9	61.4	84.0	5.7	46.3	71.0
Actuated g/C Ratio	0.14	0.33		0.13	0.31		0.12	0.42	0.58	0.04	0.32	0.49
v/c Ratio	0.79	0.65		0.79	1.19		0.77	0.56	0.34	0.43	1.07	0.40
Control Delay	73.2	45.5		76.1	136.9		87.3	34.3	17.9	88.7	95.5	24.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.2	45.5		76.1	136.9		87.3	34.3	17.9	88.7	95.5	24.7
LOS	E	D		E	F		F	C	B	F	F	C
Approach Delay		54.9			124.4			36.8			73.8	
Approach LOS		D			F			D			E	
Queue Length 50th (ft)	171	304		154	~751		134	312	142	25	~634	171
Queue Length 95th (ft)	228	376		209	#891		#237	381	207	61	#774	221
Internal Link Dist (ft)		319			439			466			338	
Turn Bay Length (ft)	425			300			300		420	325		300
Base Capacity (vph)	473	1087		427	1049		198	1420	848	63	1061	1295
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.76	0.65		0.76	1.19		0.73	0.56	0.33	0.43	1.07	0.40
Intersection Summary												
Cycle Length: 145												
Actuated Cycle Length: 145												
Offset: 132 (91%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow												
Natural Cycle: 120												
Control Type: Actuated-Coordinated												
Maximum v/c Ratio: 1.19												
Intersection Signal Delay: 76.2						Intersection LOS: E						
Intersection Capacity Utilization 92.0%						ICU Level of Service F						
Analysis Period (min) 15												
~ Volume exceeds capacity, queue is theoretically infinite.												
Queue shown is maximum after two cycles.												

8/25/2009

Dutt Tarigoppula
Eschbacher EngineeringGlen Isle - FEIS
Lanes, Volumes, Timings

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 8: Northern Boulevard & Glen Cove Road

 ø1	 ø2	 ø3	 ø4
23.5 s	50.3 s	9.7 s	61.5 s
 ø5	 ø6	 ø7	 ø8
25.5 s	48.3 s	21.7 s	49.5 s

1: Driveway/Witte Lane & Bryant Avenue

No Build 2016

AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1	3	299	11	8	12	365	30	431	652	4
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	4	0	325	21	0	0	443	0	463	705	0
Turn Type	Perm			Perm			Perm			pm+pt		
Protected Phases		8			4			2		1	6	
Permitted Phases	8			4			2			6		
Detector Phases	8	8		4	4		2	2		1	6	
Minimum Initial (s)	12.0	12.0		12.0	12.0		45.0	45.0		4.0	45.0	
Minimum Split (s)	17.5	17.5		17.5	17.5		50.0	50.0		9.0	50.0	
Total Split (s)	27.0	27.0	0.0	27.0	27.0	0.0	51.0	51.0	0.0	12.0	63.0	0.0
Total Split (%)	30.0%	30.0%	0.0%	30.0%	30.0%	0.0%	56.7%	56.7%	0.0%	13.3%	70.0%	0.0%
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5	1.5		1.5	1.5	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Recall Mode	None	None		None	None		None	None		None	None	
Act Effct Green (s)		23.0		23.0	23.0			46.0		58.0	58.0	
Actuated g/C Ratio		0.26		0.26	0.26			0.52		0.65	0.65	
v/c Ratio		0.01		0.95	0.05			0.49		0.90	0.64	
Control Delay		18.2		73.0	18.4			15.9		34.6	12.6	
Queue Delay		0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay		18.2		73.0	18.4			15.9		34.6	12.6	
LOS		B		E	B			B		C	B	
Approach Delay		18.3			69.7			15.9			21.4	
Approach LOS		B			E			B			C	
Queue Length 50th (ft)		0		180	5			150		115	210	
Queue Length 95th (ft)		8		#345	23			229		#268	323	
Internal Link Dist (ft)		52			208			183			261	
Turn Bay Length (ft)										125		
Base Capacity (vph)		437		341	430			918		513	1106	
Starvation Cap Reductn		0		0	0			0		0	0	
Spillback Cap Reductn		0		0	0			0		0	0	
Storage Cap Reductn		0		0	0			0		0	0	
Reduced v/c Ratio		0.01		0.95	0.05			0.48		0.90	0.64	
Intersection Summary												
Cycle Length: 90												
Actuated Cycle Length: 89												
Natural Cycle: 90												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 0.95												
Intersection Signal Delay: 28.7						Intersection LOS: C						
Intersection Capacity Utilization 108.2%						ICU Level of Service G						
Analysis Period (min) 15												
# 95th percentile volume exceeds capacity, queue may be longer.												
Queue shown is maximum after two cycles.												

Splits and Phases: 1: Driveway/Witte Lane & Bryant Avenue

 ø1	 ø2	 ø4
12 s	51 s	27 s
 ø6		 ø8
63 s		27 s

No Build
PM Peak

4: Pratt Blvd & Glen Cove Avenue

No Build 2016

PM Peak

											
Lane Group	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER
Lane Configurations											
Volume (vph)	256	67	571	156	597	362	433	480	3	0	0
Confl. Peds. (#/hr)											
Confl. Bikes (#/hr)											
Peak Hour Factor	0.92	0.92	0.92	0.96	0.96	0.96	0.93	0.93	0.93	0.25	0.25
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)											
Mid-Block Traffic (%)		0%			0%			0%		0%	
Lane Group Flow (vph)	139	212	621	162	622	377	466	519	0	0	0
Turn Type	Split		pm+ov	pm+pt		pm+ov	Prot				
Protected Phases	4	4	1	5	2	4	1	6			
Permitted Phases			4	2		2					
Detector Phases	4	4	1	5	2	4	1	6			
Minimum Initial (s)	8.0	8.0	8.0	4.0	23.0	8.0	8.0	23.0			
Minimum Split (s)	22.0	22.0	15.0	10.0	41.0	22.0	15.0	41.0			
Total Split (s)	26.0	26.0	31.0	18.0	66.0	26.0	31.0	79.0	0.0	0.0	0.0
Total Split (%)	21.1%	21.1%	25.2%	14.6%	53.7%	21.1%	25.2%	64.2%	0.0%	0.0%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0			
Lead/Lag			Lead	Lead	Lag		Lead	Lag			
Lead-Lag Optimize?											
Recall Mode	None	None	Min	None	Min	None	Min	Min			
Act Effct Green (s)	16.3	16.3	42.1	35.8	25.7	46.1	21.7	40.0			
Actuated g/C Ratio	0.21	0.21	0.55	0.46	0.34	0.61	0.29	0.53			
v/c Ratio	0.43	0.32	0.41	0.35	0.55	0.43	0.51	0.30			
Control Delay	31.0	27.0	10.3	9.8	24.6	10.6	25.0	12.7			
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0			
Total Delay	31.0	27.0	10.3	9.8	24.6	10.8	25.0	12.7			
LOS	C	C	B	A	C	B	C	B			
Approach Delay		16.9			18.0			18.5			
Approach LOS		B			B			B			
Queue Length 50th (ft)	63	47	85	24	130	90	93	75			
Queue Length 95th (ft)	127	83	126	53	210	167	151	130			
Internal Link Dist (ft)		458			408			365		404	
Turn Bay Length (ft)	75	75	350	220		100	150				
Base Capacity (vph)	411	851	1507	516	1842	910	1079	2250			
Starvation Cap Reductn	0	0	0	0	0	96	0	0			
Spillback Cap Reductn	0	0	0	0	0	0	0	0			
Storage Cap Reductn	0	0	0	0	0	0	0	0			
Reduced v/c Ratio	0.34	0.25	0.41	0.31	0.34	0.46	0.43	0.23			
Intersection Summary											
Cycle Length: 123											
Actuated Cycle Length: 75.9											
Natural Cycle: 80											
Control Type: Semi Act-Uncoord											
Maximum v/c Ratio: 0.55											
Intersection Signal Delay: 17.8						Intersection LOS: B					
Intersection Capacity Utilization 48.6%						ICU Level of Service A					
Analysis Period (min) 15											

8/25/2009

Dutt Tarigoppula
Eschbacher EngineeringGlen Isle - FEIS
Lanes, Volumes, Timings

Splits and Phases: 4: Pratt Blvd & Glen Cove Avenue

 Ø1	 Ø2	 Ø4
31 s	66 s	26 s
 Ø5	 Ø6	
18 s	79 s	

6: Charles Street & Glen Cove Avenue

No Build 2016

PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	135	43	207	41	0	40	0	995	40	23	737	0
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.25	0.92	0.25	0.94	0.94	0.92	0.92	0.25
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	147	47	225	0	88	0	0	1102	0	25	801	0
Turn Type	Perm		Perm	Perm						Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8						6		
Detector Phases	4	4	4	8	8			2		6	6	
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0			20.0		20.0	20.0	
Minimum Split (s)	12.0	12.0	12.0	12.0	12.0			26.0		26.0	26.0	
Total Split (s)	37.0	37.0	37.0	37.0	37.0	0.0	0.0	43.0	0.0	43.0	43.0	0.0
Total Split (%)	46.3%	46.3%	46.3%	46.3%	46.3%	0.0%	0.0%	53.8%	0.0%	53.8%	53.8%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0			4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0			2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None			Min		Min	Min	
Act Effct Green (s)	13.0	13.0	13.0		13.0			30.1		30.1	30.1	
Actuated g/C Ratio	0.26	0.26	0.26		0.26			0.62		0.62	0.62	
v/c Ratio	0.42	0.10	0.45		0.20			0.52		0.15	0.39	
Control Delay	16.9	12.2	9.2		8.6			7.9		9.5	6.9	
Queue Delay	0.0	0.0	0.0		0.0			0.0		0.0	0.0	
Total Delay	16.9	12.2	9.2		8.6			8.0		9.5	6.9	
LOS	B	B	A		A			A		A	A	
Approach Delay		12.2			8.6			8.0			7.0	
Approach LOS		B			A			A			A	
Queue Length 50th (ft)	28	8	18		8			80		3	52	
Queue Length 95th (ft)	73	28	65		2			174		17	116	
Internal Link Dist (ft)		349			162			294			408	
Turn Bay Length (ft)	250									125		
Base Capacity (vph)	650	886	819		763			2457		189	2388	
Starvation Cap Reductn	0	0	0		0			61		0	0	
Spillback Cap Reductn	0	0	0		0			0		0	0	
Storage Cap Reductn	0	0	0		0			0		0	0	
Reduced v/c Ratio	0.23	0.05	0.27		0.12			0.46		0.13	0.34	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 48.4

Natural Cycle: 40

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.52

Intersection Signal Delay: 8.4

Intersection LOS: A

Intersection Capacity Utilization 48.5%

ICU Level of Service A

Analysis Period (min) 15

8/25/2009

Dutt Tarigoppula

Eschbacher Engineering

Glen Isle - FEIS
Lanes, Volumes, Timings

Splits and Phases: 6: Charles Street & Glen Cove Avenue

 ø2	 ø4
43 s	37 s
 ø6	 ø8
43 s	37 s

7: Morris Avenue & Glen Cove Avenue

No Build 2016

PM Peak



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	84	27	11	778	804	38
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.96	0.96	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	5%	5%	5%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Lane Group Flow (vph)	91	29	11	810	915	0
Turn Type	Perm		Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Detector Phases	4	4	2	2	6	
Minimum Initial (s)	8.0	8.0	20.0	20.0	20.0	
Minimum Split (s)	20.0	20.0	30.0	30.0	30.0	
Total Split (s)	37.0	37.0	43.0	43.0	43.0	0.0
Total Split (%)	46.3%	46.3%	53.8%	53.8%	53.8%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	Min	Min	Min	
Act Effct Green (s)	13.3	13.3	42.5	42.5	42.5	
Actuated g/C Ratio	0.21	0.21	0.72	0.72	0.72	
v/c Ratio	0.27	0.09	0.04	0.34	0.38	
Control Delay	13.9	6.0	5.4	4.8	5.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	13.9	6.0	5.4	4.8	5.0	
LOS	B	A	A	A	A	
Approach Delay	12.0			4.8	5.0	
Approach LOS	B			A	A	
Queue Length 50th (ft)	16	0	1	47	55	
Queue Length 95th (ft)	41	12	6	87	102	
Internal Link Dist (ft)	135			701	294	
Turn Bay Length (ft)	150		75			
Base Capacity (vph)	711	653	304	2671	2654	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	2	0	0	5	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.13	0.04	0.04	0.30	0.34	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 58.9

Natural Cycle: 50

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.38

Intersection Signal Delay: 5.4

Intersection LOS: A

Intersection Capacity Utilization 36.8%

ICU Level of Service A

Analysis Period (min) 15

9/9/2009

Dutt Tarigoppula
Eschbacher EngineeringGlen Isle - FEIS
Lanes, Volumes, Timings

Splits and Phases: 7: Morris Avenue & Glen Cove Avenue

 Ø2	 Ø4
43 s	37 s
 Ø6	
43 s	

2: Herb Hill Road & Brewster Street

No Build 2016

PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR	SBL
Lane Configurations												
Volume (vph)	37	28	30	12	2	58	67	6	277	941	32	23
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.96	0.96	0.96	0.96	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%					0%		
Lane Group Flow (vph)	40	63	0	0	151	0	0	0	295	1013	0	25
Turn Type	Perm			Perm				pm+pt	pm+pt			Perm
Protected Phases		4			8			5	5	2		
Permitted Phases	4			8				2	2			6
Detector Phases	4	4		8	8			5	5	2		6
Minimum Initial (s)	8.0	8.0		8.0	8.0			3.0	3.0	20.0		20.0
Minimum Split (s)	28.0	28.0		25.0	25.0			7.0	7.0	26.0		26.0
Total Split (s)	31.0	31.0	0.0	31.0	31.0	0.0	0.0	19.0	19.0	49.0	0.0	30.0
Total Split (%)	38.8%	38.8%	0.0%	38.8%	38.8%	0.0%	0.0%	23.8%	23.8%	61.3%	0.0%	37.5%
Yellow Time (s)	4.0	4.0		4.0	4.0			3.0	3.0	4.0		4.0
All-Red Time (s)	2.0	2.0		2.0	2.0			1.0	1.0	2.0		2.0
Lead/Lag								Lead	Lead			Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None			None	None	C-Min		C-Min
Act Effct Green (s)	12.3	12.3			12.3			59.7	59.7			42.3
Actuated g/C Ratio	0.15	0.15			0.15			0.75	0.75			0.53
v/c Ratio	0.23	0.23			0.50			0.71	0.40			0.10
Control Delay	32.1	18.4			23.9			20.2	4.4			4.7
Queue Delay	0.0	0.0			0.0			0.0	0.3			0.0
Total Delay	32.1	18.4			23.9			20.2	4.8			4.7
LOS	C	B			C			C	A			A
Approach Delay		23.7			23.9				8.2			
Approach LOS		C			C				A			
Queue Length 50th (ft)	18	13			40			59	70			2
Queue Length 95th (ft)	43	44			89			141	128			m4
Internal Link Dist (ft)		605			24				365			
Turn Bay Length (ft)								200				220
Base Capacity (vph)	376	562			583			471	2556			262
Starvation Cap Reductn	0	0			0			0	855			0
Spillback Cap Reductn	0	0			0			0	0			0
Storage Cap Reductn	0	0			0			0	0			0
Reduced v/c Ratio	0.11	0.11			0.26			0.63	0.60			0.10

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green, Master Intersection

Natural Cycle: 70

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.71

Intersection Signal Delay: 8.6

Intersection LOS: A

Intersection Capacity Utilization 68.9%

ICU Level of Service C

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

8/25/2009

Dutt Tarigoppula

Eschbacher Engineering

Glen Isle - FEIS
Lanes, Volumes, Timings

Splits and Phases: 2: Herb Hill Road & Brewster Street

 02	 04
49 s	31 s
 05	 08
19 s	31 s



Lane Group	SBT	SBR	SBR2
Lane Configurations			
Volume (vph)	883	9	24
Confl. Peds. (#/hr)			
Confl. Bikes (#/hr)			
Peak Hour Factor	0.93	0.93	0.93
Growth Factor	100%	100%	100%
Heavy Vehicles (%)	5%	5%	5%
Bus Blockages (#/hr)	0	0	0
Parking (#/hr)			
Mid-Block Traffic (%)	0%		
Lane Group Flow (vph)	985	0	0
Turn Type			
Protected Phases	6		
Permitted Phases			
Detector Phases	6		
Minimum Initial (s)	20.0		
Minimum Split (s)	26.0		
Total Split (s)	30.0	0.0	0.0
Total Split (%)	37.5%	0.0%	0.0%
Yellow Time (s)	4.0		
All-Red Time (s)	2.0		
Lead/Lag	Lag		
Lead-Lag Optimize?			
Recall Mode	C-Min		
Act Effct Green (s)	42.3		
Actuated g/C Ratio	0.53		
v/c Ratio	0.54		
Control Delay	5.3		
Queue Delay	0.0		
Total Delay	5.3		
LOS	A		
Approach Delay	5.3		
Approach LOS	A		
Queue Length 50th (ft)	32		
Queue Length 95th (ft)	176		
Internal Link Dist (ft)	354		
Turn Bay Length (ft)			
Base Capacity (vph)	1809		
Starvation Cap Reductn	0		
Spillback Cap Reductn	0		
Storage Cap Reductn	0		
Reduced v/c Ratio	0.54		

Intersection Summary



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	390	47	46	641	682	313
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.95	0.95	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	5%	5%	5%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Lane Group Flow (vph)	424	51	48	675	1081	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Detector Phases	4	4	2	2	6	
Minimum Initial (s)	8.0	8.0	20.0	20.0	20.0	
Minimum Split (s)	14.0	14.0	26.0	26.0	26.0	
Total Split (s)	25.0	25.0	55.0	55.0	55.0	0.0
Total Split (%)	31.3%	31.3%	68.8%	68.8%	68.8%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	Min	Min	Min	
Act Effct Green (s)	19.3	19.3	23.4	23.4	23.4	
Actuated g/C Ratio	0.38	0.38	0.46	0.46	0.46	
v/c Ratio	0.63	0.08	0.29	0.44	0.69	
Control Delay	18.2	4.5	14.4	10.6	11.9	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	18.2	4.5	14.4	10.6	11.9	
LOS	B	A	B	B	B	
Approach Delay	16.7			10.9	11.9	
Approach LOS	B			B	B	
Queue Length 50th (ft)	93	0	9	71	108	
Queue Length 95th (ft)	203	18	30	105	166	
Internal Link Dist (ft)	273			201	357	
Turn Bay Length (ft)			150			
Base Capacity (vph)	711	688	238	2165	2128	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.60	0.07	0.20	0.31	0.51	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 50.7

Natural Cycle: 45

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.69

Intersection Signal Delay: 12.6

Intersection LOS: B

Intersection Capacity Utilization 66.5%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 8: Shore Road & Glen Cove Avenue

 Ø2	 Ø4
55 s	25 s
 Ø6	
55 s	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	24	118	35	104	63	116	35	356	126	105	296	46
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	5%	5%	5%	5%	5%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	26	166	0	113	194	0	0	562	0	0	486	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	4	4		8	8		2	2		6	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0		20.0	20.0		20.0	20.0	
Minimum Split (s)	10.0	10.0		10.0	10.0		26.0	26.0		26.0	26.0	
Total Split (s)	26.0	26.0	0.0	26.0	26.0	0.0	44.0	44.0	0.0	44.0	44.0	0.0
Total Split (%)	37.1%	37.1%	0.0%	37.1%	37.1%	0.0%	62.9%	62.9%	0.0%	62.9%	62.9%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)	14.3	14.3		14.3	14.3		36.2			36.2		
Actuated g/C Ratio	0.24	0.24		0.24	0.24		0.64			0.64		
v/c Ratio	0.10	0.35		0.47	0.42		0.47			0.57		
Control Delay	16.0	15.3		22.8	9.4		8.0			10.9		
Queue Delay	0.0	0.0		0.0	0.0		0.0			0.0		
Total Delay	16.0	15.3		22.8	9.4		8.0			10.9		
LOS	B	B		C	A		A			B		
Approach Delay		15.4			14.4		8.0			10.9		
Approach LOS		B			B		A			B		
Queue Length 50th (ft)	4	26		21	12		71			71		
Queue Length 95th (ft)	24	90		80	67		200			220		
Internal Link Dist (ft)		645			488		861			659		
Turn Bay Length (ft)	150			200								
Base Capacity (vph)	372	670		345	600		1315			942		
Starvation Cap Reductn	0	0		0	0		0			0		
Spillback Cap Reductn	0	0		0	0		0			0		
Storage Cap Reductn	0	0		0	0		0			0		
Reduced v/c Ratio	0.07	0.25		0.33	0.32		0.43			0.52		

