APPENDIX P-3: 2040 ALTERNATIVE B INTERSECTION CAPACITY ANALYSES – SYNCHRO PRINOUTS – AM PEAK HOUR

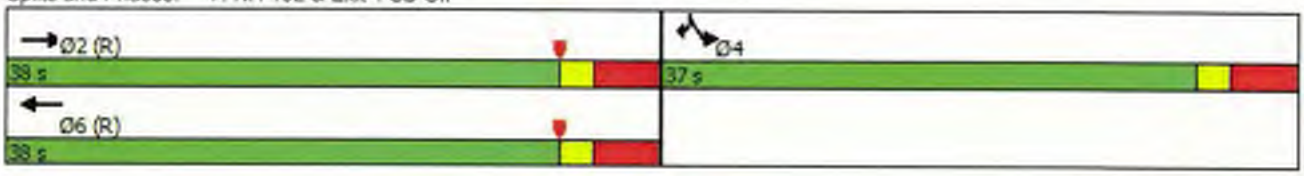
Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↰	↱↱
Traffic Volume (vph)	0	1280	720	0	385	925
Future Volume (vph)	0	1280	720	0	385	925
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	16	12
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	0.88
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	3471	3406	0	1930	2682
Flt Permitted					0.950	
Satd. Flow (perm)	0	3471	3406	0	1930	2682
Right Turn on Red				Yes		No
Satd. Flow (RTOR)						
Link Speed (mph)		30	30		25	
Link Distance (ft)		712	388		212	
Travel Time (s)		16.2	8.8		5.8	
Peak Hour Factor	0.93	0.93	0.88	0.88	0.89	0.89
Heavy Vehicles (%)	4%	4%	6%	6%	6%	6%
Adj. Flow (vph)	0	1376	818	0	433	1039
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1376	818	0	433	1039
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		24	24		16	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	0.85	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors		3	3		3	3
Detector Template		Thru	Thru		Left	
Leading Detector (ft)		256	256		256	256
Trailing Detector (ft)		-5	-5		-5	-5
Detector 1 Position(ft)		-5	-5		-5	-5
Detector 1 Size(ft)		50	50		50	50
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0
Detector 2 Position(ft)		125	125		125	125
Detector 2 Size(ft)		6	6		6	6
Detector 2 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0		0.0	0.0
Detector 3 Position(ft)		250	250		250	250
Detector 3 Size(ft)		6	6		6	6
Detector 3 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 3 Channel						

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector 3 Extend (s)		0.0	0.0		0.0	0.0
Turn Type		NA	NA		Prot	Prot
Protected Phases		2	6		4	4
Permitted Phases						
Detector Phase		2	6		4	4
Switch Phase						
Minimum Initial (s)		8.0	8.0		5.0	5.0
Minimum Split (s)		14.0	21.0		27.0	27.0
Total Split (s)		38.0	38.0		37.0	37.0
Total Split (%)		50.7%	50.7%		49.3%	49.3%
Maximum Green (s)		32.0	32.0		31.0	31.0
Yellow Time (s)		2.0	2.0		2.0	2.0
All-Red Time (s)		4.0	4.0		4.0	4.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0
Total Lost Time (s)		6.0	6.0		6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Recall Mode		C-Min	C-Min		None	None
Walk Time (s)			7.0		7.0	7.0
Flash Dont Walk (s)			8.0		14.0	14.0
Pedestrian Calls (#/hr)			0		0	0
Act Effct Green (s)		32.0	32.0		31.0	31.0
Actuated g/C Ratio		0.43	0.43		0.41	0.41
v/c Ratio		0.93	0.56		0.54	0.94
Control Delay		26.5	22.7		19.8	38.4
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		26.5	22.7		19.8	38.4
LOS		C	C		B	D
Approach Delay		26.5	22.7		32.9	
Approach LOS		C	C		C	
Queue Length 50th (ft)		306	382		148	254
Queue Length 95th (ft)		m333	m387		228	#390
Internal Link Dist (ft)		632	308		132	
Turn Bay Length (ft)						
Base Capacity (vph)		1480	1453		797	1108
Starvation Cap Reductn		0	0		0	0
Spillback Cap Reductn		0	0		0	0
Storage Cap Reductn		0	0		0	0
Reduced v/c Ratio		0.93	0.56		0.54	0.94

Intersection Summary	
Area Type:	Other
Cycle Length: 75	
Actuated Cycle Length: 75	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow, Master Intersection	
Natural Cycle: 80	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.94	

Intersection Signal Delay: 28.2 Intersection LOS: C
Intersection Capacity Utilization 68.7% 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 7: NH 102 & Exit 4 SB Off



Lane Group	NBL2	NBL	NBR	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Traffic Volume (vph)	485	0	245	0	0	1415	250	0	0	820	500
Future Volume (vph)	485	0	245	0	0	1415	250	0	0	820	500
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	0	0	0	550		0	0		0
Storage Lanes		2	2	0	0	2		0	0		1
Taper Length (ft)		25		25		25			25		
Lane Util. Factor	0.97	1.00	0.88	1.00	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Frt			0.850								0.850
Flt Protected	0.950					0.950					
Satd. Flow (prot)	3242	0	2632	0	0	3335	3438	0	0	3505	1568
Flt Permitted	0.950					0.950					
Satd. Flow (perm)	3242	0	2632	0	0	3335	3438	0	0	3505	1568
Right Turn on Red			No					Yes			Yes
Satd. Flow (RTOR)											306
Link Speed (mph)		25		30			30			30	
Link Distance (ft)		856		390			760			857	
Travel Time (s)		23.3		8.9			17.3			19.5	
Peak Hour Factor	0.88	0.88	0.88	0.92	0.92	0.94	0.94	0.94	0.92	0.92	0.92
Heavy Vehicles (%)	8%	8%	8%	2%	2%	5%	5%	5%	3%	3%	3%
Adj. Flow (vph)	551	0	278	0	0	1505	266	0	0	891	543
Shared Lane Traffic (%)											
Lane Group Flow (vph)	551	0	278	0	0	1505	266	0	0	891	543
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Right	Left	Left	Right	Left	Right	Right
Median Width(ft)		24		0			24			24	
Link Offset(ft)		12		0			0			0	
Crosswalk Width(ft)		16		16			16			16	
Two way Left Turn Lane											
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	15	25	15	9	15		9	15		25
Number of Detectors	3		3			3	3			3	0
Detector Template											
Leading Detector (ft)	256		256			256	256			256	0
Trailing Detector (ft)	-5		-5			-5	-5			-5	0
Detector 1 Position(ft)	-5		-5			-5	-5			-5	-5
Detector 1 Size(ft)	55		55			55	55			55	50
Detector 1 Type	Cl+Ex		Cl+Ex			Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel											
Detector 1 Extend (s)	0.0		0.0			0.0	0.0			0.0	0.0
Detector 1 Queue (s)	0.0		0.0			0.0	0.0			0.0	0.0
Detector 1 Delay (s)	0.0		0.0			0.0	0.0			0.0	0.0
Detector 2 Position(ft)	125		125			125	125			125	
Detector 2 Size(ft)	6		6			6	6			6	
Detector 2 Type	Cl+Ex		Cl+Ex			Cl+Ex	Cl+Ex			Cl+Ex	
Detector 2 Channel											
Detector 2 Extend (s)	0.0		0.0			0.0	0.0			0.0	
Detector 3 Position(ft)	250		250			250	250			250	
Detector 3 Size(ft)	6		6			6	6			6	