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 56.4

Natural Cycle: 40

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.57

Intersection Signal Delay: 11.1

Intersection LOS: B

Intersection Capacity Utilization 77.6%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 92: Sea Cliff Avenue & Glen Cove Avenue

 ø2	 ø4
44 s	26 s
 ø6	 ø8
44 s	26 s

9: Glenwood Road/Glen Head Road & Glen Cove Avenue

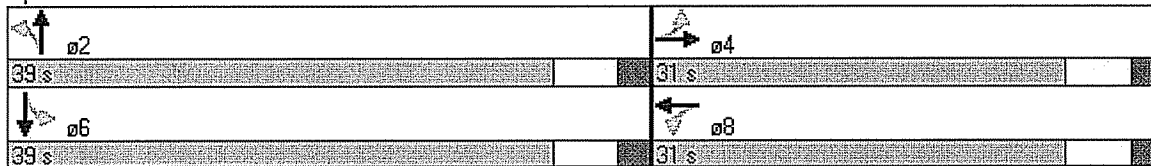
No Build 2016

PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	82	170	48	117	148	274	32	470	96	216	406	57
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.96	0.96	0.96	0.96	0.96	0.96	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	326	0	0	561	0	33	590	0	235	503	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	4	4		8	8		2	2		6	6	
Minimum Initial (s)	8.0	8.0		8.0	8.0		20.0	20.0		20.0	20.0	
Minimum Split (s)	26.0	26.0		26.0	26.0		26.0	26.0		26.0	26.0	
Total Split (s)	31.0	31.0	0.0	31.0	31.0	0.0	39.0	39.0	0.0	39.0	39.0	0.0
Total Split (%)	44.3%	44.3%	0.0%	44.3%	44.3%	0.0%	55.7%	55.7%	0.0%	55.7%	55.7%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)		24.5			24.5		35.1	35.1		35.1	35.1	
Actuated g/C Ratio		0.36			0.36		0.52	0.52		0.52	0.52	
v/c Ratio		0.61			0.87		0.10	0.58		0.97	0.56	
Control Delay		22.3			33.1		10.3	14.3		73.4	14.4	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		22.3			33.1		10.3	14.3		73.4	14.4	
LOS		C			C		B	B		E	B	
Approach Delay		22.3			33.1			14.1			33.2	
Approach LOS		C			C			B			C	
Queue Length 50th (ft)		102			181		7	164		~96	138	
Queue Length 95th (ft)		181			#358		21	259		#236	227	
Internal Link Dist (ft)		131			160			206			218	
Turn Bay Length (ft)							75			125		
Base Capacity (vph)		564			681		327	1017		243	898	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.58			0.82		0.10	0.58		0.97	0.56	
Intersection Summary												
Cycle Length: 70												
Actuated Cycle Length: 67.7												
Natural Cycle: 65												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 0.97												
Intersection Signal Delay: 26.3						Intersection LOS: C						
Intersection Capacity Utilization 95.7%						ICU Level of Service F						
Analysis Period (min) 15												
~ Volume exceeds capacity, queue is theoretically infinite.												
Queue shown is maximum after two cycles.												
# 95th percentile volume exceeds capacity, queue may be longer.												

Queue shown is maximum after two cycles.

Splits and Phases: 9: Glenwood Road/Glen Head Road & Glen Cove Avenue



	↑	↖	↗	↓	↙	↘
Lane Group	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations	↑↑		↖	↑↑		
Volume (vph)	1506	0	598	1252	0	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Lane Group Flow (vph)	1637	0	650	1361	0	0
Turn Type			Prot			
Protected Phases	2		4	2 4		
Permitted Phases						
Detector Phases	2		4	2 4		
Minimum Initial (s)	20.0		10.0			
Minimum Split (s)	27.0		17.0			
Total Split (s)	67.0	0.0	42.0	109.0	0.0	0.0
Total Split (%)	61.5%	0.0%	38.5%	100.0%	0.0%	0.0%
Yellow Time (s)	4.0		4.0			
All-Red Time (s)	3.0		3.0			
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	Max		None			
Act Effct Green (s)	63.0		38.0	109.0		
Actuated g/C Ratio	0.58		0.35	1.00		
v/c Ratio	0.80		0.99	0.38		
Control Delay	21.9		68.5	0.3		
Queue Delay	0.0		0.0	0.0		
Total Delay	21.9		68.5	0.3		
LOS	C		E	A		
Approach Delay	21.9			22.3		
Approach LOS	C			C		
Queue Length 50th (ft)	445		448	0		
Queue Length 95th (ft)	546		#690	0		
Internal Link Dist (ft)	495			382	312	
Turn Bay Length (ft)			375			
Base Capacity (vph)	2045		658	3539		
Starvation Cap Reductn	0		0	0		
Spillback Cap Reductn	0		0	0		
Storage Cap Reductn	0		0	0		
Reduced v/c Ratio	0.80		0.99	0.38		

Intersection Summary	
Cycle Length: 109	
Actuated Cycle Length: 109	
Natural Cycle: 65	
Control Type: Semi Act-Uncoord	
Maximum v/c Ratio: 0.99	
Intersection Signal Delay: 22.1	Intersection LOS: C
Intersection Capacity Utilization 81.4%	ICU Level of Service D
Analysis Period (min) 15	
# 95th percentile volume exceeds capacity, queue may be longer.	
Queue shown is maximum after two cycles.	

Splits and Phases: 5: Glen Cove Road & Route 107

 ø2	 ø4
67 s	42 s

3: Glen Head Road & Glen Cove Road

No Build 2016

PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	246	273	19	54	274	17	37	1243	63	12	1027	213
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	267	297	21	0	375	0	40	1351	68	13	1348	0
Turn Type	Split		Free	Split			Perm		Perm	Perm		
Protected Phases	4	4		8	8			2			6	
Permitted Phases			Free				2		2	6		
Detector Phases	4	4		8	8		2	2	2	6	6	
Minimum Initial (s)	8.0	8.0		8.0	8.0		20.0	20.0	20.0	20.0	20.0	
Minimum Split (s)	26.0	26.0		27.0	27.0		27.0	27.0	27.0	27.0	27.0	
Total Split (s)	34.0	34.0	0.0	34.0	34.0	0.0	72.0	72.0	72.0	72.0	72.0	0.0
Total Split (%)	24.3%	24.3%	0.0%	24.3%	24.3%	0.0%	51.4%	51.4%	51.4%	51.4%	51.4%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	
Act Effct Green (s)	26.7	26.7	125.5		29.1		57.3	57.3	57.3	57.3	57.3	
Actuated g/C Ratio	0.21	0.21	1.00		0.23		0.46	0.46	0.46	0.46	0.46	
v/c Ratio	0.77	0.82	0.01		0.88		0.62	0.81	0.10	0.23	0.85	
Control Delay	64.5	67.5	0.0		71.2		71.5	33.9	20.3	33.2	35.7	
Queue Delay	0.0	0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	64.5	67.5	0.0		71.2		71.5	33.9	20.3	33.2	35.7	
LOS	E	E	A		E		E	C	C	C	D	
Approach Delay		63.7			71.2			34.3			35.7	
Approach LOS		E			E			C			D	
Queue Length 50th (ft)	218	246	0		322		26	516	33	7	524	
Queue Length 95th (ft)	#358	#405	0		#541		#95	608	62	26	621	
Internal Link Dist (ft)		203			244			256			523	
Turn Bay Length (ft)			75				200		75	150		
Base Capacity (vph)	383	403	1553		443		70	1839	743	62	1746	
Starvation Cap Reductn	0	0	0		0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0		0		0	0	0	0	0	
Storage Cap Reductn	0	0	0		0		0	0	0	0	0	
Reduced v/c Ratio	0.70	0.74	0.01		0.85		0.57	0.73	0.09	0.21	0.77	

Intersection Summary

Cycle Length: 140

Actuated Cycle Length: 125.5

Natural Cycle: 90

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.88

Intersection Signal Delay: 43.0

Intersection LOS: D

Intersection Capacity Utilization 78.0%

ICU Level of Service D

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

8/25/2009

Dutt Tarigoppula

Eschbacher Engineering

Glen Isle - FEIS
Lanes, Volumes, Timings

Splits and Phases: 3: Glen Head Road & Glen Cove Road

  ø2	  ø4	  ø8
72 s	34 s	34 s
  ø6		
72 s		

2: Back Road & Glen Cove Road

No Build 2016

PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	172	4	286	3	3	4	432	1766	7	8	1222	177
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.96	0.96	0.96	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	191	311	0	10	0	450	1847	0	9	1314	190
Turn Type	Split		pt+ov	Split			Prot			Perm		pm+ov
Protected Phases	3	3	3 5	4	4		5	2			6	3
Permitted Phases										6		6
Detector Phases	3	3	3 5	4	4		5	2		6	6	3
Minimum Initial (s)	8.0	8.0		8.0	8.0		5.0	10.0		10.0	10.0	8.0
Minimum Split (s)	24.0	24.0		38.3	38.3		12.8	24.8		24.8	24.8	24.0
Total Split (s)	25.5	25.5	61.5	38.3	38.3	0.0	36.0	94.8	0.0	58.8	58.8	25.5
Total Split (%)	16.1%	16.1%	38.8%	24.1%	24.1%	0.0%	22.7%	59.8%	0.0%	37.1%	37.1%	16.1%
Yellow Time (s)	3.5	3.5		3.5	3.5		4.0	4.0		4.0	4.0	3.5
All-Red Time (s)	2.0	2.0		4.8	4.8		2.0	4.8		4.8	4.8	2.0
Lead/Lag	Lead	Lead		Lag	Lag		Lead			Lag	Lag	Lead
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	Max		Max	Max	None
Act Effct Green (s)		19.7	55.1		12.3		32.1	91.2		55.0	55.0	78.7
Actuated g/C Ratio		0.16	0.45		0.09		0.26	0.75		0.45	0.45	0.65
v/c Ratio		0.75	0.38		0.06		0.85	0.70		0.16	0.82	0.19
Control Delay		67.7	3.3		45.6		59.5	11.1		32.6	35.4	3.5
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		67.7	3.3		45.6		59.5	11.1		32.6	35.4	3.5
LOS		E	A		D		E	B		C	D	A
Approach Delay		27.8			45.6			20.6			31.3	
Approach LOS		C			D			C			C	
Queue Length 50th (ft)		147	0		4		332	332		4	454	13
Queue Length 95th (ft)		#295	46		24		#610	662		22	#725	52
Internal Link Dist (ft)		345			160			143			316	
Turn Bay Length (ft)												
Base Capacity (vph)		276	818		421		529	2647		55	1599	1012
Starvation Cap Reductn		0	0		0		0	0		0	0	0
Spillback Cap Reductn		0	0		0		0	0		0	0	0
Storage Cap Reductn		0	0		0		0	0		0	0	0
Reduced v/c Ratio		0.69	0.38		0.02		0.85	0.70		0.16	0.82	0.19

Intersection Summary

Cycle Length: 158.6

Actuated Cycle Length: 121.8

Natural Cycle: 150

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.85

Intersection Signal Delay: 25.2

Intersection LOS: C

Intersection Capacity Utilization 89.9%

ICU Level of Service E

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

8/25/2009

Dutt Tarigoppula

Eschbacher Engineering

Glen Isle - FEIS
Lanes, Volumes, Timings

Splits and Phases: 2: Back Road & Glen Cove Road

 ø2	 ø3	 ø4
94.8 s	25.5 s	38.3 s
 ø5	 ø6	
36 s	58.8 s	

3: Pratt Blvd & Bridge Street

No Build 2016

PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	89	746	17	61	689	77	24	53	56	150	46	141
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	5%	5%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	97	829	0	66	833	0	26	119	0	0	213	153
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		4
Detector Phases	2	2		6	6		8	8		4	4	4
Minimum Initial (s)	5.0	5.0		5.0	5.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	26.0	26.0		26.0	26.0		25.5	25.5		25.5	25.5	25.5
Total Split (s)	43.5	43.5	0.0	43.5	43.5	0.0	26.5	26.5	0.0	26.5	26.5	26.5
Total Split (%)	62.1%	62.1%	0.0%	62.1%	62.1%	0.0%	37.9%	37.9%	0.0%	37.9%	37.9%	37.9%
Yellow Time (s)	4.0	4.0		4.0	4.0		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Min	Min		Min	Min		None	None		None	None	None
Act Effct Green (s)	33.4	33.4		33.4	33.4		15.4	15.4			15.4	15.4
Actuated g/C Ratio	0.62	0.62		0.62	0.62		0.27	0.27			0.27	0.27
v/c Ratio	0.31	0.40		0.22	0.41		0.10	0.25			0.61	0.29
Control Delay	11.2	7.7		9.6	7.5		15.7	9.6			24.1	4.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Total Delay	11.2	7.7		9.6	7.5		15.7	9.6			24.1	4.9
LOS	B	A		A	A		B	A			C	A
Approach Delay		8.0			7.7			10.7			16.1	
Approach LOS		A			A			B			B	
Queue Length 50th (ft)	13	64		9	62		5	11			45	0
Queue Length 95th (ft)	53	137		35	135		24	52			138	36
Internal Link Dist (ft)		458			137			80			142	
Turn Bay Length (ft)	120											
Base Capacity (vph)	351	2308		341	2287		356	626			464	660
Starvation Cap Reductn	0	0		0	0		0	0			0	0
Spillback Cap Reductn	0	0		0	0		0	0			0	0
Storage Cap Reductn	0	0		0	0		0	0			0	0
Reduced v/c Ratio	0.28	0.36		0.19	0.36		0.07	0.19			0.46	0.23

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 53.9

Natural Cycle: 55

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.61

Intersection Signal Delay: 9.3

Intersection Capacity Utilization 53.8%

Analysis Period (min) 15

Intersection LOS: A

ICU Level of Service A

8/25/2009

Dutt Tarigoppula

Eschbacher Engineering

Glen Isle - FEIS
Lanes, Volumes, Timings

Splits and Phases: 3: Pratt Blvd & Bridge Street

 ø2	 ø4
43.5 s	26.5 s
 ø6	 ø8
43.5 s	26.5 s

1: Cottage Row Road & Brewster Street

No Build 2016

PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	138	160	207	30	193	318	158	924	112	231	865	184
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	324	225	0	243	346	170	1114	0	251	1140	0
Turn Type	Perm		Free	Perm		Perm	pm+pt			pm+pt		
Protected Phases		3			7		5	2		1	6	
Permitted Phases	3		Free	7		7	2			6		
Detector Phases	3	3		7	7	7	5	2		1	6	
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0	4.0	20.0		4.0	20.0	
Minimum Split (s)	28.0	28.0		28.0	28.0	28.0	8.0	26.0		8.0	26.0	
Total Split (s)	31.0	31.0	0.0	31.0	31.0	31.0	12.0	37.0	0.0	12.0	37.0	0.0
Total Split (%)	38.8%	38.8%	0.0%	38.8%	38.8%	38.8%	15.0%	46.3%	0.0%	15.0%	46.3%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	3.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	1.0	2.0		1.0	2.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None		None	None	None	None	C-Min		None	C-Min	
Act Effct Green (s)		24.7	80.0		24.7	24.7	40.1	32.5		44.9	35.7	
Actuated g/C Ratio		0.31	1.00		0.31	0.31	0.50	0.41		0.56	0.45	
v/c Ratio		0.83	0.14		0.46	0.70	0.74	0.82		0.81	0.76	
Control Delay		44.1	0.2		24.6	32.5	30.2	25.4		41.3	23.2	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		44.1	0.2		24.6	32.5	30.2	25.4		41.3	23.2	
LOS		D	A		C	C	C	C		D	C	
Approach Delay		26.1			29.2			26.1			26.5	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)		138	0		90	140	44	263		82	261	
Queue Length 95th (ft)		#271	0		156	235	#119	335		#229	336	
Internal Link Dist (ft)		294			184			618			362	
Turn Bay Length (ft)			250			100	175			175		
Base Capacity (vph)		432	1636		589	541	240	1404		309	1506	
Starvation Cap Reductn		0	0		0	0	0	0		0	0	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.75	0.14		0.41	0.64	0.71	0.79		0.81	0.76	
Intersection Summary												
Cycle Length: 80												
Actuated Cycle Length: 80												
Offset: 30 (38%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green												
Natural Cycle: 75												
Control Type: Actuated-Coordinated												
Maximum v/c Ratio: 0.83												
Intersection Signal Delay: 26.7						Intersection LOS: C						
Intersection Capacity Utilization 83.1%						ICU Level of Service E						
Analysis Period (min) 15												
# 95th percentile volume exceeds capacity, queue may be longer.												
Queue shown is maximum after two cycles.												

Splits and Phases: 1: Cottage Row Road & Brewster Street

 ø1	 ø2	 ø3
12 s	37 s	31 s
 ø5	 ø6	 ø7
12 s	37 s	31 s

5: Herb Hill Road & Charles Street

No Build 2016

PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	4	39	148	1	11	2	59	176	3	45	219	5
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	46	161	0	15	0	64	191	3	49	243	0
Turn Type	Perm		pt+ov	Perm			Split		Perm	Split		
Protected Phases		4	4 6		8		6	6		2	2	
Permitted Phases	4			8					6			
Detector Phases	4	4	4 6	8	8		6	6	6	2	2	
Minimum Initial (s)	8.0	8.0		8.0	8.0		25.0	25.0	25.0	8.0	8.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		31.0	31.0	31.0	14.0	14.0	
Total Split (s)	26.0	26.0	57.0	26.0	26.0	0.0	31.0	31.0	31.0	31.0	31.0	0.0
Total Split (%)	29.5%	29.5%	64.8%	29.5%	29.5%	0.0%	35.2%	35.2%	35.2%	35.2%	35.2%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min	Min	None	None	
Act Effct Green (s)		10.3	44.3		10.3		32.9	32.9	32.9	15.8	15.8	
Actuated g/C Ratio		0.16	0.65		0.16		0.52	0.52	0.52	0.24	0.24	
v/c Ratio		0.16	0.13		0.05		0.07	0.20	0.00	0.12	0.56	
Control Delay		26.9	1.5		24.2		13.6	14.2	10.0	19.4	26.2	
Queue Delay		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		26.9	1.5		24.2		13.6	14.2	10.0	19.4	26.2	
LOS		C	A		C		B	B	A	B	C	
Approach Delay		7.2			24.2			14.0			25.1	
Approach LOS		A			C			B			C	
Queue Length 50th (ft)		16	0		4		15	47	0	15	84	
Queue Length 95th (ft)		46	21		21		42	106	5	39	149	
Internal Link Dist (ft)		1067			319			407			212	
Turn Bay Length (ft)									125	125		
Base Capacity (vph)		524	1272		518		928	976	831	604	634	
Starvation Cap Reductn		0	0		0		0	0	0	0	0	
Spillback Cap Reductn		0	0		0		0	0	0	0	0	
Storage Cap Reductn		0	0		0		0	0	0	0	0	
Reduced v/c Ratio		0.09	0.13		0.03		0.07	0.20	0.00	0.08	0.38	
Intersection Summary												
Cycle Length: 88												
Actuated Cycle Length: 62.7												
Natural Cycle: 65												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 0.56												
Intersection Signal Delay: 16.6						Intersection LOS: B						
Intersection Capacity Utilization 49.3%						ICU Level of Service A						
Analysis Period (min) 15												