Lane Group	NBL2	NBL	NBR	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Detector 3 Type	Cl+Ex		Cl+Ex			Cl+Ex	Cl+Ex			Cl+Ex	
Detector 3 Channel											
Detector 3 Extend (s)	0.0		0.0			0.0	0.0			0.0	
Turn Type	Prot		Prot			Prot	NA			NA	Free
Protected Phases	8		8			5	2			6	
Permitted Phases											Free
Detector Phase	8		2			5	2			6	
Switch Phase											
Minimum Initial (s)	10.0		10.0			5.0	8.0			8.0	
Minimum Split (s)	16.0		16.0			11.0	42.0			31.0	
Total Split (s)	31.0		31.0			73.0	119.0			46.0	
Total Split (%)	20.7%		20.7%			48.7%	79.3%			30.7%	
Maximum Green (s)	25.0		25.0			67.0	113.0			40.0	
Yellow Time (s)	2.0		2.0			2.0	2.0			2.0	
All-Red Time (s)	4.0		4.0			4.0	4.0			4.0	
Lost Time Adjust (s)	0.0		0.0			0.0	0.0			0.0	
Total Lost Time (s)	6.0		6.0			6.0	6.0			6.0	
Lead/Lag						Lead				Lag	
Lead-Lag Optimize?											
Vehicle Extension (s)	3.0		3.0			3.0	3.0			3.0	
Recall Mode	None		None			None	C-Min			C-Min	
Walk Time (s)							7.0			7.0	
Flash Dont Walk (s)							29.0			17.0	
Pedestrian Calls (#/hr)							0			0	
Act Effct Green (s)	25.0		25.0			67.0	113.0			40.0	150.0
Actuated g/C Ratio	0.17		0.17			0.45	0.75			0.27	1.00
v/c Ratio	1.02		0.63			1.01	0.10			0.95	0.35
Control Delay	104.4		65.6			51.1	9.0			74.0	0.6
Queue Delay	0.0		0.0			0.0	0.0			0.0	0.0
Total Delay	104.4		65.6			51.1	9.0			74.0	0.6
LOS	F		E			D	A			E	A
Approach Delay		91.3					44.7			46.2	
Approach LOS		F					D			D	
Queue Length 50th (ft)	~293		146			~706	51			454	0
Queue Length 95th (ft)	#398		197			m#903	m57			#588	0
Internal Link Dist (ft)		776		310			680			777	
Turn Bay Length (ft)						550					
Base Capacity (vph)	540		438			1489	2589			934	1568
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	1.02		0.63			1.01	0.10			0.95	0.35

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 147 (98%), Referenced to phase 2:NET and 6:SWT, Start of Yellow
Natural Cycle: 130

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.02
Intersection Signal Delay: 54.9 Intersection LOS: D
Intersection Capacity Utilization 92.9% 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.

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

Splits and Phases: 8: NH 102 & Exit 4 NB Off

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	690	420	260	730	0	0	0	0	105	0	385
Future Volume (vph)	0	690	420	260	730	0	0	0	0	105	0	385
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		350	0		0	0		0	0		0
Storage Lanes	0		1	1		0	0		0	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850									0.850
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	3167	1417	1687	3374	0	0	0	0	3303	0	1524
Flt Permitted				0.950						0.950		
Satd. Flow (perm)	0	3167	1417	1687	3374	0	0	0	0	3303	0	1524
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			457									110
Link Speed (mph)		30			30			30			35	
Link Distance (ft)		851			693			486			581	
Travel Time (s)		19.3			15.8			11.0			11.3	
Peak Hour Factor	0.92	0.92	0.92	0.73	0.73	0.73	0.92	0.92	0.92	0.74	0.74	0.74
Heavy Vehicles (%)	14%	14%	14%	7%	7%	7%	2%	2%	2%	6%	6%	6%
Adj. Flow (vph)	0	750	457	356	1000	0	0	0	0	142	0	520
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	750	457	356	1000	0	0	0	0	142	0	520
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Right	Left	Left	Right	Left	Left	Right	R NA	Left	Right
Median Width(ft)		36			36			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		25	15		9	15		9	15		9
Number of Detectors		3	2	3	3					3		2
Detector Template		Thru	Right	Left	Thru					Left		
Leading Detector (ft)		256	131	256	256					256		206
Trailing Detector (ft)		-5	-5	-5	-5					-5		-5
Detector 1 Position(ft)		-5	-5	-5	-5					-5		-5
Detector 1 Size(ft)		50	50	50	50					50		50
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0					0.0		0.0
Detector 1 Queue (s)		0.0	0.0	0.0	0.0					0.0		0.0
Detector 1 Delay (s)		0.0	0.0	0.0	0.0					0.0		0.0
Detector 2 Position(ft)		125	125	125	125					125		200
Detector 2 Size(ft)		6	6	6	6					6		6
Detector 2 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex		Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0	0.0	0.0	0.0					0.0		0.0
Detector 3 Position(ft)		250		250	250					250		
Detector 3 Size(ft)		6		6	6					6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 3 Type		Cl+Ex		Cl+Ex	Cl+Ex					Cl+Ex		
Detector 3 Channel												
Detector 3 Extend (s)		0.0		0.0	0.0					0.0		
Turn Type		NA	Free	Prot	NA					Prot		Prot
Protected Phases		2		1	6					4		4
Permitted Phases			Free									
Detector Phase		2		1	6					4		4
Switch Phase												
Minimum Initial (s)		9.0		4.0	9.0					4.0		4.0
Minimum Split (s)		21.0		10.0	21.0					10.0		10.0
Total Split (s)		42.0		39.0	81.0					49.0		49.0
Total Split (%)		32.3%		30.0%	62.3%					37.7%		37.7%
Maximum Green (s)		36.0		33.0	75.0					43.0		43.0
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
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		0.0
Total Lost Time (s)		6.0		6.0	6.0					6.0		6.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)		5.0		3.0	5.0					3.0		3.0
Recall Mode		C-Min		None	C-Min					None		None
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		8.0			8.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)		40.3	130.0	30.7	77.0					41.0		41.0
Actuated g/C Ratio		0.31	1.00	0.24	0.59					0.32		0.32
v/c Ratio		0.76	0.32	0.89	0.50					0.14		0.94
Control Delay		47.8	0.6	39.7	2.8					31.5		59.3
Queue Delay		0.0	0.0	0.0	0.0					0.0		0.0
Total Delay		47.8	0.6	39.7	2.8					31.5		59.3
LOS		D	A	D	A					C		E
Approach Delay		30.0			12.5						53.3	
Approach LOS		C			B						D	
Queue Length 50th (ft)		316	0	255	53					43		343
Queue Length 95th (ft)		#404	0	m142	39					55		356
Internal Link Dist (ft)		771			613			406			501	
Turn Bay Length (ft)			350									
Base Capacity (vph)		981	1417	428	1998					1092		577
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		0.76	0.32	0.83	0.50					0.13		0.90