Splits and Phases: 5: Herb Hill Road & Charles Street

 ø2	 ø6	 ø4
31 s	31 s	26 s
		 ø8 26 s

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	234	512	23	4	473	6	21	12	7	4	2	200
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.94	0.94	0.94	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	249	569	0	0	525	0	0	44	0	0	6	217
Turn Type	pm+pt			Perm			Perm			Perm		Free
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6			8			4		Free
Detector Phases	5	2		6	6		8	8		4	4	
Minimum Initial (s)	4.0	20.0		20.0	20.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	8.0	26.0		26.0	26.0		10.0	10.0		10.0	10.0	
Total Split (s)	9.0	65.0	0.0	56.0	56.0	0.0	15.0	15.0	0.0	15.0	15.0	0.0
Total Split (%)	11.3%	81.3%	0.0%	70.0%	70.0%	0.0%	18.8%	18.8%	0.0%	18.8%	18.8%	0.0%
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?												
Recall Mode	None	Min		Min	Min		None	None		None	None	
Act Effct Green (s)	37.2	40.0			30.2			8.7			8.6	46.0
Actuated g/C Ratio	0.78	0.87			0.66			0.16			0.16	1.00
v/c Ratio	0.38	0.38			0.44			0.16			0.02	0.13
Control Delay	4.2	3.4			8.1			18.0			19.2	0.2
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	4.2	3.4			8.1			18.0			19.2	0.2
LOS	A	A			A			B			B	A
Approach Delay		3.7			8.1			18.0			0.7	
Approach LOS		A			A			B			A	
Queue Length 50th (ft)	0	0			36			5			1	0
Queue Length 95th (ft)	49	127			189			34			10	0
Internal Link Dist (ft)		631			639			463			627	
Turn Bay Length (ft)												25
Base Capacity (vph)	648	1580			1409			337			337	1689
Starvation Cap Reductn	0	0			0			0			0	0
Spillback Cap Reductn	0	0			0			0			0	0
Storage Cap Reductn	0	0			0			0			0	0
Reduced v/c Ratio	0.38	0.36			0.37			0.13			0.02	0.13
Intersection Summary												
Cycle Length: 80												
Actuated Cycle Length: 46												
Natural Cycle: 45												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 0.44												
Intersection Signal Delay: 5.1						Intersection LOS: A						
Intersection Capacity Utilization 72.7%						ICU Level of Service C						
Analysis Period (min) 15												

Splits and Phases: 91: Forest Avenue & Lattingtown Road

 ø2		 ø4	
65 s		15 s	
 ø5	 ø6	 ø8	
9 s	56 s	15 s	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	494	1139	119	412	792	110	184	994	242	39	947	300
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.94	0.94	0.94	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	526	1339	0	448	981	0	200	1080	263	41	997	316
Turn Type	Prot			Prot			Prot		pt+ov	Prot		pt+ov
Protected Phases	5	2		1	6		7	4	4 1	3	8	8 5
Permitted Phases												
Detector Phases	5	2		1	6		7	4	4 1	3	8	8 5
Minimum Initial (s)	8.0	24.0		5.0	24.0		7.0	20.0		3.0	20.0	
Minimum Split (s)	13.0	37.5		10.0	37.5		13.0	34.3		9.0	34.3	
Total Split (s)	23.5	39.3	0.0	23.5	39.3	0.0	17.7	49.5	73.0	17.7	49.5	73.0
Total Split (%)	18.1%	30.2%	0.0%	18.1%	30.2%	0.0%	13.6%	38.1%	56.2%	13.6%	38.1%	56.2%
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.3		3.0	4.3	
All-Red Time (s)	2.0	2.5		2.0	2.5		3.0	3.0		3.0	3.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	20.3	35.9		19.7	35.3		13.7	50.1	73.9	10.6	44.7	69.0
Actuated g/C Ratio	0.16	0.28		0.15	0.27		0.11	0.39	0.57	0.08	0.34	0.53
v/c Ratio	1.02	1.39		0.92	1.08		1.15	0.82	0.31	0.31	0.85	0.22
Control Delay	97.3	218.6		79.6	97.1		164.7	42.8	16.9	61.4	47.4	16.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	97.3	218.6		79.6	97.1		164.7	42.8	16.9	61.4	47.4	16.7
LOS	F	F		E	F		F	D	B	E	D	B
Approach Delay		184.4			91.6			54.2			40.7	
Approach LOS		F			F			D			D	
Queue Length 50th (ft)	~250	~797		194	~483		~198	434	115	33	403	77
Queue Length 95th (ft)	#364	#936		#295	#617		#355	#580	184	70	492	109
Internal Link Dist (ft)		319			439			466			338	
Turn Bay Length (ft)	425			300			300		420	325		300
Base Capacity (vph)	518	963		487	912		174	1320	840	174	1197	1430
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	1.02	1.39		0.92	1.08		1.15	0.82	0.31	0.24	0.83	0.22
Intersection Summary												
Cycle Length: 130												
Actuated Cycle Length: 130												
Offset: 117 (90%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow												
Natural Cycle: 120												
Control Type: Actuated-Coordinated												
Maximum v/c Ratio: 1.39												
Intersection Signal Delay: 99.1						Intersection LOS: F						
Intersection Capacity Utilization 96.7%						ICU Level of Service F						
Analysis Period (min) 15												
~ Volume exceeds capacity, queue is theoretically infinite.												
Queue shown is maximum after two cycles.												

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 8: Northern Boulevard & Glen Cove Road

 Ø1	 Ø2	 Ø3	 Ø4
23.5 s	39.3 s	17.7 s	49.5 s
 Ø5	 Ø6	 Ø7	 Ø8
23.5 s	39.3 s	17.7 s	49.5 s

1: Driveway/Witte Lane & Bryant Avenue

No Build 2016

PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	3	3	25	193	1	30	1	796	26	178	379	1
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.96	0.96	0.96	0.97	0.97	0.97
Growth Factor	50%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	32	0	210	34	0	0	857	0	184	392	0
Turn Type	Perm			Perm			Perm			pm+pt		
Protected Phases		8			4			2		1	6	
Permitted Phases	8			4			2			6		
Detector Phases	8	8		4	4		2	2		1	6	
Minimum Initial (s)	12.0	12.0		12.0	12.0		45.0	45.0		4.0	45.0	
Minimum Split (s)	17.5	17.5		17.5	17.5		50.0	50.0		9.0	50.0	
Total Split (s)	25.0	25.0	0.0	25.0	25.0	0.0	56.0	56.0	0.0	9.0	65.0	0.0
Total Split (%)	27.8%	27.8%	0.0%	27.8%	27.8%	0.0%	62.2%	62.2%	0.0%	10.0%	72.2%	0.0%
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5	1.5		1.5	1.5	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Recall Mode	None	None		None	None		None	None		None	None	
Act Effct Green (s)		18.6		18.6	18.6			49.7		58.7	58.7	
Actuated g/C Ratio		0.22		0.22	0.22			0.58		0.69	0.69	
v/c Ratio		0.08		0.75	0.10			0.82		0.52	0.34	
Control Delay		13.0		49.5	10.8			22.7		10.9	6.7	
Queue Delay		0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay		13.0		49.5	10.8			22.7		10.9	6.7	
LOS		B		D	B			C		B	A	
Approach Delay		13.0			44.1			22.7			8.0	
Approach LOS		B			D			C			A	
Queue Length 50th (ft)		2		110	0			362		33	82	
Queue Length 95th (ft)		25		#209	24			#558		58	126	
Internal Link Dist (ft)		52			208			183			261	
Turn Bay Length (ft)										125		
Base Capacity (vph)		415		309	384			1071		352	1177	
Starvation Cap Reductn		0		0	0			0		0	0	
Spillback Cap Reductn		0		0	0			0		0	0	
Storage Cap Reductn		0		0	0			0		0	0	
Reduced v/c Ratio		0.08		0.68	0.09			0.80		0.52	0.33	

Intersection Summary

Cycle Length: 90

Actuated Cycle Length: 85.3

Natural Cycle: 80

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.82

Intersection Signal Delay: 20.6

Intersection LOS: C

Intersection Capacity Utilization 108.4%

ICU Level of Service G

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

8/25/2009

Dutt Tarigoppula

Eschbacher Engineering

Glen Isle - FEIS
Lanes, Volumes, Timings

Splits and Phases: 1: Driveway/Witte Lane & Bryant Avenue

 ø1	 ø2	 ø4
9 s	56 s	25 s
 ø6		 ø8
65 s		25 s

No Build

Saturday Peak

											
Lane Group	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER
Lane Configurations											
Volume (vph)	250	43	459	148	633	386	540	570	4	0	0
Confl. Peds. (#/hr)											
Confl. Bikes (#/hr)											
Peak Hour Factor	0.92	0.92	0.92	0.96	0.96	0.96	0.97	0.97	0.97	0.25	0.25
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	5%	5%	5%	4%	4%	4%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)											
Mid-Block Traffic (%)		0%			0%			0%		0%	
Lane Group Flow (vph)	136	183	499	154	659	402	557	592	0	0	0
Turn Type	Split		pm+ov	pm+pt		pm+ov	Prot				
Protected Phases	4	4	1	5	2	4	1	6			
Permitted Phases			4	2		2					
Detector Phases	4	4	1	5	2	4	1	6			
Minimum Initial (s)	8.0	8.0	8.0	4.0	23.0	8.0	8.0	23.0			
Minimum Split (s)	22.0	22.0	15.0	10.0	41.0	22.0	15.0	41.0			
Total Split (s)	26.0	26.0	31.0	18.0	66.0	26.0	31.0	79.0	0.0	0.0	0.0
Total Split (%)	21.1%	21.1%	25.2%	14.6%	53.7%	21.1%	25.2%	64.2%	0.0%	0.0%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0			
Lead/Lag			Lead	Lead	Lag		Lead	Lag			
Lead-Lag Optimize?											
Recall Mode	None	None	Min	None	Min	None	Min	Min			
Act Effct Green (s)	16.3	16.3	43.3	35.9	25.9	46.3	22.9	41.6			
Actuated g/C Ratio	0.21	0.21	0.56	0.45	0.34	0.60	0.30	0.54			
v/c Ratio	0.42	0.27	0.33	0.35	0.59	0.47	0.58	0.33			
Control Delay	31.6	27.2	9.5	10.1	25.6	11.4	26.2	12.6			
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.2	0.0	0.0			
Total Delay	31.6	27.2	9.5	10.1	25.6	11.6	26.2	12.6			
LOS	C	C	A	B	C	B	C	B			
Approach Delay		17.1			19.0			19.2			
Approach LOS		B			B			B			
Queue Length 50th (ft)	64	41	65	23	146	107	115	87			
Queue Length 95th (ft)	127	75	102	51	224	180	186	147			
Internal Link Dist (ft)		458			408			365		404	
Turn Bay Length (ft)	75	75	350	220		100	150				
Base Capacity (vph)	408	843	1515	492	1823	899	1087	2275			
Starvation Cap Reductn	0	0	0	0	0	97	0	351			
Spillback Cap Reductn	0	0	0	0	0	0	0	0			
Storage Cap Reductn	0	0	0	0	0	0	0	0			
Reduced v/c Ratio	0.33	0.22	0.33	0.31	0.36	0.50	0.51	0.31			

Intersection Summary

Cycle Length: 123

Actuated Cycle Length: 77.3

Natural Cycle: 80

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.59

Intersection Signal Delay: 18.6

Intersection LOS: B

Intersection Capacity Utilization 51.5%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 4: Pratt Blvd & Glen Cove Avenue

 ø1	 ø2	 ø4
31 s	66 s	26 s
 ø5	 ø6	
18 s	79 s	

6: Charles Street & Glen Cove Avenue

No Build 2016

Saturday Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	139	23	199	22	0	37	0	826	31	21	817	0
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.94	0.94	0.94	0.92	0.25	0.92	0.25	0.93	0.93	0.94	0.94	0.25
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	4%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	148	24	212	0	64	0	0	921	0	22	869	0
Turn Type	Perm		Perm	Perm						Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8						6		
Detector Phases	4	4	4	8	8			2		6	6	
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0			20.0		20.0	20.0	
Minimum Split (s)	12.0	12.0	12.0	12.0	12.0			26.0		26.0	26.0	
Total Split (s)	37.0	37.0	37.0	37.0	37.0	0.0	0.0	43.0	0.0	43.0	43.0	0.0
Total Split (%)	46.3%	46.3%	46.3%	46.3%	46.3%	0.0%	0.0%	53.8%	0.0%	53.8%	53.8%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0			4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0			2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None			Min		Min	Min	
Act Effct Green (s)	13.7	13.7	13.7		13.7			30.4		30.4	30.4	
Actuated g/C Ratio	0.26	0.26	0.26		0.26			0.61		0.61	0.61	
v/c Ratio	0.42	0.05	0.43		0.14			0.44		0.10	0.43	
Control Delay	15.8	10.4	9.0		6.7			7.5		8.1	7.4	
Queue Delay	0.0	0.0	0.0		0.0			0.0		0.0	0.0	
Total Delay	15.8	10.4	9.0		6.7			7.5		8.1	7.4	
LOS	B	B	A		A			A		A	A	
Approach Delay		11.7			6.7			7.5			7.5	
Approach LOS		B			A			A			A	
Queue Length 50th (ft)	28	4	19		4			63		2	59	
Queue Length 95th (ft)	62	15	56		1			136		14	128	
Internal Link Dist (ft)		349			162			294			408	
Turn Bay Length (ft)	250									125		
Base Capacity (vph)	636	889	809		796			2459		272	2410	
Starvation Cap Reductn	0	0	0		0			0		0	0	
Spillback Cap Reductn	0	0	0		0			0		0	0	
Storage Cap Reductn	0	0	0		0			0		0	0	
Reduced v/c Ratio	0.23	0.03	0.26		0.08			0.37		0.08	0.36	
Intersection Summary												
Cycle Length: 80												
Actuated Cycle Length: 49.9												
Natural Cycle: 40												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 0.44												
Intersection Signal Delay: 8.2						Intersection LOS: A						
Intersection Capacity Utilization 49.9%						ICU Level of Service A						
Analysis Period (min) 15												

Splits and Phases: 6: Charles Street & Glen Cove Avenue

 ø2	 ø4
43 s	37 s
 ø6	 ø8
43 s	37 s

7: Morris Avenue & Glen Cove Avenue

No Build 2016

Saturday Peak



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	←	→	←	↑↑	↑↑	←
Volume (vph)	23	18	17	709	749	30
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.97	0.97	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	5%	5%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Lane Group Flow (vph)	25	20	18	731	811	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Detector Phases	4	4	2	2	6	
Minimum Initial (s)	8.0	8.0	20.0	20.0	20.0	
Minimum Split (s)	20.0	20.0	30.0	30.0	30.0	
Total Split (s)	37.0	37.0	43.0	43.0	43.0	0.0
Total Split (%)	46.3%	46.3%	53.8%	53.8%	53.8%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	Min	Min	Min	
Act Effect Green (s)	13.2	13.2	62.3	62.3	62.3	
Actuated g/C Ratio	0.16	0.16	0.82	0.82	0.82	
v/c Ratio	0.10	0.08	0.05	0.27	0.30	
Control Delay	12.4	6.7	4.1	3.1	3.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	12.4	6.7	4.1	3.1	3.2	
LOS	B	A	A	A	A	
Approach Delay	9.9			3.1	3.2	
Approach LOS	A			A	A	
Queue Length 50th (ft)	8	0	0	0	0	
Queue Length 95th (ft)	16	11	8	66	74	
Internal Link Dist (ft)	135			701	294	
Turn Bay Length (ft)	150		75			
Base Capacity (vph)	597	547	396	2903	2915	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.04	0.04	0.05	0.25	0.28	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 76

Natural Cycle: 50

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.30

Intersection Signal Delay: 3.4

Intersection LOS: A

Intersection Capacity Utilization 35.0%

ICU Level of Service A

Analysis Period (min) 15

9/9/2009

Dutt Tarigoppula

Eschbacher Engineering

Glen Isle - FEIS
Lanes, Volumes, Timings

Splits and Phases: 7: Morris Avenue & Glen Cove Avenue

 ø2	 ø4
43 s	37 s
 ø6	
43 s	

2: Herb Hill Road & Brewster Street

No Build 2016

Saturday Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR	SBL
Lane Configurations												
Volume (vph)	19	16	24	17	4	53	46	2	169	902	23	24
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%					0%		
Lane Group Flow (vph)	21	43	0	0	127	0	0	0	182	984	0	26
Turn Type	Perm			Perm				pm+pt	pm+pt			Perm
Protected Phases		4			8			5	5	2		
Permitted Phases	4			8				2	2			6
Detector Phases	4	4		8	8			5	5	2		6
Minimum Initial (s)	8.0	8.0		8.0	8.0			3.0	3.0	20.0		20.0
Minimum Split (s)	28.0	28.0		25.0	25.0			7.0	7.0	26.0		26.0
Total Split (s)	31.0	31.0	0.0	31.0	31.0	0.0	0.0	19.0	19.0	49.0	0.0	30.0
Total Split (%)	38.8%	38.8%	0.0%	38.8%	38.8%	0.0%	0.0%	23.8%	23.8%	61.3%	0.0%	37.5%
Yellow Time (s)	4.0	4.0		4.0	4.0			3.0	3.0	4.0		4.0
All-Red Time (s)	2.0	2.0		2.0	2.0			1.0	1.0	2.0		2.0
Lead/Lag								Lead	Lead			Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None			None	None	C-Min		C-Min
Act Effct Green (s)	12.0	12.0			12.0				62.8	63.6		50.4
Actuated g/C Ratio	0.15	0.15			0.15				0.78	0.80		0.63
v/c Ratio	0.12	0.17			0.46				0.55	0.36		0.08
Control Delay	29.7	17.3			26.0				11.4	3.8		3.3
Queue Delay	0.0	0.0			0.0				0.0	0.2		0.0
Total Delay	29.7	17.3			26.0				11.4	4.0		3.3
LOS	C	B			C				B	A		A
Approach Delay		21.3			26.0					5.2		
Approach LOS		C			C					A		
Queue Length 50th (ft)	9	7			39				19	66		2
Queue Length 95th (ft)	28	33			84				69	119		m4
Internal Link Dist (ft)		605			24					365		
Turn Bay Length (ft)									200			220
Base Capacity (vph)	397	550			568				451	2722		324
Starvation Cap Reductn	0	0			0				0	881		0
Spillback Cap Reductn	0	0			0				0	0		0
Storage Cap Reductn	0	0			0				0	0		0
Reduced v/c Ratio	0.05	0.08			0.22				0.40	0.53		0.08

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green, Master Intersection

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.55

Intersection Signal Delay: 5.8

Intersection LOS: A

Intersection Capacity Utilization 66.3%

ICU Level of Service C

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

9/9/2009

Dutt Tarigoppula
Eschbacher EngineeringGlen Isle - FEIS
Lanes, Volumes, Timings

2: Herb Hill Road & Brewster Street

No Build 2016

Saturday Peak

Splits and Phases: 2: Herb Hill Road & Brewster Street

 ø2	 ø4
49 s	31 s
 ø5	 ø6
19 s	30 s
	 ø8
	31 s



Lane Group	SBT	SBR	SBR2
Lane Configurations	↑↑		
Volume (vph)	948	18	23
Confl. Peds. (#/hr)			
Confl. Bikes (#/hr)			
Peak Hour Factor	0.93	0.93	0.93
Growth Factor	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%
Bus Blockages (#/hr)	0	0	0
Parking (#/hr)			
Mid-Block Traffic (%)	0%		
Lane Group Flow (vph)	1063	0	0
Turn Type			
Protected Phases	6		
Permitted Phases			
Detector Phases	6		
Minimum Initial (s)	20.0		
Minimum Split (s)	26.0		
Total Split (s)	30.0	0.0	0.0
Total Split (%)	37.5%	0.0%	0.0%
Yellow Time (s)	4.0		
All-Red Time (s)	2.0		
Lead/Lag	Lag		
Lead-Lag Optimize?			
Recall Mode	C-Min		
Act Effct Green (s)	50.4		
Actuated g/C Ratio	0.63		
v/c Ratio	0.49		
Control Delay	3.2		
Queue Delay	0.0		
Total Delay	3.2		
LOS	A		
Approach Delay	3.2		
Approach LOS	A		
Queue Length 50th (ft)	32		
Queue Length 95th (ft)	53		
Internal Link Dist (ft)	354		
Turn Bay Length (ft)			
Base Capacity (vph)	2175		
Starvation Cap Reductn	0		
Spillback Cap Reductn	0		
Storage Cap Reductn	0		
Reduced v/c Ratio	0.49		