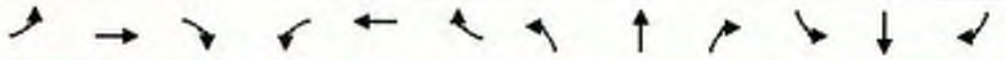
Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 75 (58%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle: 80

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.94
Intersection Signal Delay: 27.4 Intersection LOS: C
Intersection Capacity Utilization 76.3% 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Exit 5 SB On/Exit 5 SB Off & NH 28

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	525	270	0	0	545	570	445	0	165	0	0	0
Future Volume (vph)	525	270	0	0	545	570	445	0	165	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850			0.850			
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1641	3282	0	0	3438	1538	1656	0	1482	0	0	0
Flt Permitted	0.950						0.950					
Satd. Flow (perm)	1641	3282	0	0	3438	1538	1656	0	1482	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						604			169			
Link Speed (mph)		30			30			35			30	
Link Distance (ft)		693			542			867			392	
Travel Time (s)		15.8			12.3			16.9			8.9	
Peak Hour Factor	0.87	0.87	0.87	0.90	0.90	0.90	0.78	0.78	0.78	0.92	0.92	0.92
Heavy Vehicles (%)	10%	10%	10%	5%	5%	5%	9%	9%	9%	2%	2%	2%
Adj. Flow (vph)	603	310	0	0	606	633	571	0	212	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	603	310	0	0	606	633	571	0	212	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Right	Right	Right	Left	Right	Left	Left	Right
Median Width(ft)		36			42			12			12	
Link Offset(ft)		0			0			0			36	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		25	15		9	15		9
Number of Detectors	3	3			3	2	3		0			
Detector Template	Left	Thru			Thru	Right	Left					
Leading Detector (ft)	256	256			256	131	256		0			
Trailing Detector (ft)	-5	-5			-5	-5	-5		0			
Detector 1 Position(ft)	-5	-5			-5	-5	-5		-5			
Detector 1 Size(ft)	50	50			50	50	50		50			
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Detector 1 Queue (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Detector 1 Delay (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Detector 2 Position(ft)	125	125			125	125	125					
Detector 2 Size(ft)	6	6			6	6	6					
Detector 2 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex					
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0			0.0	0.0	0.0					
Detector 3 Position(ft)	250	250			250		250					
Detector 3 Size(ft)	6	6			6		6					
Detector 3 Type	Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex					
Detector 3 Channel												
Detector 3 Extend (s)	0.0	0.0			0.0		0.0					

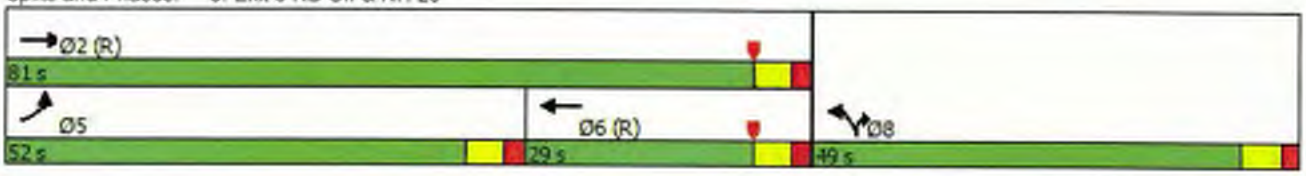


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA			NA	Free	Prot		Prot			
Protected Phases	5	2			6		8		8			
Permitted Phases		2			6	Free						
Detector Phase	5	2			6		8		8			
Switch Phase												
Minimum Initial (s)	4.0	16.0			16.0		4.0		4.0			
Minimum Split (s)	10.0	23.0			23.0		10.0		10.0			
Total Split (s)	52.0	81.0			29.0		49.0		49.0			
Total Split (%)	40.0%	62.3%			22.3%		37.7%		37.7%			
Maximum Green (s)	46.0	75.0			23.0		43.0		43.0			
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			
Lost Time Adjust (s)	0.0	0.0			0.0		0.0		0.0			
Total Lost Time (s)	6.0	6.0			6.0		6.0		6.0			
Lead/Lag	Lead				Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0			5.0		3.0		3.0			
Recall Mode	None	C-Min			C-Min		None		None			
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		10.0			10.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)	46.0	75.0			23.0	130.0	43.0		43.0			
Actuated g/C Ratio	0.35	0.58			0.18	1.00	0.33		0.33			
v/c Ratio	1.04	0.16			1.00	0.41	1.04		0.35			
Control Delay	55.8	2.7			89.0	0.8	92.8		9.7			
Queue Delay	0.0	0.0			0.0	0.0	0.0		0.0			
Total Delay	55.8	2.7			89.0	0.8	92.8		9.7			
LOS	E	A			F	A	F		A			
Approach Delay		37.8			43.9			70.3				
Approach LOS		D			D			E				
Queue Length 50th (ft)	~534	5			271	0	~520		25			
Queue Length 95th (ft)	#684	7			#398	0	#583		57			
Internal Link Dist (ft)		613			462			787			312	
Turn Bay Length (ft)												
Base Capacity (vph)	580	1893			608	1538	547		603			
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	1.04	0.16			1.00	0.41	1.04		0.35			

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow, Master Intersection	
Natural Cycle: 130	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.04	
Intersection Signal Delay: 49.1	Intersection LOS: D

Intersection Capacity Utilization 76.3% 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.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Exit 5 NB Off & NH 28