Intersection Summary



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	287	60	56	616	577	225
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.94	0.94	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	5%	5%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Lane Group Flow (vph)	312	65	60	655	872	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Detector Phases	4	4	2	2	6	
Minimum Initial (s)	8.0	8.0	20.0	20.0	20.0	
Minimum Split (s)	14.0	14.0	26.0	26.0	26.0	
Total Split (s)	25.0	25.0	55.0	55.0	55.0	0.0
Total Split (%)	31.3%	31.3%	68.8%	68.8%	68.8%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	Min	Min	Min	
Act Effct Green (s)	14.9	14.9	22.1	22.1	22.1	
Actuated g/C Ratio	0.33	0.33	0.49	0.49	0.49	
v/c Ratio	0.53	0.11	0.25	0.40	0.53	
Control Delay	15.7	3.8	11.8	9.0	8.7	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	15.7	3.8	11.8	9.0	8.7	
LOS	B	A	B	A	A	
Approach Delay	13.6			9.3	8.7	
Approach LOS	B			A	A	
Queue Length 50th (ft)	63	0	8	50	58	
Queue Length 95th (ft)	117	16	35	105	127	
Internal Link Dist (ft)	273			201	357	
Turn Bay Length (ft)			150			
Base Capacity (vph)	729	712	335	2292	2262	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.43	0.09	0.18	0.29	0.39	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 45.1

Natural Cycle: 40

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.53

Intersection Signal Delay: 9.8

Intersection LOS: A

Intersection Capacity Utilization 65.7%

ICU Level of Service C

Analysis Period (min) 15

Splits and Phases: 8: Shore Road & Glen Cove Avenue

 ø2	 ø4
55 s	25 s
 ø6	
55 s	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	52	76	53	112	110	97	47	424	109	96	392	69
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	5%	5%	5%	4%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	56	139	0	122	225	0	0	630	0	0	605	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	4	4		8	8		2	2		6	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0		20.0	20.0		20.0	20.0	
Minimum Split (s)	10.0	10.0		10.0	10.0		26.0	26.0		26.0	26.0	
Total Split (s)	26.0	26.0	0.0	26.0	26.0	0.0	44.0	44.0	0.0	44.0	44.0	0.0
Total Split (%)	37.1%	37.1%	0.0%	37.1%	37.1%	0.0%	62.9%	62.9%	0.0%	62.9%	62.9%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)	14.1	14.1		14.1	14.1			37.5			37.5	
Actuated g/C Ratio	0.24	0.24		0.24	0.24			0.66			0.66	
v/c Ratio	0.24	0.29		0.48	0.54			0.53			0.66	
Control Delay	19.8	12.7		24.7	17.8			8.9			12.9	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	19.8	12.7		24.7	17.8			8.9			12.9	
LOS	B	B		C	B			A			B	
Approach Delay		14.7			20.2			8.9			12.9	
Approach LOS		B			C			A			B	
Queue Length 50th (ft)	12	19		28	36			93			106	
Queue Length 95th (ft)	44	65		85	110			245			#314	
Internal Link Dist (ft)		645			488			861			659	
Turn Bay Length (ft)	150			200								
Base Capacity (vph)	332	652		357	560			1274			984	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.17	0.21		0.34	0.40			0.49			0.61	
Intersection Summary												
Cycle Length: 70												
Actuated Cycle Length: 56.8												
Natural Cycle: 40												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 0.66												
Intersection Signal Delay: 13.1						Intersection LOS: B						
Intersection Capacity Utilization 77.2%						ICU Level of Service D						
Analysis Period (min) 15												
# 95th percentile volume exceeds capacity, queue may be longer.												
Queue shown is maximum after two cycles.												

Splits and Phases: 92: Sea Cliff Avenue & Glen Cove Avenue

 ø2	 ø4
44 s	26 s
 ø6	 ø8
44 s	26 s

9: Glenwood Road/Glen Head Road & Glen Cove Avenue

No Build 2016

Saturday Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	93	173	57	137	155	244	48	362	122	258	426	41
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.95	0.95	0.95	0.92	0.92	0.92	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	5%	5%	5%	4%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	351	0	0	564	0	52	526	0	272	491	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	4	4		8	8		2	2		6	6	
Minimum Initial (s)	8.0	8.0		8.0	8.0		20.0	20.0		20.0	20.0	
Minimum Split (s)	26.0	26.0		26.0	26.0		26.0	26.0		26.0	26.0	
Total Split (s)	31.0	31.0	0.0	31.0	31.0	0.0	39.0	39.0	0.0	39.0	39.0	0.0
Total Split (%)	44.3%	44.3%	0.0%	44.3%	44.3%	0.0%	55.7%	55.7%	0.0%	55.7%	55.7%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)		25.4			25.4		34.1	34.1		34.1	34.1	
Actuated g/C Ratio		0.38			0.38		0.51	0.51		0.51	0.51	
v/c Ratio		0.65			0.90		0.16	0.53		0.96	0.55	
Control Delay		23.3			38.2		11.1	13.3		66.3	14.6	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		23.3			38.2		11.1	13.3		66.3	14.6	
LOS		C			D		B	B		E	B	
Approach Delay		23.3			38.2			13.1			33.0	
Approach LOS		C			D			B			C	
Queue Length 50th (ft)		113			196		11	135		106	134	
Queue Length 95th (ft)		200			#386		31	218		#257	219	
Internal Link Dist (ft)		131			160			206			218	
Turn Bay Length (ft)							75			125		
Base Capacity (vph)		561			649		332	998		288	898	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.63			0.87		0.16	0.53		0.94	0.55	

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 67.5

Natural Cycle: 60

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.96

Intersection Signal Delay: 27.7

Intersection LOS: C

Intersection Capacity Utilization 92.3%

ICU Level of Service F

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

8/25/2009

Dutt Tarigoppula

Eschbacher Engineering

Glen Isle - FEIS
Lanes, Volumes, Timings

Splits and Phases: 9: Glenwood Road/Glen Head Road & Glen Cove Avenue

 ø2	 ø4
39 s	31 s
 ø6	 ø8
39 s	31 s

						
Lane Group	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations	↑↑		↵	↑↑		
Volume (vph)	1160	0	430	1551	0	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Lane Group Flow (vph)	1261	0	467	1686	0	0
Turn Type			Prot			
Protected Phases	2		4	2 4		
Permitted Phases						
Detector Phases	2		4	2 4		
Minimum Initial (s)	20.0		10.0			
Minimum Split (s)	27.0		17.0			
Total Split (s)	67.0	0.0	42.0	109.0	0.0	0.0
Total Split (%)	61.5%	0.0%	38.5%	100.0%	0.0%	0.0%
Yellow Time (s)	4.0		4.0			
All-Red Time (s)	3.0		3.0			
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	Max		None			
Act Effct Green (s)	63.0		36.6	107.6		
Actuated g/C Ratio	0.59		0.34	1.00		
v/c Ratio	0.62		0.73	0.48		
Control Delay	16.5		38.8	0.5		
Queue Delay	0.0		0.0	0.0		
Total Delay	16.5		38.8	0.5		
LOS	B		D	A		
Approach Delay	16.5			8.8		
Approach LOS	B			A		
Queue Length 50th (ft)	289		280	0		
Queue Length 95th (ft)	358		401	0		
Internal Link Dist (ft)	495			382	312	
Turn Bay Length (ft)			375			
Base Capacity (vph)	2033		658	3539		
Starvation Cap Reductn	0		0	0		
Spillback Cap Reductn	0		0	0		
Storage Cap Reductn	0		0	0		
Reduced v/c Ratio	0.62		0.71	0.48		
Intersection Summary						
Cycle Length: 109						
Actuated Cycle Length: 107.6						
Natural Cycle: 45						
Control Type: Semi Act-Uncoord						
Maximum v/c Ratio: 0.73						
Intersection Signal Delay: 11.6				Intersection LOS: B		
Intersection Capacity Utilization 62.6%				ICU Level of Service B		
Analysis Period (min) 15						

Splits and Phases: 5: Glen Cove Road & Route 107



3: Glen Head Road & Glen Cove Road

No Build 2016

Saturday Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	204	219	42	44	251	31	64	925	59	22	1342	187
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	4%	4%	4%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	222	238	46	0	355	0	70	1005	64	24	1662	0
Turn Type	Split		Free	Split			Perm		Perm	Perm		
Protected Phases	4	4		8	8			2			6	
Permitted Phases			Free				2		2		6	
Detector Phases	4	4		8	8		2	2	2		6	6
Minimum Initial (s)	8.0	8.0		8.0	8.0		20.0	20.0	20.0	20.0	20.0	
Minimum Split (s)	26.0	26.0		27.0	27.0		27.0	27.0	27.0	27.0	27.0	
Total Split (s)	34.0	34.0	0.0	34.0	34.0	0.0	72.0	72.0	72.0	72.0	72.0	0.0
Total Split (%)	24.3%	24.3%	0.0%	24.3%	24.3%	0.0%	51.4%	51.4%	51.4%	51.4%	51.4%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	
Act Effct Green (s)	25.5	25.5	134.9		29.2		68.2	68.2	68.2	68.2	68.2	
Actuated g/C Ratio	0.19	0.19	1.00		0.22		0.51	0.51	0.51	0.51	0.51	
v/c Ratio	0.72	0.74	0.03		0.90		1.30	0.55	0.09	0.16	0.94	
Control Delay	65.6	65.9	0.0		78.0		250.5	25.1	19.2	23.4	43.7	
Queue Delay	0.0	0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	65.6	65.9	0.0		78.0		250.5	25.1	19.2	23.4	43.7	
LOS	E	E	A		E		F	C	B	C	D	
Approach Delay		59.8			78.0			38.6			43.4	
Approach LOS		E			E			D			D	
Queue Length 50th (ft)	186	200	0		310		~80	322	29	12	728	
Queue Length 95th (ft)	278	296	0		#501		#143	404	59	34	#946	
Internal Link Dist (ft)		203			244			256			523	
Turn Bay Length (ft)			75				200		75	150		
Base Capacity (vph)	349	367	1553		404		54	1812	732	149	1764	
Starvation Cap Reductn	0	0	0		0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0		0		0	0	0	0	0	
Storage Cap Reductn	0	0	0		0		0	0	0	0	0	
Reduced v/c Ratio	0.64	0.65	0.03		0.88		1.30	0.55	0.09	0.16	0.94	
Intersection Summary												
Cycle Length: 140												
Actuated Cycle Length: 134.9												
Natural Cycle: 120												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 1.30												
Intersection Signal Delay: 47.5						Intersection LOS: D						
Intersection Capacity Utilization 92.2%						ICU Level of Service F						
Analysis Period (min) 15												
~ Volume exceeds capacity, queue is theoretically infinite.												
Queue shown is maximum after two cycles.												
# 95th percentile volume exceeds capacity, queue may be longer.												

Queue shown is maximum after two cycles.

Splits and Phases: 3: Glen Head Road & Glen Cove Road

 02	 04	 08
72 s	34 s	34 s
 06		
72 s		

2: Back Road & Glen Cove Road

No Build 2016

Saturday Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	62	1	375	1	2	1	403	1331	3	28	1148	97
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.98	0.98	0.98	0.96	0.96	0.96
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	5%	5%	5%	3%	3%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	116	360	0	4	0	411	1361	0	29	1196	101
Turn Type	Split		pt+ov	Split			Prot			Perm		pm+ov
Protected Phases	3	3	3 5	4	4		5	2			6	3
Permitted Phases										6		6
Detector Phases	3	3	3 5	4	4		5	2		6	6	3
Minimum Initial (s)	8.0	8.0		8.0	8.0		5.0	10.0		10.0	10.0	8.0
Minimum Split (s)	24.0	24.0		38.3	38.3		12.8	24.8		24.8	24.8	24.0
Total Split (s)	25.5	25.5	61.5	38.3	38.3	0.0	36.0	94.8	0.0	58.8	58.8	25.5
Total Split (%)	16.1%	16.1%	38.8%	24.1%	24.1%	0.0%	22.7%	59.8%	0.0%	37.1%	37.1%	16.1%
Yellow Time (s)	3.5	3.5		3.5	3.5		4.0	4.0		4.0	4.0	3.5
All-Red Time (s)	2.0	2.0		4.8	4.8		2.0	4.8		4.8	4.8	2.0
Lead/Lag	Lead	Lead		Lag	Lag		Lead			Lag	Lag	Lead
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	Max		Max	Max	None
Act Effct Green (s)		13.8	49.4		12.3		32.2	91.4		55.2	55.2	73.1
Actuated g/C Ratio		0.12	0.43		0.10		0.28	0.79		0.48	0.48	0.63
v/c Ratio		0.59	0.45		0.02		0.76	0.50		0.20	0.72	0.11
Control Delay		53.4	3.6		50.2		50.0	6.5		26.1	28.8	3.4
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		53.4	3.6		50.2		50.0	6.5		26.1	28.8	3.4
LOS		D	A		D		D	A		C	C	A
Approach Delay		15.8			50.3			16.6			26.8	
Approach LOS		B			D			B			C	
Queue Length 50th (ft)		70	0		2		267	124		11	338	5
Queue Length 95th (ft)		150	48		15		#545	390		45	600	32
Internal Link Dist (ft)		345			160			143			316	
Turn Bay Length (ft)												
Base Capacity (vph)		280	845		445		541	2707		144	1666	981
Starvation Cap Reductn		0	0		0		0	0		0	0	0
Spillback Cap Reductn		0	0		0		0	0		0	0	0
Storage Cap Reductn		0	0		0		0	0		0	0	0
Reduced v/c Ratio		0.41	0.43		0.01		0.76	0.50		0.20	0.72	0.10
Intersection Summary												
Cycle Length: 158.6												
Actuated Cycle Length: 116.1												
Natural Cycle: 150												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 0.76												
Intersection Signal Delay: 20.3						Intersection LOS: C						
Intersection Capacity Utilization 80.7%						ICU Level of Service D						
Analysis Period (min) 15												
# 95th percentile volume exceeds capacity, queue may be longer.												
Queue shown is maximum after two cycles.												

Splits and Phases: 2: Back Road & Glen Cove Road

 ø2	 ø3	 ø4
94.8 s	25.5 s	38.3 s
 ø5	 ø6	
36 s	58.8 s	

3: Pratt Blvd & Bridge Street

No Build 2016

Saturday Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	153	734	35	55	637	65	21	66	76	105	45	165
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.97	0.97	0.97	0.92	0.92	0.92	0.95	0.95	0.95	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	2%	2%	2%	5%	5%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	158	793	0	60	763	0	22	149	0	0	158	174
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		4
Detector Phases	2	2		6	6		8	8		4	4	4
Minimum Initial (s)	5.0	5.0		5.0	5.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	26.0	26.0		26.0	26.0		25.5	25.5		25.5	25.5	25.5
Total Split (s)	43.5	43.5	0.0	43.5	43.5	0.0	26.5	26.5	0.0	26.5	26.5	26.5
Total Split (%)	62.1%	62.1%	0.0%	62.1%	62.1%	0.0%	37.9%	37.9%	0.0%	37.9%	37.9%	37.9%
Yellow Time (s)	4.0	4.0		4.0	4.0		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Min	Min		Min	Min		None	None		None	None	None
Act Effct Green (s)	38.7	38.7		38.7	38.7		14.9	14.9			14.9	14.9
Actuated g/C Ratio	0.65	0.65		0.65	0.65		0.24	0.24			0.24	0.24
v/c Ratio	0.43	0.37		0.18	0.36		0.08	0.34			0.51	0.35
Control Delay	11.7	6.3		7.8	6.1		16.8	10.5			22.6	5.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Total Delay	11.7	6.3		7.8	6.1		16.8	10.5			22.6	5.4
LOS	B	A		A	A		B	B			C	A
Approach Delay		7.2			6.2			11.3			13.6	
Approach LOS		A			A			B			B	
Queue Length 50th (ft)	22	53		7	49		4	14			34	0
Queue Length 95th (ft)	86	120		30	113		22	61			102	39
Internal Link Dist (ft)		458			137			80			142	
Turn Bay Length (ft)	120											
Base Capacity (vph)	401	2374		370	2361		384	604			448	645
Starvation Cap Reductn	0	0		0	0		0	0			0	0
Spillback Cap Reductn	0	0		0	0		0	0			0	0
Storage Cap Reductn	0	0		0	0		0	0			0	0
Reduced v/c Ratio	0.39	0.33		0.16	0.32		0.06	0.25			0.35	0.27
Intersection Summary												
Cycle Length: 70												
Actuated Cycle Length: 59.9												
Natural Cycle: 60												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 0.51												
Intersection Signal Delay: 8.1						Intersection LOS: A						
Intersection Capacity Utilization 57.8%						ICU Level of Service B						
Analysis Period (min) 15												

8/25/2009

Dutt Tarigoppula
Eschbacher EngineeringGlen Isle - FEIS
Lanes, Volumes, Timings

3: Pratt Blvd & Bridge Street

No Build 2016
Saturday Peak

Splits and Phases: 3: Pratt Blvd & Bridge Street

 ø2	 ø4
43.5 s	26.5 s
 ø6	 ø8
43.5 s	26.5 s

1: Cottage Row Road & Brewster Street

No Build 2016

Saturday Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	135	163	206	47	153	279	97	775	87	265	819	132
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.93	0.93	0.93	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	5%	5%	5%	4%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	320	222	0	217	303	105	937	0	288	1033	0
Turn Type	Perm		Free	Perm		Perm	pm+pt			pm+pt		
Protected Phases		3			7		5	2		1	6	
Permitted Phases	3		Free	7		7	2			6		
Detector Phases	3	3		7	7	7	5	2		1	6	
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0	4.0	20.0		4.0	20.0	
Minimum Split (s)	28.0	28.0		28.0	28.0	28.0	8.0	26.0		8.0	26.0	
Total Split (s)	31.0	31.0	0.0	31.0	31.0	31.0	12.0	37.0	0.0	12.0	37.0	0.0
Total Split (%)	38.8%	38.8%	0.0%	38.8%	38.8%	38.8%	15.0%	46.3%	0.0%	15.0%	46.3%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	3.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	1.0	2.0		1.0	2.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None		None	None	None	None	C-Min		None	C-Min	
Act Effct Green (s)		23.9	80.0		23.9	23.9	38.8	32.0		46.5	39.1	
Actuated g/C Ratio		0.30	1.00		0.30	0.30	0.48	0.40		0.58	0.49	
v/c Ratio		0.78	0.14		0.48	0.64	0.47	0.70		0.75	0.63	
Control Delay		39.5	0.2		25.8	30.2	12.4	21.2		29.3	18.7	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		39.5	0.2		25.8	30.2	12.4	21.2		29.3	18.7	
LOS		D	A		C	C	B	C		C	B	
Approach Delay		23.4			28.4			20.3			21.0	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)		141	0		86	127	17	217		66	203	
Queue Length 95th (ft)		#233	0		144	202	25	264		#230	291	
Internal Link Dist (ft)		294			184			618			362	
Turn Bay Length (ft)			250			100	175			175		
Base Capacity (vph)		469	1636		520	545	250	1421		382	1670	
Starvation Cap Reductn		0	0		0	0	0	0		0	0	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.68	0.14		0.42	0.56	0.42	0.66		0.75	0.62	
Intersection Summary												
Cycle Length: 80												
Actuated Cycle Length: 80												
Offset: 30 (38%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green												
Natural Cycle: 70												
Control Type: Actuated-Coordinated												
Maximum v/c Ratio: 0.78												
Intersection Signal Delay: 22.3						Intersection LOS: C						
Intersection Capacity Utilization 78.9%						ICU Level of Service D						
Analysis Period (min) 15												
# 95th percentile volume exceeds capacity, queue may be longer.												
Queue shown is maximum after two cycles.												