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	10	0	150	0	1	0	60	410	0	5	1030	20
Future Volume (vph)	10	0	150	0	1	0	60	410	0	5	1030	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		225	0		0	350		0	100		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850								0.997	
Flt Protected		0.950					0.950			0.950		
Satd. Flow (prot)	0	1770	1583	0	1900	0	1770	3539	0	1770	3529	0
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	1863	1583	0	1900	0	1770	3539	0	1770	3529	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			182								3	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		593			447			750			330	
Travel Time (s)		13.5			10.2			17.0			7.5	
Peak Hour Factor	0.92	0.92	0.92	0.25	0.25	0.25	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	11	0	163	0	4	0	65	446	0	5	1120	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	11	163	0	4	0	65	446	0	5	1142	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	3	3	1	3	1		3	3		3	3	
Detector Template	Left	Thru	Right	Left			Left	Thru		Left	Thru	
Leading Detector (ft)	256	256	45	256	45		256	256		256	256	
Trailing Detector (ft)	-5	-5	-5	-5	-5		-5	-5		-5	-5	
Detector 1 Position(ft)	-5	-5	-5	-5	-5		-5	-5		-5	-5	
Detector 1 Size(ft)	50	50	50	50	50		50	50		50	50	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)	125	125		125			125	125		125	125	
Detector 2 Size(ft)	6	6		6			6	6		6	6	
Detector 2 Type	Cl+Ex	Cl+Ex		Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0		0.0			0.0	0.0		0.0	0.0	
Detector 3 Position(ft)	250	250		250			250	250		250	250	
Detector 3 Size(ft)	6	6		6			6	6		6	6	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector 3 Type	Cl+Ex	Cl+Ex		Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 3 Channel												
Detector 3 Extend (s)	0.0	0.0		0.0			0.0	0.0		0.0	0.0	
Turn Type	Perm	NA	custom		NA		Prot	NA		Prot	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8		6	4								
Detector Phase	8	8	6	4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	8.0	5.0	5.0		5.0	8.0		5.0	8.0	
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0		24.0	24.0		11.0	24.0	
Total Split (s)	24.0	24.0	42.0	24.0	24.0		24.0	55.0		11.0	42.0	
Total Split (%)	26.7%	26.7%	46.7%	26.7%	26.7%		26.7%	61.1%		12.2%	46.7%	
Maximum Green (s)	18.0	18.0	36.0	18.0	18.0		18.0	49.0		5.0	36.0	
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	
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.0	6.0		6.0		6.0	6.0		6.0	6.0	
Lead/Lag			Lag				Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	Min	None	None		None	Min		None	Min	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0			0	
Act Effct Green (s)		6.3	43.5		6.2		7.9	55.9		5.2	43.5	
Actuated g/C Ratio		0.10	0.71		0.10		0.13	0.91		0.09	0.71	
v/c Ratio		0.06	0.14		0.02		0.29	0.14		0.03	0.45	
Control Delay		27.3	1.6		27.0		29.0	2.4		29.0	7.4	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		27.3	1.6		27.0		29.0	2.4		29.0	7.4	
LOS		C	A		C		C	A		C	A	
Approach Delay		3.2			27.0			5.8			7.5	
Approach LOS		A			C			A			A	
Queue Length 50th (ft)		4	0		1		23	0		2	85	
Queue Length 95th (ft)		19	22		3		60	67		12	248	
Internal Link Dist (ft)		513			367			670			250	
Turn Bay Length (ft)			225				350			100		
Base Capacity (vph)		567	1178		578		538	3313		149	2511	
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		0.02	0.14		0.01		0.12	0.13		0.03	0.45	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 61.1
Natural Cycle: 80
Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.45
Intersection Signal Delay: 6.6 Intersection LOS: A
Intersection Capacity Utilization 61.4% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 9: NH 102 & St. Charles Street/Londonderry Road

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	10	50	0	350	0	40	0	360	110	15	545	0
Future Volume (vph)	10	50	0	350	0	40	0	360	110	15	545	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.986			0.968				
Flt Protected		0.992			0.957						0.999	
Satd. Flow (prot)	0	1848	0	0	1741	0	0	1703	0	0	1808	0
Flt Permitted		0.910			0.678						0.982	
Satd. Flow (perm)	0	1695	0	0	1233	0	0	1703	0	0	1777	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					36			24				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		356			493			1124			603	
Travel Time (s)		8.1			11.2			25.5			13.7	
Peak Hour Factor	0.60	0.60	0.60	0.96	0.96	0.96	0.89	0.89	0.89	0.86	0.86	0.86
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	8%	8%	8%	5%	5%	5%
Adj. Flow (vph)	17	83	0	365	0	42	0	404	124	17	634	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	100	0	0	407	0	0	528	0	0	651	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		-22			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	3	1		3	2			2		3	2	
Detector Template	Left			Left						Left		
Leading Detector (ft)	256	45		256	131			131		256	131	
Trailing Detector (ft)	-5	-5		-5	-5			-5		-5	-5	
Detector 1 Position(ft)	-5	-5		-5	-5			-5		-5	-5	
Detector 1 Size(ft)	50	50		50	50			50		50	50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Detector 2 Position(ft)	125			125	125			125		125	125	
Detector 2 Size(ft)	6			6	6			6		6	6	
Detector 2 Type	Cl+Ex			Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)	0.0			0.0	0.0			0.0		0.0	0.0	
Detector 3 Position(ft)	250			250						250		
Detector 3 Size(ft)	6			6						6		
Detector 3 Type	Cl+Ex			Cl+Ex						Cl+Ex		
Detector 3 Channel												
Detector 3 Extend (s)	0.0			0.0						0.0		

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Turn Type	Perm	NA		Perm	NA			NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4						2		
Detector Phase	4	4		4	4			2		2	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0			5.0		5.0	5.0	
Minimum Split (s)	24.0	24.0		24.0	24.0			24.0		24.0	24.0	
Total Split (s)	41.0	41.0		41.0	41.0			49.0		49.0	49.0	
Total Split (%)	45.6%	45.6%		45.6%	45.6%			54.4%		54.4%	54.4%	
Maximum Green (s)	35.0	35.0		35.0	35.0			43.0		43.0	43.0	
Yellow Time (s)	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	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		6.0			6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Recall Mode	None	None		None	None			Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0			0		0	0	
Act Effct Green (s)		28.5			28.5			36.1			36.1	
Actuated g/C Ratio		0.37			0.37			0.47			0.47	
v/c Ratio		0.16			0.86			0.65			0.78	
Control Delay		18.5			40.4			20.3			26.2	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		18.5			40.4			20.3			26.2	
LOS		B			D			C			C	
Approach Delay		18.5			40.4			20.3			26.2	
Approach LOS		B			D			C			C	
Queue Length 50th (ft)		36			187			203			288	
Queue Length 95th (ft)		45			#351			312			404	
Internal Link Dist (ft)		276			413			1044			523	
Turn Bay Length (ft)												
Base Capacity (vph)		813			610			1014			1048	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.12			0.67			0.52			0.62	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 77.3			
Natural Cycle: 60			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.86			
Intersection Signal Delay: 27.3		Intersection LOS: C	
Intersection Capacity Utilization 80.6%		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: 10: NH 102 & Fordway/Madden Hill Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	220	60	20	340	190	150	200	20	60	260	20
Future Volume (vph)	70	220	60	20	340	190	150	200	20	60	260	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	390		0	110		0	70		0	245		245
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.968			0.946			0.986				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1656	1687	0	1703	1696	0	1719	1784	0	1703	1792	1524
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1656	1687	0	1703	1696	0	1719	1784	0	1703	1792	1524
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			35			5				182
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		505			530			361			411	
Travel Time (s)		11.5			12.0			8.2			9.3	
Peak Hour Factor	0.96	0.96	0.96	0.94	0.94	0.94	0.85	0.85	0.85	0.91	0.91	0.91
Heavy Vehicles (%)	9%	9%	9%	6%	6%	6%	5%	5%	5%	6%	6%	6%
Parking (#/hr)			0									
Adj. Flow (vph)	73	229	63	21	362	202	176	235	24	66	286	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	73	292	0	21	564	0	176	259	0	66	286	22
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												4
Detector Phase	5	2		1	6		3	8		7	4	4
Switch Phase												
Minimum Initial (s)	4.0	5.0		4.0	10.0		4.0	10.0		4.0	9.0	9.0
Minimum Split (s)	10.0	30.0		10.0	30.0		10.0	25.0		10.0	25.0	25.0
Total Split (s)	11.0	38.0		11.0	38.0		16.0	27.0		14.0	25.0	25.0
Total Split (%)	12.2%	42.2%		12.2%	42.2%		17.8%	30.0%		15.6%	27.8%	27.8%
Maximum Green (s)	5.0	32.0		5.0	32.0		10.0	21.0		8.0	19.0	19.0
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
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Min		None	Min		Min	None		Min	None	None
Walk Time (s)		7.0			7.0			7.0			7.0	7.0
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	11.0
Pedestrian Calls (#/hr)		10			10			0			10	10
Act Effct Green (s)	5.1	33.6		5.1	29.4		10.3	19.8		7.4	16.9	16.9
Actuated g/C Ratio	0.06	0.40		0.06	0.35		0.12	0.24		0.09	0.20	0.20
v/c Ratio	0.72	0.42		0.20	0.91		0.83	0.61		0.44	0.79	0.05
Control Delay	79.9	20.4		45.4	45.8		71.2	36.5		48.5	49.8	0.2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	79.9	20.4		45.4	45.8		71.2	36.5		48.5	49.8	0.2
LOS	E	C		D	D		E	D		D	D	A
Approach Delay		32.3			45.8			50.5			46.7	
Approach LOS		C			D			D			D	
Queue Length 50th (ft)	42	94		12	285		101	130		36	154	0
Queue Length 95th (ft)	#120	195		35	#487		#205	196		78	#271	0
Internal Link Dist (ft)		425			450			281			331	
Turn Bay Length (ft)	390			110			70			245		245
Base Capacity (vph)	102	758		104	691		212	466		168	420	496
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	0.72	0.39		0.20	0.82		0.83	0.56		0.39	0.68	0.04

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 83.3
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.91
Intersection Signal Delay: 44.3 Intersection LOS: D
Intersection Capacity Utilization 75.4% 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: 7: Birch St/Crystal Ave & NH 102 (E Broadway)

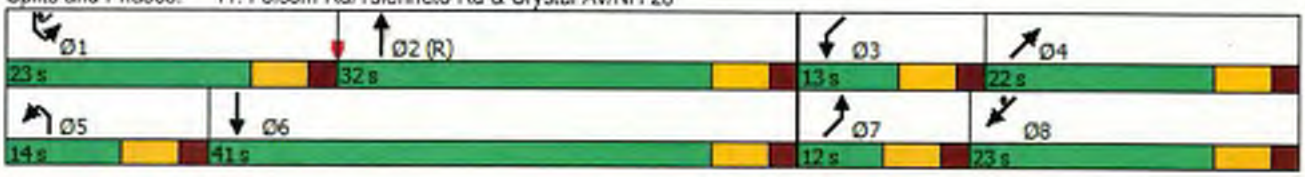
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	20	200	120	375	200	0	30	165	20	40	225	595
Future Volume (vph)	20	200	120	375	200	0	30	165	20	40	225	595
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	110		90	360		0	190		180	0		210
Storage Lanes	1		1	2		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850						0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	3471	1553	3335	3438	0	1752	1845	1568	1752	1845	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1736	3471	1553	3335	3438	0	1752	1845	1568	1752	1845	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			255						327			409
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		639			546			532			387	
Travel Time (s)		14.5			12.4			12.1			8.8	
Peak Hour Factor	0.84	0.84	0.84	0.79	0.79	0.79	0.86	0.86	0.86	0.99	0.99	0.99
Heavy Vehicles (%)	4%	4%	4%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	24	238	143	475	253	0	35	192	23	40	227	601
Shared Lane Traffic (%)												
Lane Group Flow (vph)	24	238	143	475	253	0	35	192	23	40	227	601
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Free	Prot	NA	pt+ov
Protected Phases	5	2		1	6		7	4		3	8	8 1
Permitted Phases		2	2		6			4	Free		8	
Detector Phase	5	2	2	1	6		7	4		3	8	8 1
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0		6.0	8.0		7.0	8.0	
Minimum Split (s)	14.0	31.0	31.0	14.0	40.0		12.0	21.0		13.0	21.0	
Total Split (s)	14.0	32.0	32.0	23.0	41.0		12.0	22.0		13.0	23.0	
Total Split (%)	15.6%	35.6%	35.6%	25.6%	45.6%		13.3%	24.4%		14.4%	25.6%	
Maximum Green (s)	8.0	26.0	26.0	17.0	35.0		6.0	16.0		7.0	17.0	
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	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	C-Max	C-Max	None	Max		None	None		None	None	
Walk Time (s)		5.0	5.0		5.0			5.0			5.0	
Flash Dont Walk (s)		10.0	10.0		10.0			10.0			10.0	
Pedestrian Calls (#/hr)		0	0		0			0			0	
Act Effct Green (s)	14.2	32.9	32.9	16.3	35.0		6.0	15.0	90.0	7.0	15.6	37.9
Actuated g/C Ratio	0.16	0.37	0.37	0.18	0.39		0.07	0.17	1.00	0.08	0.17	0.42
v/c Ratio	0.09	0.19	0.20	0.79	0.19		0.30	0.63	0.01	0.29	0.71	0.67
Control Delay	38.4	22.3	0.6	40.0	17.3		47.2	44.3	0.0	45.2	47.8	10.0
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Total Delay	38.4	22.3	0.6	40.0	17.3		47.2	44.3	0.0	45.2	47.8	10.0
LOS	D	C	A	D	B		D	D	A	D	D	B
Approach Delay		15.6			32.1			40.6			21.5	
Approach LOS		B			C			D			C	
Queue Length 50th (ft)	13	54	0	136	54		19	101	0	22	121	68
Queue Length 95th (ft)	35	78	0	139	68		47	162	0	54	198	184
Internal Link Dist (ft)		559			466			452			307	
Turn Bay Length (ft)	110		90	360			190		180			210
Base Capacity (vph)	273	1269	729	629	1337		116	328	1568	136	348	893
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.19	0.20	0.76	0.19		0.30	0.59	0.01	0.29	0.65	0.67