Splits and Phases: 1: Cottage Row Road & Brewster Street

 Ø1	 Ø2	 Ø3
12 s	37 s	31 s
 Ø5	 Ø6	 Ø7
12 s	37 s	31 s

5: Herb Hill Road & Charles Street

No Build 2016

Saturday Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	2	8	52	1	23	2	84	127	3	67	254	3
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	11	57	0	28	0	91	138	3	73	279	0
Turn Type	Perm	custom		Perm			Split		Perm	Split		
Protected Phases		4	2 4 6!		8		6	6		2	2!	
Permitted Phases	4			8					6			
Detector Phases	4	4	2 4 6	8	8		6	6	6	2	2	
Minimum Initial (s)	8.0	8.0		8.0	8.0		25.0	25.0	25.0	8.0	8.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		31.0	31.0	31.0	14.0	14.0	
Total Split (s)	26.0	26.0	88.0	26.0	26.0	0.0	31.0	31.0	31.0	31.0	31.0	0.0
Total Split (%)	29.5%	29.5%	100.0%	29.5%	29.5%	0.0%	35.2%	35.2%	35.2%	35.2%	35.2%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min	Min	None	None	
Act Effct Green (s)		10.1	66.1		10.1		28.2	28.2	28.2	16.6	16.6	
Actuated g/C Ratio		0.15	1.00		0.15		0.47	0.47	0.47	0.27	0.27	
v/c Ratio		0.04	0.03		0.10		0.11	0.16	0.00	0.16	0.56	
Control Delay		27.1	0.0		26.2		14.0	14.1	10.3	18.5	24.4	
Queue Delay		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		27.1	0.0		26.2		14.0	14.1	10.3	18.5	24.4	
LOS		C	A		C		B	B	B	B	C	
Approach Delay		4.4			26.2			14.0			23.2	
Approach LOS		A			C			B			C	
Queue Length 50th (ft)		4	0		9		22	34	0	23	98	
Queue Length 95th (ft)		18	0		33		58	82	5	51	166	
Internal Link Dist (ft)		1079			319			407			212	
Turn Bay Length (ft)									125	125		
Base Capacity (vph)		513	1794		522		825	868	739	662	696	
Starvation Cap Reductn		0	0		0		0	0	0	0	0	
Spillback Cap Reductn		0	0		0		0	0	0	0	0	
Storage Cap Reductn		0	0		0		0	0	0	0	0	
Reduced v/c Ratio		0.02	0.03		0.05		0.11	0.16	0.00	0.11	0.40	
Intersection Summary												
Cycle Length: 88												
Actuated Cycle Length: 60.5												
Natural Cycle: 65												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 0.56												
Intersection Signal Delay: 18.3						Intersection LOS: B						
Intersection Capacity Utilization 51.1%						ICU Level of Service A						
Analysis Period (min) 15												
! Phase conflict between lane groups.												

8/25/2009

Dutt Tarigoppula
Eschbacher EngineeringGlen Isle - FEIS
Lanes, Volumes, Timings

Splits and Phases: 5: Herb Hill Road & Charles Street

 02	 06	 04
31 s	31 s	26 s
		 08
		26 s

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	180	435	13	3	483	5	21	9	6	3	9	229
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.95	0.95	0.95	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	196	487	0	0	516	0	0	40	0	0	13	249
Turn Type	pm+pt			Perm			Perm			Perm		Free
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6			8			4		Free
Detector Phases	5	2		6	6		8	8		4	4	
Minimum Initial (s)	4.0	20.0		20.0	20.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	8.0	26.0		26.0	26.0		10.0	10.0		10.0	10.0	
Total Split (s)	9.0	65.0	0.0	56.0	56.0	0.0	15.0	15.0	0.0	15.0	15.0	0.0
Total Split (%)	11.3%	81.3%	0.0%	70.0%	70.0%	0.0%	18.8%	18.8%	0.0%	18.8%	18.8%	0.0%
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?												
Recall Mode	None	Min		Min	Min		None	None		None	None	
Act Effct Green (s)	43.6	46.1			34.7			9.3			9.2	53.0
Actuated g/C Ratio	0.80	0.87			0.65			0.16			0.15	1.00
v/c Ratio	0.30	0.32			0.44			0.16			0.05	0.15
Control Delay	3.5	3.0			7.9			18.0			19.1	0.2
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	3.5	3.0			7.9			18.0			19.1	0.2
LOS	A	A			A			B			B	A
Approach Delay		3.1			7.9			18.0			1.1	
Approach LOS		A			A			B			A	
Queue Length 50th (ft)	0	0			35			5			2	0
Queue Length 95th (ft)	38	101			183			32			16	0
Internal Link Dist (ft)		631			639			463			627	
Turn Bay Length (ft)												25
Base Capacity (vph)	659	1584			1413			311			352	1689
Starvation Cap Reductn	0	0			0			0			0	0
Spillback Cap Reductn	0	0			0			0			0	0
Storage Cap Reductn	0	0			0			0			0	0
Reduced v/c Ratio	0.30	0.31			0.37			0.13			0.04	0.15
Intersection Summary												
Cycle Length: 80												
Actuated Cycle Length: 53												
Natural Cycle: 45												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 0.44												
Intersection Signal Delay: 4.8						Intersection LOS: A						
Intersection Capacity Utilization 68.2%						ICU Level of Service C						
Analysis Period (min) 15												

Splits and Phases: 91: Forest Avenue & Lattingtown Road

 ø2 65 s		 ø4 15 s	
 ø5 9 s	 ø6 56 s	 ø8 15 s	

8: Northern Boulevard & Glen Cove Road

No Build 2016

Saturday Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	465	656	226	611	905	152	236	948	248	48	878	349
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.95	0.95	0.95	0.92	0.92	0.92	0.94	0.94	0.94	0.98	0.98	0.98
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	5%	5%	5%	3%	3%	3%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	489	929	0	664	1149	0	251	1009	264	49	896	356
Turn Type	Prot			Prot			Prot		pt+ov	Prot		pt+ov
Protected Phases	5	2		1	6		7	4	4 1	3	8	8 5
Permitted Phases												
Detector Phases	5	2		1	6		7	4	4 1	3	8	8 5
Minimum Initial (s)	8.0	24.0		5.0	24.0		7.0	20.0		3.0	20.0	
Minimum Split (s)	13.0	37.5		10.0	37.5		13.0	34.3		9.0	34.3	
Total Split (s)	23.5	39.3	0.0	23.5	39.3	0.0	17.7	49.5	73.0	17.7	49.5	73.0
Total Split (%)	18.1%	30.2%	0.0%	18.1%	30.2%	0.0%	13.6%	38.1%	56.2%	13.6%	38.1%	56.2%
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.3		3.0	4.3	
All-Red Time (s)	2.0	2.5		2.0	2.5		3.0	3.0		3.0	3.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	21.1	35.3		21.2	35.4		13.7	48.9	74.0	11.0	43.8	68.9
Actuated g/C Ratio	0.16	0.27		0.16	0.27		0.11	0.38	0.57	0.08	0.34	0.53
v/c Ratio	0.93	1.03		1.27	1.26		1.49	0.81	0.32	0.36	0.78	0.25
Control Delay	80.0	85.4		180.6	166.4		286.6	43.0	17.3	62.5	44.3	17.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	80.0	85.4		180.6	166.4		286.6	43.0	17.3	62.5	44.3	17.1
LOS	F	F		F	F		F	D	B	E	D	B
Approach Delay		83.6			171.6			78.7			37.5	
Approach LOS		F			F			E			D	
Queue Length 50th (ft)	~218	~442		~382	~640		~291	402	118	40	349	89
Queue Length 95th (ft)	#334	#575		#503	#777		#463	508	187	81	431	122
Internal Link Dist (ft)		319			439			466			338	
Turn Bay Length (ft)	425			300			300		420	325		300
Base Capacity (vph)	524	898		522	910		169	1249	818	172	1186	1415
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.93	1.03		1.27	1.26		1.49	0.81	0.32	0.28	0.76	0.25

Intersection Summary

Cycle Length: 130

Actuated Cycle Length: 130

Offset: 117 (90%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow

Natural Cycle: 120

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 1.49

Intersection Signal Delay: 98.8

Intersection LOS: F

Intersection Capacity Utilization 93.8%

ICU Level of Service F

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

8/25/2009

Dutt Tarigoppula

Eschbacher Engineering

Glen Isle - FEIS
Lanes, Volumes, Timings

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 8: Northern Boulevard & Glen Cove Road

 ø1	 ø2	 ø3	 ø4
23.5 s	39.3 s	17.7 s	49.5 s
 ø5	 ø6	 ø7	 ø8
23.5 s	39.3 s	17.7 s	49.5 s

1: Driveway/Witte Lane & Bryant Avenue

No Build 2016

Saturday Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1	1	3	192	1	25	2	425	27	188	313	1
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.94	0.94	0.94	0.94	0.94	0.94	0.99	0.99	0.99
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	5	0	204	28	0	0	483	0	190	317	0
Turn Type	Perm			Perm			Perm			pm+pt		
Protected Phases		8			4			2		1	6	
Permitted Phases	8			4			2			6		
Detector Phases	8	8		4	4		2	2		1	6	
Minimum Initial (s)	12.0	12.0		12.0	12.0		45.0	45.0		4.0	45.0	
Minimum Split (s)	17.5	17.5		17.5	17.5		50.0	50.0		9.0	50.0	
Total Split (s)	27.5	27.5	0.0	27.5	27.5	0.0	51.5	51.5	0.0	11.0	62.5	0.0
Total Split (%)	30.6%	30.6%	0.0%	30.6%	30.6%	0.0%	57.2%	57.2%	0.0%	12.2%	69.4%	0.0%
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5	1.5		1.5	1.5	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Recall Mode	None	None		None	None		None	None		None	None	
Act Effct Green (s)		19.1		19.1	19.1			46.1		57.1	57.1	
Actuated g/C Ratio		0.23		0.23	0.23			0.55		0.68	0.68	
v/c Ratio		0.01		0.68	0.08			0.49		0.38	0.28	
Control Delay		18.8		41.9	10.5			14.6		8.0	6.8	
Queue Delay		0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay		18.8		41.9	10.5			14.6		8.0	6.8	
LOS		B		D	B			B		A	A	
Approach Delay		18.8			38.1			14.6			7.2	
Approach LOS		B			D			B			A	
Queue Length 50th (ft)		1		99	0			150		33	60	
Queue Length 95th (ft)		9		172	21			252		67	110	
Internal Link Dist (ft)		52			208			183			261	
Turn Bay Length (ft)										125		
Base Capacity (vph)		449		350	417			997		503	1154	
Starvation Cap Reductn		0		0	0			0		0	0	
Spillback Cap Reductn		0		0	0			0		0	0	
Storage Cap Reductn		0		0	0			0		0	0	
Reduced v/c Ratio		0.01		0.58	0.07			0.48		0.38	0.27	
Intersection Summary												
Cycle Length: 90												
Actuated Cycle Length: 84.3												
Natural Cycle: 80												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 0.68												
Intersection Signal Delay: 16.0						Intersection LOS: B						
Intersection Capacity Utilization 102.3%						ICU Level of Service G						
Analysis Period (min) 15												

Splits and Phases: 1: Driveway/Witte Lane & Bryant Avenue

 Ø1	 Ø2	 Ø4
11 s	51.5 s	27.5 s
 Ø6		 Ø8
62.5 s		27.5 s

Proposed Action Build Unmitigated
AM Peak

											
Lane Group	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER
Lane Configurations											
Volume (vph)	214	253	429	217	445	558	530	419	10	0	0
Confl. Peds. (#/hr)											
Confl. Bikes (#/hr)											
Peak Hour Factor	0.94	0.94	0.94	0.92	0.92	0.92	0.96	0.96	0.96	0.25	0.25
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	12%	12%	12%	7%	7%	7%	4%	4%	4%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)											
Mid-Block Traffic (%)		0%			0%			0%		0%	
Lane Group Flow (vph)	162	335	456	236	484	607	552	446	0	0	0
Turn Type	Split		pm+ov	pm+pt		pm+ov	Prot				
Protected Phases	4	4	1	5	2	4	1	6			
Permitted Phases			4	2		2					
Detector Phases	4	4	1	5	2	4	1	6			
Minimum Initial (s)	8.0	8.0	8.0	4.0	23.0	8.0	8.0	23.0			
Minimum Split (s)	22.0	22.0	15.0	10.0	41.0	22.0	15.0	41.0			
Total Split (s)	26.0	26.0	31.0	18.0	66.0	26.0	31.0	79.0	0.0	0.0	0.0
Total Split (%)	21.1%	21.1%	25.2%	14.6%	53.7%	21.1%	25.2%	64.2%	0.0%	0.0%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0			
Lead/Lag			Lead	Lead	Lag		Lead	Lag			
Lead-Lag Optimize?											
Recall Mode	None	None	Min	None	Min	None	Min	Min			
Act Effct Green (s)	19.1	19.1	46.2	37.2	25.3	48.5	23.1	36.4			
Actuated g/C Ratio	0.24	0.24	0.58	0.47	0.32	0.61	0.29	0.46			
v/c Ratio	0.48	0.48	0.31	0.48	0.47	0.71	0.59	0.29			
Control Delay	31.8	28.8	8.8	11.7	25.1	17.3	27.2	14.9			
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.9	0.0	0.0			
Total Delay	31.8	28.8	8.8	11.7	25.1	18.1	27.2	14.9			
LOS	C	C	A	B	C	B	C	B			
Approach Delay		19.8			19.5			21.7			
Approach LOS		B			B			C			
Queue Length 50th (ft)	79	81	59	46	111	203	126	76			
Queue Length 95th (ft)	145	125	86	78	162	354	176	113			
Internal Link Dist (ft)		458			408			365		404	
Turn Bay Length (ft)	75	75	350	220		100	150				
Base Capacity (vph)	380	787	1456	524	1743	876	1057	2125			
Starvation Cap Reductn	0	0	0	0	0	87	0	0			
Spillback Cap Reductn	0	0	0	0	0	0	0	0			
Storage Cap Reductn	0	0	0	0	0	0	0	0			
Reduced v/c Ratio	0.43	0.43	0.31	0.45	0.28	0.77	0.52	0.21			
Intersection Summary											
Cycle Length: 123											
Actuated Cycle Length: 79.6											
Natural Cycle: 80											
Control Type: Semi Act-Uncoord											
Maximum v/c Ratio: 0.71											
Intersection Signal Delay: 20.3						Intersection LOS: C					
Intersection Capacity Utilization 56.3%						ICU Level of Service B					
Analysis Period (min) 15											

Splits and Phases: 4: Pratt Blvd & Glen Cove Avenue

 ø1	 ø2	 ø4
31 s	66 s	26 s
 ø5	 ø6	
18 s	79 s	

6: Charles Street & Glen Cove Avenue

Build 2016

AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	384	45	287	38	0	34	0	795	31	16	658	0
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.99	0.99	0.99	0.92	0.25	0.92	0.25	0.92	0.92	0.92	0.92	0.25
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	7%	7%	7%	4%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	388	45	290	0	78	0	0	898	0	17	715	0
Turn Type	Perm		Perm	Perm						Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8	8					6		
Detector Phases	4	4	4	8	8			2		6	6	
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0			20.0		20.0	20.0	
Minimum Split (s)	12.0	12.0	12.0	12.0	12.0			26.0		26.0	26.0	
Total Split (s)	37.0	37.0	37.0	37.0	37.0	0.0	0.0	43.0	0.0	43.0	43.0	0.0
Total Split (%)	46.3%	46.3%	46.3%	46.3%	46.3%	0.0%	0.0%	53.8%	0.0%	53.8%	53.8%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0			4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0			2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None			Min		Min	Min	
Act Effct Green (s)	21.5	21.5	21.5		21.5			23.8		23.8	23.8	
Actuated g/C Ratio	0.40	0.40	0.40		0.40			0.44		0.44	0.44	
v/c Ratio	0.70	0.06	0.40		0.12			0.60		0.10	0.48	
Control Delay	20.5	9.6	6.8		6.3			14.7		13.5	13.3	
Queue Delay	0.0	0.0	0.0		0.0			0.0		0.0	0.0	
Total Delay	20.6	9.6	6.8		6.3			14.8		13.5	13.3	
LOS	C	A	A		A			B		B	B	
Approach Delay		14.4			6.3			14.8			13.3	
Approach LOS		B			A			B			B	
Queue Length 50th (ft)	90	8	24		7			105		3	78	
Queue Length 95th (ft)	201	26	75		2			215		17	163	
Internal Link Dist (ft)		349			162			294			408	
Turn Bay Length (ft)	250									125		
Base Capacity (vph)	711	955	889		819			1918		225	1915	
Starvation Cap Reductn	0	0	0		0			56		0	0	
Spillback Cap Reductn	11	0	0		13			17		0	0	
Storage Cap Reductn	0	0	0		0			0		0	0	
Reduced v/c Ratio	0.55	0.05	0.33		0.10			0.48		0.08	0.37	
Intersection Summary												
Cycle Length: 80												
Actuated Cycle Length: 53.6												
Natural Cycle: 50												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 0.70												
Intersection Signal Delay: 13.9						Intersection LOS: B						
Intersection Capacity Utilization 57.6%						ICU Level of Service B						
Analysis Period (min) 15												

Splits and Phases: 6: Charles Street & Glen Cove Avenue

 ø2	 ø4
43 s	37 s
 ø6	 ø8
43 s	37 s



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	66	27	41	722	811	121
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	7%	7%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Lane Group Flow (vph)	72	29	45	785	1014	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Detector Phases	4	4	2	2	6	
Minimum Initial (s)	8.0	8.0	20.0	20.0	20.0	
Minimum Split (s)	20.0	20.0	30.0	30.0	30.0	
Total Split (s)	37.0	37.0	43.0	43.0	43.0	0.0
Total Split (%)	46.3%	46.3%	53.8%	53.8%	53.8%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	Min	Min	Min	
Act Effct Green (s)	13.0	13.0	43.9	43.9	43.9	
Actuated g/C Ratio	0.20	0.20	0.73	0.73	0.73	
v/c Ratio	0.22	0.09	0.20	0.33	0.42	
Control Delay	13.6	6.2	8.0	4.6	5.0	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	13.6	6.2	8.0	4.6	5.0	
LOS	B	A	A	A	A	
Approach Delay	11.5			4.7	5.0	
Approach LOS	B			A	A	
Queue Length 50th (ft)	13	0	4	45	61	
Queue Length 95th (ft)	35	13	22	81	109	
Internal Link Dist (ft)	135			701	294	
Turn Bay Length (ft)	150		75			
Base Capacity (vph)	699	643	249	2632	2659	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	23	0	0	69	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.11	0.05	0.18	0.31	0.38	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 60.4

Natural Cycle: 50

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.42

Intersection Signal Delay: 5.2

Intersection LOS: A

Intersection Capacity Utilization 47.4%

ICU Level of Service A

Analysis Period (min) 15

Splits and Phases: 7: Morris Avenue & Glen Cove Avenue

 ø2	 ø4
43 s	37 s
 ø6	
43 s	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR	SBL
Lane Configurations												
Volume (vph)	45	14	61	9	2	27	37	6	97	733	9	21
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	7%	7%	7%	7%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%					0%		
Lane Group Flow (vph)	49	81	0	0	81	0	0	0	112	807	0	23
Turn Type	Perm			Perm				pm+pt	pm+pt			Perm
Protected Phases		4			8			5	5	2		
Permitted Phases	4			8				2	2			6
Detector Phases	4	4		8	8			5	5	2		6
Minimum Initial (s)	8.0	8.0		8.0	8.0			3.0	3.0	20.0		20.0
Minimum Split (s)	28.0	28.0		25.0	25.0			7.0	7.0	26.0		26.0
Total Split (s)	31.0	31.0	0.0	31.0	31.0	0.0	0.0	19.0	19.0	49.0	0.0	30.0
Total Split (%)	38.8%	38.8%	0.0%	38.8%	38.8%	0.0%	0.0%	23.8%	23.8%	61.3%	0.0%	37.5%
Yellow Time (s)	4.0	4.0		4.0	4.0			3.0	3.0	4.0		4.0
All-Red Time (s)	2.0	2.0		2.0	2.0			1.0	1.0	2.0		2.0
Lead/Lag								Lead	Lead			Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None			None	None	C-Min		C-Min
Act Effct Green (s)	11.0	11.0			11.0				63.8	64.6		55.6
Actuated g/C Ratio	0.14	0.14			0.14				0.80	0.81		0.70
v/c Ratio	0.27	0.30			0.32				0.37	0.30		0.05
Control Delay	34.7	14.3			21.4				6.0	3.1		2.6
Queue Delay	0.0	0.0			0.0				0.0	0.0		0.0
Total Delay	34.7	14.3			21.4				6.0	3.1		2.6
LOS	C	B			C				A	A		A
Approach Delay		22.0			21.4					3.4		
Approach LOS		C			C					A		
Queue Length 50th (ft)	23	7			19				10	46		1
Queue Length 95th (ft)	52	43			56				25	81		m4
Internal Link Dist (ft)		605			24					365		
Turn Bay Length (ft)									200			220
Base Capacity (vph)	440	559			567				445	2721		426
Starvation Cap Reductn	0	0			0				0	0		0
Spillback Cap Reductn	0	0			0				0	0		0
Storage Cap Reductn	0	0			0				0	0		0
Reduced v/c Ratio	0.11	0.14			0.14				0.25	0.30		0.05