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:NBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.79
Intersection Signal Delay: 26.0 — Intersection LOS: C
Intersection Capacity Utilization 63.5% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 11: Folsom Rd/Tsienneto Rd & Crystal Av/NH 28



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	10	790	0	0	680	30	5	0	5	10	0	70
Future Volume (vph)	10	790	0	0	680	30	5	0	5	10	0	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	115		0	0		0	0		0
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	50			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.994				0.850			0.850
Flt Protected	0.950							0.950			0.950	
Satd. Flow (prot)	1687	3374	0	1863	3518	0	0	1805	1615	0	1787	1599
Flt Permitted	0.950							0.755			0.755	
Satd. Flow (perm)	1687	3374	0	1863	3518	0	0	1434	1615	0	1420	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					6				109			109
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		277			601			218			433	
Travel Time (s)		6.3			13.7			5.0			9.8	
Peak Hour Factor	0.83	0.83	0.83	0.92	0.92	0.92	0.50	0.50	0.50	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	2%	2%	2%	0%	0%	0%	1%	1%	1%
Adj. Flow (vph)	12	952	0	0	739	33	10	0	10	11	0	78
Shared Lane Traffic (%)												
Lane Group Flow (vph)	12	952	0	0	772	0	0	10	10	0	11	78
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases					6		8	8	8	4		4
Detector Phase	5	2		1	6		8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	8.0	8.0		5.0	8.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	14.0	46.0		11.0	43.0		33.0	33.0	33.0	33.0	33.0	33.0
Total Split (s)	14.0	46.0		11.0	43.0		33.0	33.0	33.0	33.0	33.0	33.0
Total Split (%)	15.6%	51.1%		12.2%	47.8%		36.7%	36.7%	36.7%	36.7%	36.7%	36.7%
Maximum Green (s)	8.0	40.0		5.0	37.0		27.0	27.0	27.0	27.0	27.0	27.0
Yellow Time (s)	4.0	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	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0		6.0	6.0			6.0	6.0		6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max		None	None		None	None	None	None	None	None
Act Effct Green (s)	8.0	75.1			72.3			6.4	6.4		6.4	6.4
Actuated g/C Ratio	0.09	0.83			0.80			0.07	0.07		0.07	0.07
v/c Ratio	0.08	0.34			0.27			0.10	0.05		0.11	0.36
Control Delay	45.5	2.6			4.7			40.6	0.4		41.0	8.8
Queue Delay	0.0	0.0			0.0			0.0	0.0		0.0	0.0
Total Delay	45.5	2.6			4.7			40.6	0.4		41.0	8.8
LOS	D	A			A			D	A		D	A
Approach Delay		3.1			4.7			20.5			12.8	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Approach LOS		A			A			C			B	
Queue Length 50th (ft)	6	81			82			6	0		6	0
Queue Length 95th (ft)	m14	61			140			12	0		22	24
Internal Link Dist (ft)		197			521			138			353	
Turn Bay Length (ft)	100											
Base Capacity (vph)	149	2816			2829			430	560		426	556
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	0.08	0.34			0.27			0.02	0.02		0.03	0.14

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 63 (70%), Referenced to phase 2:EBT, Start of Green
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.36
Intersection Signal Delay: 4.4 Intersection LOS: A
Intersection Capacity Utilization 45.2% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 13: Applebees/Linlew Dr & NH 28

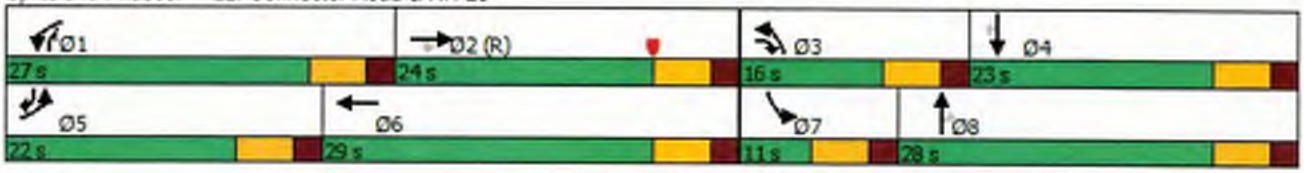
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	140	100	630	230	20	100	500	730	20	420	140
Future Volume (vph)	40	140	100	630	230	20	100	500	730	20	420	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	220		0	100		265	200		0
Storage Lanes	1		1	2		0	1		2	1		1
Taper Length (ft)	200			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	0.88	1.00	0.95	1.00
Frt			0.850		0.988				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1703	1792	1524	3367	3429	0	1805	3610	2842	1752	3505	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1703	1792	1524	3367	3429	0	1805	3610	2842	1752	3505	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			109		10				754			156
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		412			486			387			343	
Travel Time (s)		9.4			11.0			8.8			7.8	
Peak Hour Factor	0.83	0.83	0.83	0.97	0.97	0.97	0.67	0.67	0.67	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	4%	4%	4%	0%	0%	0%	3%	3%	3%
Adj. Flow (vph)	48	169	120	649	237	21	149	746	1090	22	467	156
Shared Lane Traffic (%)												
Lane Group Flow (vph)	48	169	120	649	258	0	149	746	1090	22	467	156
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	5	2	3	1	6		3	8	1	7	4	5
Permitted Phases			2						8		4	4
Detector Phase	5	2	3	1	6		3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	8.0	8.0	5.0	8.0	8.0		5.0	5.0	8.0	5.0	8.0	8.0
Minimum Split (s)	22.0	22.0	11.0	22.0	22.0		11.0	22.0	22.0	11.0	22.0	22.0
Total Split (s)	22.0	24.0	16.0	27.0	29.0		16.0	28.0	27.0	11.0	23.0	22.0
Total Split (%)	24.4%	26.7%	17.8%	30.0%	32.2%		17.8%	31.1%	30.0%	12.2%	25.6%	24.4%
Maximum Green (s)	16.0	18.0	10.0	21.0	23.0		10.0	22.0	21.0	5.0	17.0	16.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Min	C-Min	None	Min	Min		None	None	Min	None	None	Min
Walk Time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0			0	0		0	0
Act Effct Green (s)	8.8	17.6	34.6	21.6	30.4		11.0	28.0	55.6	6.0	15.8	30.6
Actuated g/C Ratio	0.10	0.20	0.38	0.24	0.34		0.12	0.31	0.62	0.07	0.18	0.34
v/c Ratio	0.29	0.48	0.18	0.81	0.22		0.67	0.66	0.53	0.19	0.76	0.25
Control Delay	42.0	38.3	5.5	41.4	19.6		54.5	31.6	4.0	43.9	43.8	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	42.0	38.3	5.5	41.4	19.6		54.5	31.6	4.0	43.9	43.8	4.4
LOS	D	D	A	D	B		D	C	A	D	D	A
Approach Delay		27.2			35.2			18.2			34.3	
Approach LOS		C			D			B			C	
Queue Length 50th (ft)	26	91	4	133	37		80	164	29	12	132	0
Queue Length 95th (ft)	54	134	31	#276	62		106	193	30	36	185	38
Internal Link Dist (ft)		332			406			307			263	
Turn Bay Length (ft)	100			220			100		265	200		
Base Capacity (vph)	302	385	658	813	1164		227	1123	2047	116	662	748
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.44	0.18	0.80	0.22		0.66	0.66	0.53	0.19	0.71	0.21