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 80

Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green, Master Intersection

Natural Cycle: 65

Control Type: Actuated-Coordinated

Maximum v/c Ratio: 0.44

Intersection Signal Delay: 4.9

Intersection LOS: A

Intersection Capacity Utilization 58.4%

ICU Level of Service B

Analysis Period (min) 15

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Herb Hill Road & Brewster Street

 Ø2		 Ø4
49 s		31 s
 Ø5	 Ø6	 Ø8
19 s	30 s	31 s



Lane Group	SBT	SBR	SBR2
Lane Configurations	↑↑		
Volume (vph)	878	70	18
Confl. Peds. (#/hr)			
Confl. Bikes (#/hr)			
Peak Hour Factor	0.92	0.92	0.92
Growth Factor	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%
Bus Blockages (#/hr)	0	0	0
Parking (#/hr)			
Mid-Block Traffic (%)	0%		
Lane Group Flow (vph)	1050	0	0
Turn Type			
Protected Phases	6		
Permitted Phases			
Detector Phases	6		
Minimum Initial (s)	20.0		
Minimum Split (s)	26.0		
Total Split (s)	30.0	0.0	0.0
Total Split (%)	37.5%	0.0%	0.0%
Yellow Time (s)	4.0		
All-Red Time (s)	2.0		
Lead/Lag	Lag		
Lead-Lag Optimize?			
Recall Mode	C-Min		
Act Effct Green (s)	55.6		
Actuated g/C Ratio	0.70		
v/c Ratio	0.44		
Control Delay	2.8		
Queue Delay	0.0		
Total Delay	2.8		
LOS	A		
Approach Delay	2.8		
Approach LOS	A		
Queue Length 50th (ft)	30		
Queue Length 95th (ft)	51		
Internal Link Dist (ft)	354		
Turn Bay Length (ft)			
Base Capacity (vph)	2382		
Starvation Cap Reductn	0		
Spillback Cap Reductn	0		
Storage Cap Reductn	0		
Reduced v/c Ratio	0.44		

Intersection Summary

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	268	35	31	598	554	300
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	7%	7%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Lane Group Flow (vph)	291	38	34	650	928	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Detector Phases	4	4	2	2	6	
Minimum Initial (s)	8.0	8.0	20.0	20.0	20.0	
Minimum Split (s)	14.0	14.0	26.0	26.0	26.0	
Total Split (s)	25.0	25.0	55.0	55.0	55.0	0.0
Total Split (%)	31.3%	31.3%	68.8%	68.8%	68.8%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	Min	Min	Min	
Act Effct Green (s)	14.4	14.4	22.6	22.6	22.6	
Actuated g/C Ratio	0.32	0.32	0.50	0.50	0.50	
v/c Ratio	0.51	0.07	0.15	0.40	0.54	
Control Delay	15.5	4.4	9.9	8.7	7.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	15.5	4.4	9.9	8.7	7.5	
LOS	B	A	A	A	A	
Approach Delay	14.3			8.7	7.5	
Approach LOS	B			A	A	
Queue Length 50th (ft)	58	0	4	47	51	
Queue Length 95th (ft)	109	13	21	101	117	
Internal Link Dist (ft)	273			201	357	
Turn Bay Length (ft)			150			
Base Capacity (vph)	722	689	308	2265	2284	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.40	0.06	0.11	0.29	0.41	
Intersection Summary						
Cycle Length: 80						
Actuated Cycle Length: 45.1						
Natural Cycle: 40						
Control Type: Semi Act-Uncoord						
Maximum v/c Ratio: 0.54						
Intersection Signal Delay: 9.1				Intersection LOS: A		
Intersection Capacity Utilization 47.3%				ICU Level of Service A		
Analysis Period (min) 15						

Splits and Phases: 8: Shore Road & Glen Cove Avenue

 ø2	 ø4
55 s	25 s
 ø6	
55 s	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	25	125	27	104	50	89	14	282	113	94	363	31
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.96	0.96	0.96	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	7%	7%	7%	4%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	26	158	0	113	151	0	0	445	0	0	531	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	4	4		8	8		2	2		6	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0		20.0	20.0		20.0	20.0	
Minimum Split (s)	10.0	10.0		10.0	10.0		26.0	26.0		26.0	26.0	
Total Split (s)	26.0	26.0	0.0	26.0	26.0	0.0	44.0	44.0	0.0	44.0	44.0	0.0
Total Split (%)	37.1%	37.1%	0.0%	37.1%	37.1%	0.0%	62.9%	62.9%	0.0%	62.9%	62.9%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)	15.8	15.8		15.8	15.8			41.9			41.9	
Actuated g/C Ratio	0.23	0.23		0.23	0.23			0.64			0.64	
v/c Ratio	0.09	0.34		0.48	0.36			0.37			0.57	
Control Delay	16.0	15.9		23.2	9.2			6.5			10.4	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	16.0	15.9		23.2	9.2			6.5			10.4	
LOS	B	B		C	A			A			B	
Approach Delay		15.9			15.2			6.5			10.4	
Approach LOS		B			B			A			B	
Queue Length 50th (ft)	4	26		21	9			49			80	
Queue Length 95th (ft)	24	88		80	56			139			234	
Internal Link Dist (ft)		645			488			861			659	
Turn Bay Length (ft)	150			200								
Base Capacity (vph)	397	645		338	562			1329			1024	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.07	0.24		0.33	0.27			0.33			0.52	

Intersection Summary

Cycle Length: 70

Actuated Cycle Length: 65

Natural Cycle: 40

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.57

Intersection Signal Delay: 10.8

Intersection LOS: B

Intersection Capacity Utilization 76.0%

ICU Level of Service D

Analysis Period (min) 15

Splits and Phases: 92: Sea Cliff Avenue & Glen Cove Avenue

 ø2	 ø4
44 s	26 s
 ø6	 ø8
44 s	26 s

9: Glenwood Road/Glen Head Road & Glen Cove Avenue

Build 2016

AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	64	163	39	103	133	261	33	344	75	264	487	58
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.94	0.94	0.94	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	7%	7%	7%	4%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	289	0	0	541	0	35	446	0	287	592	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	4	4		8	8		2	2		6	6	
Minimum Initial (s)	8.0	8.0		8.0	8.0		20.0	20.0		20.0	20.0	
Minimum Split (s)	26.0	26.0		26.0	26.0		26.0	26.0		26.0	26.0	
Total Split (s)	31.0	31.0	0.0	31.0	31.0	0.0	39.0	39.0	0.0	39.0	39.0	0.0
Total Split (%)	44.3%	44.3%	0.0%	44.3%	44.3%	0.0%	55.7%	55.7%	0.0%	55.7%	55.7%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)		22.4			22.4		30.6	30.6		30.6	30.6	
Actuated g/C Ratio		0.37			0.37		0.50	0.50		0.50	0.50	
v/c Ratio		0.51			0.83		0.14	0.46		0.85	0.68	
Control Delay		18.6			27.7		11.3	12.1		41.5	17.0	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		18.6			27.7		11.3	12.1		41.5	17.0	
LOS		B			C		B	B		D	B	
Approach Delay		18.6			27.7			12.1			25.0	
Approach LOS		B			C			B			C	
Queue Length 50th (ft)		86			167		8	110		101	177	
Queue Length 95th (ft)		153			#332		24	180		#247	287	
Internal Link Dist (ft)		131			160			206			218	
Turn Bay Length (ft)							75			125		
Base Capacity (vph)		645			732		262	1031		363	939	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.45			0.74		0.13	0.43		0.79	0.63	
Intersection Summary												
Cycle Length: 70												
Actuated Cycle Length: 61.3												
Natural Cycle: 60												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 0.85												
Intersection Signal Delay: 22.0						Intersection LOS: C						
Intersection Capacity Utilization 92.4%						ICU Level of Service F						
Analysis Period (min) 15												
# 95th percentile volume exceeds capacity, queue may be longer.												
Queue shown is maximum after two cycles.												

8/25/2009

Dutt Tarigoppula
Eschbacher EngineeringGlen Isle - FEIS
Lanes, Volumes, Timings

Splits and Phases: 9: Glenwood Road/Glen Head Road & Glen Cove Avenue

 ø2	 ø4
39 s	31 s
 ø6	 ø8
39 s	31 s

	↑	↶	↷	↓	↶	↷
Lane Group	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations	↑↑		↶	↑↑		
Volume (vph)	1334	0	742	1730	0	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	6%	6%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Lane Group Flow (vph)	1450	0	807	1880	0	0
Turn Type			Prot			
Protected Phases	2		4	2 4		
Permitted Phases						
Detector Phases	2		4	2 4		
Minimum Initial (s)	20.0		10.0			
Minimum Split (s)	27.0		17.0			
Total Split (s)	67.0	0.0	42.0	109.0	0.0	0.0
Total Split (%)	61.5%	0.0%	38.5%	100.0%	0.0%	0.0%
Yellow Time (s)	4.0		4.0			
All-Red Time (s)	3.0		3.0			
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	Max		None			
Act Effct Green (s)	63.0		38.0	109.0		
Actuated g/C Ratio	0.58		0.35	1.00		
v/c Ratio	0.72		1.27	0.55		
Control Delay	19.3		167.7	0.6		
Queue Delay	0.0		0.0	0.0		
Total Delay	19.3		167.7	0.6		
LOS	B		F	A		
Approach Delay	19.3			50.8		
Approach LOS	B			D		
Queue Length 50th (ft)	364		~716	0		
Queue Length 95th (ft)	449		#951	0		
Internal Link Dist (ft)	495			382	312	
Turn Bay Length (ft)			375			
Base Capacity (vph)	2006		633	3406		
Starvation Cap Reductn	0		0	0		
Spillback Cap Reductn	0		0	0		
Storage Cap Reductn	0		0	0		
Reduced v/c Ratio	0.72		1.27	0.55		
Intersection Summary						
Cycle Length: 109						
Actuated Cycle Length: 109						
Natural Cycle: 75						
Control Type: Semi Act-Uncoord						
Maximum v/c Ratio: 1.27						
Intersection Signal Delay: 39.8				Intersection LOS: D		
Intersection Capacity Utilization 84.6%				ICU Level of Service E		
Analysis Period (min) 15						
~ Volume exceeds capacity, queue is theoretically infinite.						
Queue shown is maximum after two cycles.						
# 95th percentile volume exceeds capacity, queue may be longer.						

Queue shown is maximum after two cycles.

Splits and Phases: 5: Glen Cove Road & Route 107



3: Glen Head Road & Glen Cove Road

Build 2016

AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	165	293	4	48	253	7	39	1161	34	30	1531	169
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	9%	9%	9%	5%	5%	5%	4%	4%	4%	6%	6%	6%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	179	318	4	0	335	0	42	1262	37	32	1790	0
Turn Type	Split		Free	Split			Perm		Perm	Perm		
Protected Phases	4	4		8	8			2			6	
Permitted Phases			Free				2		2	6		
Detector Phases	4	4		8	8		2	2	2	6	6	
Minimum Initial (s)	8.0	8.0		8.0	8.0		20.0	20.0	20.0	20.0	20.0	
Minimum Split (s)	26.0	26.0		27.0	27.0		27.0	27.0	27.0	27.0	27.0	
Total Split (s)	26.0	26.0	0.0	27.0	27.0	0.0	72.0	72.0	72.0	72.0	72.0	0.0
Total Split (%)	20.8%	20.8%	0.0%	21.6%	21.6%	0.0%	57.6%	57.6%	57.6%	57.6%	57.6%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min	Min	Min	Min	
Act Effct Green (s)	22.0	22.0	125.0		23.0		68.0	68.0	68.0	68.0	68.0	
Actuated g/C Ratio	0.18	0.18	1.00		0.18		0.54	0.54	0.54	0.54	0.54	
v/c Ratio	0.66	1.11	0.00		1.02		0.71	0.65	0.05	0.29	0.98	
Control Delay	60.7	133.8	0.0		104.7		83.5	22.0	13.6	24.3	44.2	
Queue Delay	0.0	0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay	60.7	133.8	0.0		104.7		83.5	22.0	13.6	24.3	44.2	
LOS	E	F	A		F		F	C	B	C	D	
Approach Delay		106.6			104.7			23.7			43.8	
Approach LOS		F			F			C			D	
Queue Length 50th (ft)	136	~294	0		~286		24	363	13	14	708	
Queue Length 95th (ft)	218	#479	0		#475		#100	437	31	41	#911	
Internal Link Dist (ft)		203			244			256			524	
Turn Bay Length (ft)			75				200		75	150		
Base Capacity (vph)	272	286	1482		329		59	1951	788	110	1832	
Starvation Cap Reductn	0	0	0		0		0	0	0	0	0	
Spillback Cap Reductn	0	0	0		0		0	0	0	0	0	
Storage Cap Reductn	0	0	0		0		0	0	0	0	0	
Reduced v/c Ratio	0.66	1.11	0.00		1.02		0.71	0.65	0.05	0.29	0.98	

Intersection Summary

Cycle Length: 125

Actuated Cycle Length: 125

Natural Cycle: 130

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 1.11

Intersection Signal Delay: 50.0

Intersection LOS: D

Intersection Capacity Utilization 89.5%

ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.

Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.

8/25/2009

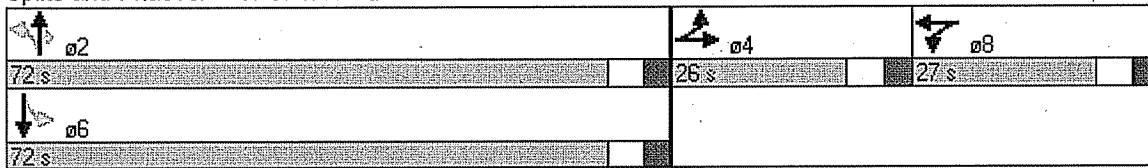
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Eschbacher Engineering

Glen Isle - FEIS
Lanes, Volumes, Timings

Queue shown is maximum after two cycles.

Splits and Phases: 3: Glen Head Road & Glen Cove Road



2: Back Road & Glen Cove Road

Build 2016

AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	58	0	389	5	2	3	310	1230	11	13	1653	186
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	5%	2%	2%	2%	4%	4%	4%	5%	5%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	120	366	0	10	0	337	1349	0	14	1777	200
Turn Type	Split		pt+ov	Split			Prot			Perm		pm+ov
Protected Phases	3	3	3 5	4	4		5	2			6	3
Permitted Phases										6		6
Detector Phases	3	3	3 5	4	4		5	2		6	6	3
Minimum Initial (s)	8.0	8.0		8.0	8.0		5.0	10.0		10.0	10.0	8.0
Minimum Split (s)	24.0	24.0		38.3	38.3		12.8	24.8		24.8	24.8	24.0
Total Split (s)	25.5	25.5	61.5	38.3	38.3	0.0	36.0	94.8	0.0	58.8	58.8	25.5
Total Split (%)	16.1%	16.1%	38.8%	24.1%	24.1%	0.0%	22.7%	59.8%	0.0%	37.1%	37.1%	16.1%
Yellow Time (s)	3.5	3.5		3.5	3.5		4.0	4.0		4.0	4.0	3.5
All-Red Time (s)	2.0	2.0		4.8	4.8		2.0	4.8		4.8	4.8	2.0
Lead/Lag	Lead	Lead		Lag	Lag		Lead			Lag	Lag	Lead
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		None	Max		Max	Max	None
Act Effct Green (s)		14.0	43.2		12.3		25.9	91.4		61.6	61.6	79.6
Actuated g/C Ratio		0.12	0.37		0.10		0.22	0.79		0.53	0.53	0.68
v/c Ratio		0.59	0.48		0.05		0.77	0.49		0.09	0.98	0.20
Control Delay		51.5	4.1		47.2		55.5	6.4		22.2	44.7	4.7
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	0.0
Total Delay		51.5	4.1		47.2		55.5	6.4		22.2	44.7	4.7
LOS		D	A		D		E	A		C	D	A
Approach Delay		15.8			47.2			16.2			40.5	
Approach LOS		B			D			B			D	
Queue Length 50th (ft)		69	0		5		224	122		5	614	19
Queue Length 95th (ft)		152	49		25		392	381		25	#1193	73
Internal Link Dist (ft)		345			160			143			316	
Turn Bay Length (ft)												
Base Capacity (vph)		283	825		438		516	2727		161	1820	1040
Starvation Cap Reductn		0	0		0		0	0		0	0	0
Spillback Cap Reductn		0	0		0		0	0		0	0	0
Storage Cap Reductn		0	0		0		0	0		0	0	0
Reduced v/c Ratio		0.42	0.44		0.02		0.65	0.49		0.09	0.98	0.19

Intersection Summary

Cycle Length: 158.6

Actuated Cycle Length: 116.3

Natural Cycle: 150

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.98

Intersection Signal Delay: 27.8

Intersection LOS: C

Intersection Capacity Utilization 85.2%

ICU Level of Service E

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

8/25/2009

Dutt Tarigoppula
Eschbacher EngineeringGlen Isle - FEIS
Lanes, Volumes, Timings

Splits and Phases: 2: Back Road & Glen Cove Road

 ø2	 ø3	 ø4
94.8 s	25.5 s	38.3 s
 ø5	 ø6	
36 s	58.8 s	

3: Pratt Blvd & Bridge Street

Build 2016

AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	50	1036	35	35	847	55	23	69	72	96	63	55
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.96	0.96	0.96	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	12%	12%	12%	12%	12%	12%	2%	2%	2%	5%	5%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	54	1164	0	36	939	0	25	153	0	0	172	60
Turn Type	Perm			Perm			Perm			Perm		Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8			4		4
Detector Phases	2	2		6	6		8	8		4	4	4
Minimum Initial (s)	5.0	5.0		5.0	5.0		7.0	7.0		7.0	7.0	7.0
Minimum Split (s)	26.0	26.0		26.0	26.0		25.5	25.5		25.5	25.5	25.5
Total Split (s)	43.5	43.5	0.0	43.5	43.5	0.0	26.5	26.5	0.0	26.5	26.5	26.5
Total Split (%)	62.1%	62.1%	0.0%	62.1%	62.1%	0.0%	37.9%	37.9%	0.0%	37.9%	37.9%	37.9%
Yellow Time (s)	4.0	4.0		4.0	4.0		3.5	3.5		3.5	3.5	3.5
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	2.0
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	Min	Min		Min	Min		None	None		None	None	None
Act Effct Green (s)	40.0	40.0		40.0	40.0		14.3	14.3		14.3	14.3	14.3
Actuated g/C Ratio	0.68	0.68		0.68	0.68		0.23	0.23		0.23	0.23	0.23
v/c Ratio	0.20	0.55		0.19	0.45		0.10	0.35		0.55	0.15	0.15
Control Delay	8.5	8.2		9.7	7.0		18.4	12.3		25.7	6.6	6.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	8.5	8.2		9.7	7.0		18.4	12.3		25.7	6.6	6.6
LOS	A	A		A	A		B	B		C	A	A
Approach Delay		8.2			7.1			13.1			20.8	
Approach LOS		A			A			B			C	
Queue Length 50th (ft)	7	107		5	76		7	21			51	0
Queue Length 95th (ft)	30	220		24	158		24	64			109	23
Internal Link Dist (ft)		458			137			80			142	
Turn Bay Length (ft)	120											
Base Capacity (vph)	283	2179		190	2172		353	578			443	545
Starvation Cap Reductn	0	0		0	0		0	0			0	0
Spillback Cap Reductn	0	0		0	0		0	0			0	0
Storage Cap Reductn	0	0		0	0		0	0			0	0
Reduced v/c Ratio	0.19	0.53		0.19	0.43		0.07	0.26			0.39	0.11
Intersection Summary												
Cycle Length: 70												
Actuated Cycle Length: 58.8												
Natural Cycle: 60												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 0.55												
Intersection Signal Delay: 9.3						Intersection LOS: A						
Intersection Capacity Utilization 63.9%						ICU Level of Service B						
Analysis Period (min) 15												

Splits and Phases: 3: Pratt Blvd & Bridge Street

 ø2	 ø4
43.5 s	26.5 s
 ø6	 ø8
43.5 s	26.5 s

1: Cottage Row Road & Brewster Street

Build 2016

AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	177	163	304	24	97	184	87	665	23	169	757	97
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	5%	5%	5%	7%	7%	7%	4%	4%	4%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	369	330	0	131	200	95	748	0	184	928	0
Turn Type	Perm		Free	Perm		Perm	pm+pt			pm+pt		
Protected Phases		3			7		5	2		1	6	
Permitted Phases	3		Free	7		7	2			6		
Detector Phases	3	3		7	7	7	5	2		1	6	
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0	4.0	20.0		4.0	20.0	
Minimum Split (s)	28.0	28.0		28.0	28.0	28.0	8.0	26.0		8.0	26.0	
Total Split (s)	31.0	31.0	0.0	31.0	31.0	31.0	12.0	37.0	0.0	12.0	37.0	0.0
Total Split (%)	38.8%	38.8%	0.0%	38.8%	38.8%	38.8%	15.0%	46.3%	0.0%	15.0%	46.3%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	3.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	1.0	2.0		1.0	2.0	
Lead/Lag							Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	None		None	None	None	None	C-Min		None	C-Min	
Act Effct Green (s)		24.4	80.0		24.4	24.4	42.4	35.8		45.4	38.8	
Actuated g/C Ratio		0.30	1.00		0.30	0.30	0.53	0.45		0.57	0.48	
v/c Ratio		0.78	0.20		0.26	0.41	0.37	0.51		0.49	0.57	
Control Delay		36.6	0.3		21.1	23.9	10.8	17.4		13.1	18.0	
Queue Delay		0.0	0.0		0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay		36.6	0.3		21.1	23.9	10.8	17.4		13.1	18.0	
LOS		D	A		C	C	B	B		B	B	
Approach Delay		19.5			22.8			16.7			17.2	
Approach LOS		B			C			B			B	
Queue Length 50th (ft)		164	0		48	77	11	147		39	174	
Queue Length 95th (ft)		253	0		86	129	45	209		76	256	
Internal Link Dist (ft)		294			184			618			362	
Turn Bay Length (ft)			250			100	175			175		
Base Capacity (vph)		542	1636		577	550	288	1520		390	1672	
Starvation Cap Reductn		0	0		0	0	0	0		0	0	
Spillback Cap Reductn		0	0		0	0	0	0		0	0	
Storage Cap Reductn		0	0		0	0	0	0		0	0	
Reduced v/c Ratio		0.68	0.20		0.23	0.36	0.33	0.49		0.47	0.56	
Intersection Summary												
Cycle Length: 80												
Actuated Cycle Length: 80												
Offset: 30 (38%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green												
Natural Cycle: 65												
Control Type: Actuated-Coordinated												
Maximum v/c Ratio: 0.78												
Intersection Signal Delay: 18.2						Intersection LOS: B						
Intersection Capacity Utilization 64.7%						ICU Level of Service C						
Analysis Period (min) 15												

Splits and Phases: 1: Cottage Row Road & Brewster Street

 ø1	 ø2	 ø3
12 s	37 s	31 s
 ø5	 ø6	 ø7
12 s	37 s	31 s

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	43	360	1	72	6	389	83	1	100	333	7
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.95	0.95
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	47	391	0	86	0	423	90	1	105	358	0
Turn Type	Perm		pt+ov	Perm			Split		Perm	Split		
Protected Phases		4	4 6		8		6	6		2	2	
Permitted Phases	4			8					6			
Detector Phases	4	4	4 6	8	8		6	6	6	2	2	
Minimum Initial (s)	8.0	8.0		8.0	8.0		25.0	25.0	25.0	8.0	8.0	
Minimum Split (s)	20.0	20.0		20.0	20.0		31.0	31.0	31.0	14.0	14.0	
Total Split (s)	26.0	26.0	57.0	26.0	26.0	0.0	31.0	31.0	31.0	31.0	31.0	0.0
Total Split (%)	29.5%	29.5%	64.8%	29.5%	29.5%	0.0%	35.2%	35.2%	35.2%	35.2%	35.2%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0	2.0	2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min	Min	None	None	
Act Effct Green (s)		11.3	42.5		11.3		27.2	27.2	27.2	20.4	20.4	
Actuated g/C Ratio		0.16	0.60		0.16		0.38	0.38	0.38	0.29	0.29	
v/c Ratio		0.16	0.33		0.29		0.62	0.13	0.00	0.21	0.69	
Control Delay		28.8	3.9		29.4		24.4	17.0	14.0	20.1	30.1	
Queue Delay		0.0	0.0		0.0		0.0	0.0	0.0	0.0	0.0	
Total Delay		28.8	3.9		29.4		24.4	17.0	14.0	20.1	30.1	
LOS		C	A		C		C	B	B	C	C	
Approach Delay		6.6			29.4			23.1			27.9	
Approach LOS		A			C			C			C	
Queue Length 50th (ft)		18	25		32		144	24	0	34	134	
Queue Length 95th (ft)		49	73		75		287	64	3	72	233	
Internal Link Dist (ft)		1071			319			407			212	
Turn Bay Length (ft)									125	125		
Base Capacity (vph)		504	1254		501		679	714	608	598	628	
Starvation Cap Reductn		0	0		0		0	0	0	0	0	
Spillback Cap Reductn		0	0		0		0	0	0	0	0	
Storage Cap Reductn		0	0		0		0	0	0	0	0	
Reduced v/c Ratio		0.09	0.31		0.17		0.62	0.13	0.00	0.18	0.57	
Intersection Summary												
Cycle Length: 88												
Actuated Cycle Length: 71												
Natural Cycle: 70												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 0.69												
Intersection Signal Delay: 20.1						Intersection LOS: C						
Intersection Capacity Utilization 56.9%						ICU Level of Service B						
Analysis Period (min) 15												

Splits and Phases: 5: Herb Hill Road & Charles Street

 ø2	 ø6	 ø4
31 s	31 s	26 s
		 ø8 26 s

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	144	423	15	5	253	8	20	11	5	4	1	217
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	157	476	0	0	289	0	0	39	0	0	5	233
Turn Type	pm+pt			Perm			Perm			Perm		Free
Protected Phases	5	2			6			8			4	
Permitted Phases	2			6			8			4		Free
Detector Phases	5	2		6	6		8	8		4	4	
Minimum Initial (s)	4.0	20.0		20.0	20.0		4.0	4.0		4.0	4.0	
Minimum Split (s)	8.0	26.0		26.0	26.0		10.0	10.0		10.0	10.0	
Total Split (s)	9.0	65.0	0.0	56.0	56.0	0.0	15.0	15.0	0.0	15.0	15.0	0.0
Total Split (%)	11.3%	81.3%	0.0%	70.0%	70.0%	0.0%	18.8%	18.8%	0.0%	18.8%	18.8%	0.0%
Yellow Time (s)	3.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag	Lead			Lag	Lag							
Lead-Lag Optimize?												
Recall Mode	None	Min		Min	Min		None	None		None	None	
Act Effct Green (s)	40.0	42.3			31.3			9.2			9.1	49.5
Actuated g/C Ratio	0.78	0.85			0.63			0.16			0.16	1.00
v/c Ratio	0.20	0.32			0.26			0.14			0.02	0.14
Control Delay	3.1	3.3			6.9			16.1			16.0	0.2
Queue Delay	0.0	0.0			0.0			0.0			0.0	0.0
Total Delay	3.1	3.3			6.9			16.1			16.0	0.2
LOS	A	A			A			B			B	A
Approach Delay		3.3			6.9			16.1			0.5	
Approach LOS		A			A			B			A	
Queue Length 50th (ft)	0	0			17			5			1	0
Queue Length 95th (ft)	32	100			95			27			8	0
Internal Link Dist (ft)		631			639			463			627	
Turn Bay Length (ft)												25
Base Capacity (vph)	798	1584			1405			332			326	1689
Starvation Cap Reductn	0	0			0			0			0	0
Spillback Cap Reductn	0	0			0			0			0	0
Storage Cap Reductn	0	0			0			0			0	0
Reduced v/c Ratio	0.20	0.30			0.21			0.12			0.02	0.14
Intersection Summary												
Cycle Length: 80												
Actuated Cycle Length: 49.5												
Natural Cycle: 45												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 0.32												
Intersection Signal Delay: 4.0						Intersection LOS: A						
Intersection Capacity Utilization 58.5%						ICU Level of Service B						
Analysis Period (min) 15												

Splits and Phases: 91: Forest Avenue & Lattingtown Road

 ø2		 ø4	
65 s		15 s	
 ø5	 ø6	 ø8	
9 s	56 s	15 s	

8: Northern Boulevard & Glen Cove Road

Build 2016

AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	369	570	82	301	1124	33	142	856	277	25	1151	523
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.93	0.93	0.93	0.98	0.98	0.98	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	6%	6%	6%	3%	3%	3%	4%	4%	4%	5%	5%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	401	709	0	324	1244	0	145	873	283	27	1238	562
Turn Type	Prot			Prot			Prot		pt+ov	Prot		pt+ov
Protected Phases	5	2		1	6		7	4	4 1	3	8	8 5
Permitted Phases												
Detector Phases	5	2		1	6		7	4	4 1	3	8	8 5
Minimum Initial (s)	8.0	24.0		5.0	24.0		7.0	20.0		3.0	20.0	
Minimum Split (s)	13.0	37.5		10.0	37.5		13.0	34.3		9.0	34.3	
Total Split (s)	25.5	50.3	0.0	23.5	48.3	0.0	21.7	61.5	85.0	9.7	49.5	75.0
Total Split (%)	17.6%	34.7%	0.0%	16.2%	33.3%	0.0%	15.0%	42.4%	58.6%	6.7%	34.1%	51.7%
Yellow Time (s)	3.0	4.0		3.0	4.0		3.0	4.3		3.0	4.3	
All-Red Time (s)	2.0	2.5		2.0	2.5		3.0	3.0		3.0	3.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Recall Mode	None	C-Max		None	C-Max		None	None		None	None	
Act Effct Green (s)	21.2	47.2		18.6	44.6		16.9	61.4	84.0	5.7	46.3	71.5
Actuated g/C Ratio	0.15	0.33		0.13	0.31		0.12	0.42	0.58	0.04	0.32	0.49
v/c Ratio	0.86	0.65		0.79	1.20		0.77	0.61	0.34	0.43	1.17	0.44
Control Delay	78.7	45.5		76.1	141.9		87.3	35.6	17.9	88.7	129.0	25.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	78.7	45.5		76.1	141.9		87.3	35.6	17.9	88.7	129.0	25.2
LOS	E	D		E	F		F	D	B	F	F	C
Approach Delay		57.5			128.3			37.5			96.5	
Approach LOS		E			F			D			F	
Queue Length 50th (ft)	192	304		154	~751		134	351	142	25	~738	192
Queue Length 95th (ft)	#274	376		209	#891		#237	426	207	61	#877	246
Internal Link Dist (ft)		319			439			466			338	
Turn Bay Length (ft)	425			300			300		420	325		300
Base Capacity (vph)	473	1087		427	1038		198	1420	848	63	1061	1295
Starvation Cap Reductn	0	0		0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0		0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0		0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.85	0.65		0.76	1.20		0.73	0.61	0.33	0.43	1.17	0.43
Intersection Summary												
Cycle Length: 145												
Actuated Cycle Length: 145												
Offset: 132 (91%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow												
Natural Cycle: 120												
Control Type: Actuated-Coordinated												
Maximum v/c Ratio: 1.20												
Intersection Signal Delay: 84.4						Intersection LOS: F						
Intersection Capacity Utilization 95.7%						ICU Level of Service F						
Analysis Period (min) 15												
~ Volume exceeds capacity, queue is theoretically infinite.												
Queue shown is maximum after two cycles.												

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

Splits and Phases: 8: Northern Boulevard & Glen Cove Road

 ø1	 ø2	 ø3	 ø4
23.5 s	50.3 s	9.7 s	61.5 s
 ø5	 ø6	 ø7	 ø8
25.5 s	48.3 s	21.7 s	49.5 s

1: Driveway/Witte Lane & Bryant Avenue

Build 2016

AM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	0	1	3	299	11	8	12	419	30	465	686	4
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.93	0.93	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	4	0	325	21	0	0	501	0	500	742	0
Turn Type	Perm			Perm			Perm			pm+pt		
Protected Phases		8			4			2		1	6	
Permitted Phases	8			4			2			6		
Detector Phases	8	8		4	4		2	2		1	6	
Minimum Initial (s)	12.0	12.0		12.0	12.0		45.0	45.0		4.0	45.0	
Minimum Split (s)	17.5	17.5		17.5	17.5		50.0	50.0		9.0	50.0	
Total Split (s)	27.0	27.0	0.0	27.0	27.0	0.0	51.0	51.0	0.0	12.0	63.0	0.0
Total Split (%)	30.0%	30.0%	0.0%	30.0%	30.0%	0.0%	56.7%	56.7%	0.0%	13.3%	70.0%	0.0%
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.5	1.5		1.5	1.5		1.5	1.5		1.5	1.5	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Recall Mode	None	None		None	None		None	None		None	None	
Act Effct Green (s)		23.0		23.0	23.0			46.2		58.2	58.2	
Actuated g/C Ratio		0.26		0.26	0.26			0.52		0.65	0.65	
v/c Ratio		0.01		0.96	0.05			0.55		1.03	0.67	
Control Delay		18.5		73.6	18.6			17.1		65.1	13.5	
Queue Delay		0.0		0.0	0.0			0.0		0.0	0.0	
Total Delay		18.5		73.6	18.6			17.1		65.1	13.5	
LOS		B		E	B			-B		E	B	
Approach Delay		18.5			70.2			17.1			34.3	
Approach LOS		B			E			B			C	
Queue Length 50th (ft)		0		180	5			178		~140	230	
Queue Length 95th (ft)		9		#350	23			270		#354	355	
Internal Link Dist (ft)		52			208			183			261	
Turn Bay Length (ft)										125		
Base Capacity (vph)		436		340	429			920		484	1106	
Starvation Cap Reductn		0		0	0			0		0	0	
Spillback Cap Reductn		0		0	0			0		0	0	
Storage Cap Reductn		0		0	0			0		0	0	
Reduced v/c Ratio		0.01		0.96	0.05			0.54		1.03	0.67	
Intersection Summary												
Cycle Length: 90												
Actuated Cycle Length: 89.2												
Natural Cycle: 90												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 1.03												
Intersection Signal Delay: 36.1						Intersection LOS: D						
Intersection Capacity Utilization 108.2%						ICU Level of Service G						
Analysis Period (min) 15												
~ Volume exceeds capacity, queue is theoretically infinite.												
Queue shown is maximum after two cycles.												
# 95th percentile volume exceeds capacity, queue may be longer.												

1: Driveway/Witte Lane & Bryant Avenue

Build 2016
AM Peak

Queue shown is maximum after two cycles.

Splits and Phases: 1: Driveway/Witte Lane & Bryant Avenue

 ø1	 ø2	 ø4
12 s	51 s	27 s
 ø6		 ø8
63 s		27 s

Proposed Action Build Unmitigated
PM Peak

4: Pratt Blvd & Glen Cove Avenue

Build 2016

PM Peak

											
Lane Group	WBL2	WBL	WBR	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NER
Lane Configurations											
Volume (vph)	256	367	571	265	597	624	433	480	14	0	0
Confl. Peds. (#/hr)											
Confl. Bikes (#/hr)											
Peak Hour Factor	0.92	0.92	0.92	0.96	0.96	0.96	0.93	0.93	0.93	0.25	0.25
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	5%	5%	5%	5%	5%	5%	5%	5%	5%	0%	0%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)											
Mid-Block Traffic (%)		0%			0%			0%		0%	
Lane Group Flow (vph)	220	457	621	276	622	650	466	531	0	0	0
Turn Type	Split		pm+ov	pm+pt		pm+ov	Prot				
Protected Phases	4	4	1	5	2	4	1	6			
Permitted Phases			4	2		2					
Detector Phases	4	4	1	5	2	4	1	6			
Minimum Initial (s)	8.0	8.0	8.0	4.0	23.0	8.0	8.0	23.0			
Minimum Split (s)	22.0	22.0	15.0	10.0	41.0	22.0	15.0	41.0			
Total Split (s)	26.0	26.0	31.0	18.0	66.0	26.0	31.0	79.0	0.0	0.0	0.0
Total Split (%)	21.1%	21.1%	25.2%	14.6%	53.7%	21.1%	25.2%	64.2%	0.0%	0.0%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	4.0	4.0	4.0			
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0			
Lead/Lag			Lead	Lead	Lag		Lead	Lag			
Lead-Lag Optimize?											
Recall Mode	None	None	Min	None	Min	None	Min	Min			
Act Effct Green (s)	20.8	20.8	47.1	38.1	25.5	50.3	22.4	35.2			
Actuated g/C Ratio	0.26	0.26	0.58	0.47	0.32	0.62	0.28	0.44			
v/c Ratio	0.57	0.57	0.39	0.56	0.59	0.73	0.52	0.37			
Control Delay	33.6	29.9	9.7	13.5	27.2	17.5	26.9	16.5			
Queue Delay	0.0	0.0	0.0	0.0	0.0	1.2	0.0	0.0			
Total Delay	33.6	29.9	9.7	13.5	27.2	18.7	26.9	16.5			
LOS	C	C	A	B	C	B	C	B			
Approach Delay		20.9			21.2			21.4			
Approach LOS		C			C			C			
Queue Length 50th (ft)	108	112	85	56	146	216	103	96			
Queue Length 95th (ft)	197	173	126	91	210	393	151	135			
Internal Link Dist (ft)		458			408			365		404	
Turn Bay Length (ft)	75	75	350	220		100	150				
Base Capacity (vph)	408	844	1570	513	1761	903	1024	2063			
Starvation Cap Reductn	0	0	0	0	0	95	0	0			
Spillback Cap Reductn	0	0	0	0	0	0	0	0			
Storage Cap Reductn	0	0	0	0	0	0	0	0			
Reduced v/c Ratio	0.54	0.54	0.40	0.54	0.35	0.80	0.46	0.26			
Intersection Summary											
Cycle Length: 123											
Actuated Cycle Length: 80.7											
Natural Cycle: 80											
Control Type: Semi Act-Uncoord											
Maximum v/c Ratio: 0.73											
Intersection Signal Delay: 21.1						Intersection LOS: C					
Intersection Capacity Utilization 57.7%						ICU Level of Service B					
Analysis Period (min) 15											

4: Pratt Blvd & Glen Cove Avenue

Build 2016

PM Peak

Splits and Phases: 4: Pratt Blvd & Glen Cove Avenue

 ø1	 ø2	 ø4
31 s	66 s	26 s
 ø5	 ø6	
18 s	79 s	

6: Charles Street & Glen Cove Avenue

Build 2016

PM Peak

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	397	51	305	41	0	40	0	1104	40	23	737	0
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.25	0.92	0.25	0.94	0.94	0.92	0.92	0.25
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	432	55	332	0	88	0	0	1217	0	25	801	0
Turn Type	Perm		Perm	Perm						Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8						6		
Detector Phases	4	4	4	8	8			2		6	6	
Minimum Initial (s)	6.0	6.0	6.0	6.0	6.0			20.0		20.0	20.0	
Minimum Split (s)	12.0	12.0	12.0	12.0	12.0			26.0		26.0	26.0	
Total Split (s)	37.0	37.0	37.0	37.0	37.0	0.0	0.0	43.0	0.0	43.0	43.0	0.0
Total Split (%)	46.3%	46.3%	46.3%	46.3%	46.3%	0.0%	0.0%	53.8%	0.0%	53.8%	53.8%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0			4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0			2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None	None	None	None			Min		Min	Min	
Act Effct Green (s)	25.3	25.3	25.3		25.3			28.8		28.8	28.8	
Actuated g/C Ratio	0.40	0.40	0.40		0.40			0.46		0.46	0.46	
v/c Ratio	0.78	0.07	0.46		0.13			0.77		0.27	0.52	
Control Delay	28.7	12.8	11.1		8.3			18.9		21.3	14.3	
Queue Delay	0.2	0.0	0.0		0.0			0.4		0.0	0.0	
Total Delay	28.9	12.8	11.1		8.3			19.3		21.3	14.3	
LOS	C	B	B		A			B		C	B	
Approach Delay		20.6			8.3			19.3			14.5	
Approach LOS		C			A			B			B	
Queue Length 50th (ft)	126	11	48		9			205		6	115	
Queue Length 95th (ft)	#331	38	138		1			317		27	183	
Internal Link Dist (ft)		349			162			294			408	
Turn Bay Length (ft)	250									125		
Base Capacity (vph)	652	889	821		763			1858		110	1802	
Starvation Cap Reductn	0	0	0		0			210		0	0	
Spillback Cap Reductn	15	0	0		17			24		0	0	
Storage Cap Reductn	0	0	0		0			0		0	0	
Reduced v/c Ratio	0.68	0.06	0.40		0.12			0.74		0.23	0.44	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 62.5