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:EBT, Start of Yellow
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 25.6 Intersection LOS: C
Intersection Capacity Utilization 63.3% ICU Level of Service B
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 22: Connector Road & NH 28



Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	30	50	20	20	40	100	10	140	70	65	330	65
Future Volume (vph)	30	50	20	20	40	100	10	140	70	65	330	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		150	190		190	135		150	120		150
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.958				0.850		0.950			0.975	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1767	0	1736	1827	1553	1770	1770	0	1787	1834	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1752	1767	0	1736	1827	1553	1770	1770	0	1787	1834	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21				123		33			13	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		481			347			479			371	
Travel Time (s)		10.9			7.9			10.9			8.4	
Peak Hour Factor	0.82	0.82	0.82	0.81	0.81	0.81	0.68	0.68	0.68	0.78	0.78	0.78
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	2%	2%	2%	1%	1%	1%
Adj. Flow (vph)	37	61	24	25	49	123	15	206	103	83	423	83
Shared Lane Traffic (%)												
Lane Group Flow (vph)	37	85	0	25	49	123	15	309	0	83	506	0
Turn Type	Prot	NA		Prot	NA	pt+ov	Prot	NA		Prot	NA	
Protected Phases	1	6		5	2	2 3	3	8		7	4	
Permitted Phases												
Detector Phase	1	6		5	2	2 3	3	8		7	4	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	14.0	20.0		14.0	20.0		14.0	20.0		14.0	20.0	
Total Split (s)	14.0	20.0		14.0	20.0		14.0	31.0		15.0	32.0	
Total Split (%)	17.5%	25.0%		17.5%	25.0%		17.5%	38.8%		18.8%	40.0%	
Maximum Green (s)	8.0	14.0		8.0	14.0		8.0	25.0		9.0	26.0	
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	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	C-Max		None	None		None	None	
Act Effct Green (s)	8.0	26.8		8.0	24.0	38.0	8.0	23.8		8.6	24.4	
Actuated g/C Ratio	0.10	0.34		0.10	0.30	0.48	0.10	0.30		0.11	0.30	
v/c Ratio	0.21	0.14		0.14	0.09	0.15	0.08	0.56		0.43	0.89	
Control Delay	36.4	20.8		35.1	27.7	4.3	34.0	25.3		40.8	45.7	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	36.4	20.8		35.1	27.7	4.3	34.0	25.3		40.8	45.7	
LOS	D	C		D	C	A	C	C		D	D	
Approach Delay		25.5			14.0			25.7			45.0	

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Approach LOS		C			B			C			D	
Queue Length 50th (ft)	17	21		12	21	0	7	112		39	226	
Queue Length 95th (ft)	41	59		31	45	25	18	129		71	282	
Internal Link Dist (ft)		401			267			399			291	
Turn Bay Length (ft)	200			190		190	135			120		
Base Capacity (vph)	175	606		173	548	803	177	575		201	604	
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	0.21	0.14		0.14	0.09	0.15	0.08	0.54		0.41	0.84	

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 0 (0%), Referenced to phase 2:SBT, Start of Green
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 33.1 — Intersection LOS: C
Intersection Capacity Utilization 51.3% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 18: Tsienneto Rd & NH 28 Byp N

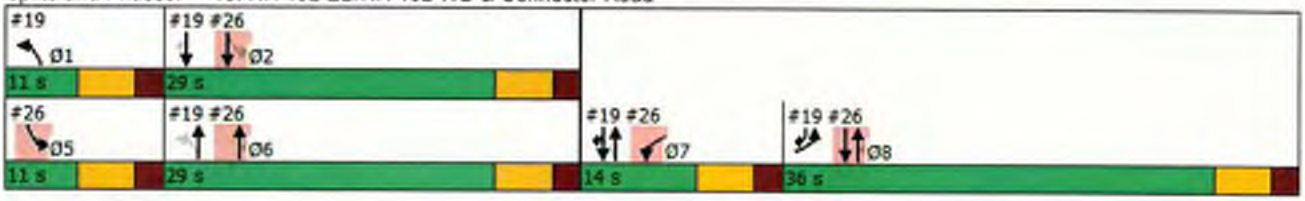
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2	Ø5	Ø6	Ø7
Lane Configurations										
Traffic Volume (vph)	510	10	20	70	140	600				
Future Volume (vph)	510	10	20	70	140	600				
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900				
Storage Length (ft)	0	0	120			90				
Storage Lanes	1	0	1			1				
Taper Length (ft)	25		25							
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00				
Frt	0.997					0.850				
Flt Protected	0.953		0.950							
Satd. Flow (prot)	1770	0	1626	1712	1863	1583				
Flt Permitted	0.953		0.630							
Satd. Flow (perm)	1770	0	1078	1712	1863	1583				
Right Turn on Red		Yes				Yes				
Satd. Flow (RTOR)	1					732				
Link Speed (mph)	30			30	30					
Link Distance (ft)	472			739	258					
Travel Time (s)	10.7			16.8	5.9					
Peak Hour Factor	0.94	0.94	0.91	0.91	0.82	0.82				
Heavy Vehicles (%)	2%	2%	11%	11%	2%	2%				
Adj. Flow (vph)	543	11	22	77	171	732				
Shared Lane Traffic (%)										
Lane Group Flow (vph)	554	0	22	77	171	732				
Turn Type	Prot		pm+pt	NA	NA	custom				
Protected Phases	8		1	6 7	2 7	7 8	2	5	6	7
Permitted Phases			6 7			2				
Detector Phase	8		1	6 7	2 7	7 8				
Switch Phase										
Minimum Initial (s)	5.0		5.0				5.0	5.0	5.0	5.0
Minimum Split (s)	26.5		11.0				28.0	11.0	28.0	11.0
Total Split (s)	36.0		11.0				29.0	11.0	29.0	14.0
Total Split (%)	40.0%		12.2%				32%	12%	32%	16%
Maximum Green (s)	30.0		5.0				23.0	5.0	23.0	8.0
Yellow Time (s)	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
Lost Time Adjust (s)	0.0		0.0							
Total Lost Time (s)	6.0		6.0							
Lead/Lag	Lag		Lead				Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes		Yes				Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0		3.0				3.0	3.0	3.0	3.0
Recall Mode	None		None				Min	None	Min	None
Walk Time (s)							7.0		7.0	
Flash Dont Walk (s)							15.0		15.0	
Pedestrian Calls (#/hr)							0		0	
Act Effct Green (s)	30.6		31.6	30.7	28.9	69.7				
Actuated g/C Ratio	0.41		0.42	0.41	0.38	0.92				
v/c Ratio	0.77		0.05	0.11	0.24	0.48				
Control Delay	31.6		11.1	14.4	19.2	1.2				
Queue Delay	0.0		0.0	0.0	1.1	0.1				