Natural Cycle: 50

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.78

Intersection Signal Delay: 18.0

Intersection LOS: B

Intersection Capacity Utilization 67.1%

ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

8/25/2009

Dutt Tarigoppula

Eschbacher Engineering

Glen Isle - FEIS
Lanes, Volumes, Timings

Splits and Phases: 6: Charles Street & Glen Cove Avenue

 ø2	 ø4
43 s	37 s
 ø6	 ø8
43 s	37 s

7: Morris Avenue & Glen Cove Avenue

Build 2016

PM Peak

						
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	84	27	11	887	902	38
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.96	0.96	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	5%	5%	5%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Lane Group Flow (vph)	91	29	11	924	1021	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Detector Phases	4	4	2	2	6	
Minimum Initial (s)	8.0	8.0	20.0	20.0	20.0	
Minimum Split (s)	20.0	20.0	30.0	30.0	30.0	
Total Split (s)	37.0	37.0	43.0	43.0	43.0	0.0
Total Split (%)	46.3%	46.3%	53.8%	53.8%	53.8%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	Min	Min	Min	
Act Effct Green (s)	13.2	13.2	43.0	43.0	43.0	
Actuated g/C Ratio	0.20	0.20	0.73	0.73	0.73	
v/c Ratio	0.27	0.09	0.05	0.38	0.43	
Control Delay	14.2	6.2	5.5	5.0	5.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	14.3	6.2	5.5	5.0	5.3	
LOS	B	A	A	A	A	
Approach Delay	12.3			5.0	5.3	
Approach LOS	B			A	A	
Queue Length 50th (ft)	16	0	1	56	64	
Queue Length 95th (ft)	43	13	7	103	118	
Internal Link Dist (ft)	135			701	294	
Turn Bay Length (ft)	150		75			
Base Capacity (vph)	707	650	250	2671	2657	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	58	0	0	158	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.14	0.04	0.04	0.37	0.38	
Intersection Summary						
Cycle Length: 80						
Actuated Cycle Length: 59.2						
Natural Cycle: 50						
Control Type: Semi Act-Uncoord						
Maximum v/c Ratio: 0.43						
Intersection Signal Delay: 5.6				Intersection LOS: A		
Intersection Capacity Utilization 39.5%				ICU Level of Service A		
Analysis Period (min) 15						

9/9/2009

Dutt Tarigoppula
Eschbacher EngineeringGlen Isle - FEIS
Lanes, Volumes, Timings

7: Morris Avenue & Glen Cove Avenue

Build 2016
PM Peak

Splits and Phases: 7: Morris Avenue & Glen Cove Avenue

 ø2	 ø4
43 s	97 s
 ø6	
43 s	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	WBR2	NBL2	NBL	NBT	NBR	SBL
Lane Configurations												
Volume (vph)	78	28	30	12	2	58	67	6	277	941	32	23
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.96	0.96	0.96	0.96	0.93
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	5%	5%	5%	5%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%					0%		
Lane Group Flow (vph)	85	63	0	0	151	0	0	0	295	1013	0	25
Turn Type	Perm			Perm				pm+pt	pm+pt			Perm
Protected Phases		4			8			5	5	2		
Permitted Phases	4			8				2	2			6
Detector Phases	4	4		8	8			5	5	2		6
Minimum Initial (s)	8.0	8.0		8.0	8.0			3.0	3.0	20.0		20.0
Minimum Split (s)	28.0	28.0		25.0	25.0			7.0	7.0	26.0		26.0
Total Split (s)	31.0	31.0	0.0	31.0	31.0	0.0	0.0	19.0	19.0	49.0	0.0	30.0
Total Split (%)	38.8%	38.8%	0.0%	38.8%	38.8%	0.0%	0.0%	23.8%	23.8%	61.3%	0.0%	37.5%
Yellow Time (s)	4.0	4.0		4.0	4.0			3.0	3.0	4.0		4.0
All-Red Time (s)	2.0	2.0		2.0	2.0			1.0	1.0	2.0		2.0
Lead/Lag								Lead	Lead			Lag
Lead-Lag Optimize?												
Recall Mode	None	None		None	None			None	None	C-Min		C-Min
Act Effct Green (s)	13.3	13.3			13.3				58.7	58.7		41.0
Actuated g/C Ratio	0.17	0.17			0.17				0.73	0.73		0.51
v/c Ratio	0.46	0.21			0.47				0.71	0.40		0.10
Control Delay	37.3	17.3			22.1				20.4	5.0		5.0
Queue Delay	0.0	0.0			0.0				0.0	0.3		0.0
Total Delay	37.3	17.3			22.1				20.4	5.3		5.0
LOS	D	B			C				C	A		A
Approach Delay		28.8			22.1					8.7		
Approach LOS		C			C					A		
Queue Length 50th (ft)	39	13			39				61	76		2
Queue Length 95th (ft)	77	43			87				144	140		m5
Internal Link Dist (ft)		605			24					365		
Turn Bay Length (ft)									200			220
Base Capacity (vph)	376	562			583				469	2510		254
Starvation Cap Reductn	0	0			0				0	812		0
Spillback Cap Reductn	0	0			0				0	0		0
Storage Cap Reductn	0	0			0				0	0		0
Reduced v/c Ratio	0.23	0.11			0.26				0.63	0.60		0.10
Intersection Summary												
Cycle Length: 80												
Actuated Cycle Length: 80												
Offset: 0 (0%), Referenced to phase 2:NBTL and 6:SBTL, Start of Green, Master Intersection												
Natural Cycle: 70												
Control Type: Actuated-Coordinated												
Maximum v/c Ratio: 0.71												
Intersection Signal Delay: 9.9						Intersection LOS: A						
Intersection Capacity Utilization 72.2%						ICU Level of Service C						
Analysis Period (min) 15												
# 95th percentile volume exceeds capacity, queue may be longer.												
Queue shown is maximum after two cycles.												

8/25/2009

Dutt Tarigoppula
Eschbacher EngineeringGlen Isle - FEIS
Lanes, Volumes, Timings



Lane Group	SBT	SBR	SBR2
Lane Configurations	↑↑		
Volume (vph)	894	43	24
Confl. Peds. (#/hr)			
Confl. Bikes (#/hr)			
Peak Hour Factor	0.93	0.93	0.93
Growth Factor	100%	100%	100%
Heavy Vehicles (%)	5%	5%	5%
Bus Blockages (#/hr)	0	0	0
Parking (#/hr)			
Mid-Block Traffic (%)	0%		
Lane Group Flow (vph)	1033	0	0
Turn Type			
Protected Phases	6		
Permitted Phases			
Detector Phases	6		
Minimum Initial (s)	20.0		
Minimum Split (s)	26.0		
Total Split (s)	30.0	0.0	0.0
Total Split (%)	37.5%	0.0%	0.0%
Yellow Time (s)	4.0		
All-Red Time (s)	2.0		
Lead/Lag	Lag		
Lead-Lag Optimize?			
Recall Mode	C-Min		
Act Effct Green (s)	41.0		
Actuated g/C Ratio	0.51		
v/c Ratio	0.59		
Control Delay	7.1		
Queue Delay	0.0		
Total Delay	7.1		
LOS	A		
Approach Delay	7.0		
Approach LOS	A		
Queue Length 50th (ft)	34		
Queue Length 95th (ft)	#370		
Internal Link Dist (ft)	354		
Turn Bay Length (ft)			
Base Capacity (vph)	1746		
Starvation Cap Reductn	0		
Spillback Cap Reductn	0		
Storage Cap Reductn	0		
Reduced v/c Ratio	0.59		
Intersection Summary			

m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Herb Hill Road & Brewster Street

 ø2	 ø4
49 s	31 s
 ø5	 ø6
19 s	 ø8 31 s



Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Volume (vph)	426	47	46	714	748	345
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.95	0.95	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	5%	5%	5%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Lane Group Flow (vph)	463	51	48	752	1188	0
Turn Type		Perm	Perm			
Protected Phases	4			2	6	
Permitted Phases		4	2			
Detector Phases	4	4	2	2	6	
Minimum Initial (s)	8.0	8.0	20.0	20.0	20.0	
Minimum Split (s)	14.0	14.0	26.0	26.0	26.0	
Total Split (s)	25.0	25.0	55.0	55.0	55.0	0.0
Total Split (%)	31.3%	31.3%	68.8%	68.8%	68.8%	0.0%
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0	
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0	
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	None	None	Min	Min	Min	
Act Effct Green (s)	21.1	21.1	24.6	24.6	24.6	
Actuated g/C Ratio	0.39	0.39	0.46	0.46	0.46	
v/c Ratio	0.67	0.08	0.34	0.49	0.77	
Control Delay	21.0	4.9	16.7	11.3	13.8	
Queue Delay	0.0	0.0	0.0	0.0	0.0	
Total Delay	21.0	4.9	16.7	11.3	13.8	
LOS	C	A	B	B	B	
Approach Delay	19.4			11.6	13.8	
Approach LOS	B			B	B	
Queue Length 50th (ft)	105	0	9	81	128	
Queue Length 95th (ft)	#284	19	32	118	192	
Internal Link Dist (ft)	273			201	357	
Turn Bay Length (ft)			150			
Base Capacity (vph)	695	673	198	2118	2086	
Starvation Cap Reductn	0	0	0	0	0	
Spillback Cap Reductn	0	0	0	0	0	
Storage Cap Reductn	0	0	0	0	0	
Reduced v/c Ratio	0.67	0.08	0.24	0.36	0.57	

Intersection Summary

Cycle Length: 80

Actuated Cycle Length: 53.8

Natural Cycle: 45

Control Type: Semi Act-Uncoord

Maximum v/c Ratio: 0.77

Intersection Signal Delay: 14.3

Intersection LOS: B

Intersection Capacity Utilization 68.5%

ICU Level of Service C

Analysis Period (min) 15

95th percentile volume exceeds capacity, queue may be longer.

Queue shown is maximum after two cycles.

8/25/2009

Dutt Tarigoppula

Eschbacher Engineering

Glen Isle - FEIS
Lanes, Volumes, Timings

Splits and Phases: 8: Shore Road & Glen Cove Avenue

 ø2	 ø4
55 s	25 s
 ø6	
55 s	

												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	24	118	35	104	63	116	35	411	126	105	345	46
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	4%	4%	4%	5%	5%	5%	5%	5%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	26	166	0	113	194	0	0	622	0	0	539	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	4	4		8	8		2	2		6	6	
Minimum Initial (s)	4.0	4.0		4.0	4.0		20.0	20.0		20.0	20.0	
Minimum Split (s)	10.0	10.0		10.0	10.0		26.0	26.0		26.0	26.0	
Total Split (s)	26.0	26.0	0.0	26.0	26.0	0.0	44.0	44.0	0.0	44.0	44.0	0.0
Total Split (%)	37.1%	37.1%	0.0%	37.1%	37.1%	0.0%	62.9%	62.9%	0.0%	62.9%	62.9%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)	14.4	14.4		14.4	14.4			38.1			38.1	
Actuated g/C Ratio	0.24	0.24		0.24	0.24			0.65			0.65	
v/c Ratio	0.10	0.36		0.48	0.43			0.51			0.62	
Control Delay	17.1	16.3		24.3	10.0			8.5			12.0	
Queue Delay	0.0	0.0		0.0	0.0			0.0			0.0	
Total Delay	17.1	16.3		24.3	10.0			8.5			12.0	
LOS	B	B		C	A			A			B	
Approach Delay		16.4			15.3			8.5			12.0	
Approach LOS		B			B			A			B	
Queue Length 50th (ft)	5	29		23	13			87			88	
Queue Length 95th (ft)	24	90		80	67			235			267	
Internal Link Dist (ft)		645			488			861			659	
Turn Bay Length (ft)	150			200								
Base Capacity (vph)	361	651		335	585			1313			937	
Starvation Cap Reductn	0	0		0	0			0			0	
Spillback Cap Reductn	0	0		0	0			0			0	
Storage Cap Reductn	0	0		0	0			0			0	
Reduced v/c Ratio	0.07	0.25		0.34	0.33			0.47			0.58	
Intersection Summary												
Cycle Length: 70												
Actuated Cycle Length: 58.3												
Natural Cycle: 45												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 0.62												
Intersection Signal Delay: 11.8						Intersection LOS: B						
Intersection Capacity Utilization 81.8%						ICU Level of Service D						
Analysis Period (min) 15												

Splits and Phases: 92: Sea Cliff Avenue & Glen Cove Avenue

 ø2	 ø4
44 s	26 s
 ø6	 ø8
44 s	26 s

9: Glenwood Road/Glen Head Road & Glen Cove Avenue

Build 2016

PM Peak

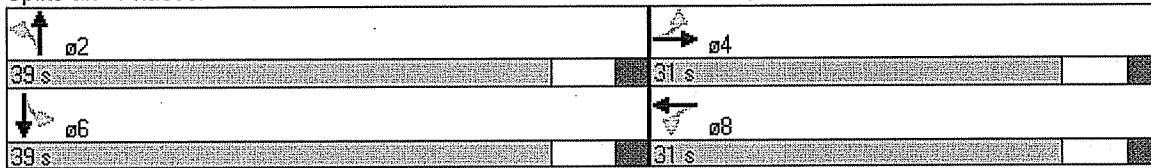
												
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	82	170	48	117	148	274	32	525	96	216	455	57
Confl. Peds. (#/hr)												
Confl. Bikes (#/hr)												
Peak Hour Factor	0.92	0.92	0.92	0.96	0.96	0.96	0.96	0.96	0.96	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	4%	4%	4%	2%	2%	2%	5%	5%	5%	5%	5%	5%
Bus Blockages (#/hr)	0	0	0	0	0	0	0	0	0	0	0	0
Parking (#/hr)												
Mid-Block Traffic (%)		0%			0%			0%			0%	
Lane Group Flow (vph)	0	326	0	0	561	0	33	647	0	235	557	0
Turn Type	Perm			Perm			Perm			Perm		
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phases	4	4		8	8		2	2		6	6	
Minimum Initial (s)	8.0	8.0		8.0	8.0		20.0	20.0		20.0	20.0	
Minimum Split (s)	26.0	26.0		26.0	26.0		26.0	26.0		26.0	26.0	
Total Split (s)	31.0	31.0	0.0	31.0	31.0	0.0	39.0	39.0	0.0	39.0	39.0	0.0
Total Split (%)	44.3%	44.3%	0.0%	44.3%	44.3%	0.0%	55.7%	55.7%	0.0%	55.7%	55.7%	0.0%
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lead/Lag												
Lead-Lag Optimize?												
Recall Mode	None	None		None	None		Min	Min		Min	Min	
Act Effct Green (s)		24.5			24.5		35.1	35.1		35.1	35.1	
Actuated g/C Ratio		0.36			0.36		0.52	0.52		0.52	0.52	
v/c Ratio		0.61			0.87		0.12	0.64		1.16	0.62	
Control Delay		22.3			33.1		10.7	15.5		135.3	15.8	
Queue Delay		0.0			0.0		0.0	0.0		0.0	0.0	
Total Delay		22.3			33.1		10.7	15.5		135.3	15.8	
LOS		C			C		B	B		F	B	
Approach Delay		22.3			33.1			15.3			51.2	
Approach LOS		C			C			B			D	
Queue Length 50th (ft)		102			181		7	188		~126	161	
Queue Length 95th (ft)		181			#358		22	297		#253	264	
Internal Link Dist (ft)		131			160			206			218	
Turn Bay Length (ft)							75			125		
Base Capacity (vph)		564			681		284	1018		203	898	
Starvation Cap Reductn		0			0		0	0		0	0	
Spillback Cap Reductn		0			0		0	0		0	0	
Storage Cap Reductn		0			0		0	0		0	0	
Reduced v/c Ratio		0.58			0.82		0.12	0.64		1.16	0.62	
Intersection Summary												
Cycle Length: 70												
Actuated Cycle Length: 67.7												
Natural Cycle: 65												
Control Type: Semi Act-Uncoord												
Maximum v/c Ratio: 1.16												
Intersection Signal Delay: 32.6						Intersection LOS: C						
Intersection Capacity Utilization 98.6%						ICU Level of Service F						
Analysis Period (min) 15												
~ Volume exceeds capacity, queue is theoretically infinite.												
Queue shown is maximum after two cycles.												
# 95th percentile volume exceeds capacity, queue may be longer.												

8/25/2009

Dutt Tarigoppula
Eschbacher EngineeringGlen Isle - FEIS
Lanes, Volumes, Timings

Queue shown is maximum after two cycles.

Splits and Phases: 9: Glenwood Road/Glen Head Road & Glen Cove Avenue



						
Lane Group	NBT	NBR	SBL	SBT	NWL	NWR
Lane Configurations						
Volume (vph)	1695	0	671	1422	0	0
Confl. Peds. (#/hr)						
Confl. Bikes (#/hr)						
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Growth Factor	100%	100%	100%	100%	100%	100%
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%
Bus Blockages (#/hr)	0	0	0	0	0	0
Parking (#/hr)						
Mid-Block Traffic (%)	0%			0%	0%	
Lane Group Flow (vph)	1842	0	729	1546	0	0
Turn Type			Prot			
Protected Phases	2		4	2 4		
Permitted Phases						
Detector Phases	2		4	2 4		
Minimum Initial (s)	20.0		10.0			
Minimum Split (s)	27.0		17.0			
Total Split (s)	67.0	0.0	42.0	109.0	0.0	0.0
Total Split (%)	61.5%	0.0%	38.5%	100.0%	0.0%	0.0%
Yellow Time (s)	4.0		4.0			
All-Red Time (s)	3.0		3.0			
Lead/Lag						
Lead-Lag Optimize?						
Recall Mode	Max		None			
Act Effct Green (s)	63.0		38.0	109.0		
Actuated g/C Ratio	0.58		0.35	1.00		
v/c Ratio	0.90		1.11	0.44		
Control Delay	27.8		103.0	0.4		
Queue Delay	0.0		0.0	0.0		
Total Delay	27.8		103.0	0.4		
LOS	C		F	A		
Approach Delay	27.8			33.3		
Approach LOS	C			C		
Queue Length 50th (ft)	562		~584	0		
Queue Length 95th (ft)	690		#813	0		
Internal Link Dist (ft)	495			382	312	
Turn Bay Length (ft)			375			
Base Capacity (vph)	2045		658	3539		
Starvation Cap Reductn	0		0	0		
Spillback Cap Reductn	0		0	0		
Storage Cap Reductn	0		0	0		
Reduced v/c Ratio	0.90		1.11	0.44		
Intersection Summary						
Cycle Length: 109						
Actuated Cycle Length: 109						
Natural Cycle: 80						
Control Type: Semi Act-Uncoord						
Maximum v/c Ratio: 1.11						
Intersection Signal Delay: 30.8				Intersection LOS: C		
Intersection Capacity Utilization 90.7%				ICU Level of Service E		
Analysis Period (min) 15						
~ Volume exceeds capacity, queue is theoretically infinite.						
Queue shown is maximum after two cycles.						
# 95th percentile volume exceeds capacity, queue may be longer.						

8/25/2009

Dutt Tarigoppula

Eschbacher Engineering

Glen Isle - FEIS
Lanes, Volumes, Timings

Queue shown is maximum after two cycles.

Splits and Phases: 5: Glen Cove Road & Route 107