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2	Ø5	Ø6	Ø7
Total Delay	31.6		11.1	14.4	20.3	1.2				
LOS	C		B	B	C	A				
Approach Delay	31.6			13.7	4.9					
Approach LOS	C			B	A					
Queue Length 50th (ft)	183		6	20	54	2				
Queue Length 95th (ft)	#509		17	54	92	0				
Internal Link Dist (ft)	392			659	178					
Turn Bay Length (ft)			120			90				
Base Capacity (vph)	719		488	701	700	1502				
Starvation Cap Reductn	0		0	0	342	104				
Spillback Cap Reductn	0		0	0	0	0				
Storage Cap Reductn	0		0	0	0	0				
Reduced v/c Ratio	0.77		0.05	0.11	0.48	0.52				

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 75.5
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 15.0 Intersection LOS: B
Intersection Capacity Utilization 55.4% ICU Level of Service B
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 19: NH 102 EB/NH 102 WB & Connector Road



Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	1135	0	0	0	1770	0
Future Volume (vph)	1135	0	0	0	1770	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	1.00	1.00	1.00	0.97	1.00
Frt						
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3433	0	0	0	3433	0
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3433	0	0	0	3433	0
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)						
Link Speed (mph)	30		30			30
Link Distance (ft)	372		529			557
Travel Time (s)	8.5		12.0			12.7
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	1207	0	0	0	1883	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1207	0	0	0	1883	0
Turn Type	Prot				Prot	
Protected Phases	2				4	
Permitted Phases						
Detector Phase	2				4	
Switch Phase						
Minimum Initial (s)	5.0				9.0	
Minimum Split (s)	24.0				24.0	
Total Split (s)	37.0				53.0	
Total Split (%)	41.1%				58.9%	
Maximum Green (s)	31.0				47.0	
Yellow Time (s)	4.0				4.0	
All-Red Time (s)	2.0				2.0	
Lost Time Adjust (s)	0.0				0.0	
Total Lost Time (s)	6.0				6.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0				3.0	
Recall Mode	C-Max				Max	
Act Effct Green (s)	31.0				47.0	
Actuated g/C Ratio	0.34				0.52	
v/c Ratio	1.02				1.05	
Control Delay	47.0				58.9	
Queue Delay	0.0				22.6	
Total Delay	47.0				81.5	
LOS	D				F	
Approach Delay	47.0					81.5
Approach LOS	D					F
Queue Length 50th (ft)	~366				~607	
Queue Length 95th (ft)	#508				#742	
Internal Link Dist (ft)	292		449			477

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Turn Bay Length (ft)						
Base Capacity (vph)	1182				1792	
Starvation Cap Reductn	0				0	
Spillback Cap Reductn	0				841	
Storage Cap Reductn	0				0	
Reduced v/c Ratio	1.02				1.98	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 90			
Offset: 5 (6%), Referenced to phase 2:WBL, Start of Yellow			
Natural Cycle: 110			
Control Type: Actuated-Coordinated			
Maximum v/c Ratio: 1.05			
Intersection Signal Delay: 68.0		Intersection LOS: E	
Intersection Capacity Utilization 143.4%		ICU Level of Service H	
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: 20: Exit 4A SB On/Exit 4A SB Off & Connector Road

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NWL	NWR
Lane Configurations										
Traffic Volume (vph)	0	1770	0	0	1135	1205	0	0	0	865
Future Volume (vph)	0	1770	0	0	1135	1205	0	0	0	865
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	0		200	0	0	0	0
Storage Lanes	1		0	0		2	0	0	1	1
Taper Length (ft)	75			25			25		25	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.88	1.00	1.00	1.00	0.95
Frt						0.850			0.850	0.850
Flt Protected										
Satd. Flow (prot)	1863	3539	0	0	3539	2787	0	0	1583	1504
Flt Permitted										
Satd. Flow (perm)	1863	3539	0	0	3539	2787	0	0	1583	1504
Right Turn on Red			Yes			Yes		Yes		
Satd. Flow (RTOR)						36				
Link Speed (mph)		30			30		30		30	
Link Distance (ft)		372			394		598		519	
Travel Time (s)		8.5			9.0		13.6		11.8	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	1883	0	0	1207	1282	0	0	0	920
Shared Lane Traffic (%)										50%
Lane Group Flow (vph)	0	1883	0	0	1207	1282	0	0	460	460
Turn Type	Perm	NA			NA	Perm			Prot	Prot
Protected Phases		2			2				4	4
Permitted Phases	2					2				
Detector Phase	2	2			2	2			4	4
Switch Phase										
Minimum Initial (s)	5.0	5.0			5.0	5.0			9.0	9.0
Minimum Split (s)	24.0	24.0			24.0	24.0			24.0	24.0
Total Split (s)	56.0	56.0			56.0	56.0			34.0	34.0
Total Split (%)	62.2%	62.2%			62.2%	62.2%			37.8%	37.8%
Maximum Green (s)	50.0	50.0			50.0	50.0			28.0	28.0
Yellow Time (s)	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
Lost Time Adjust (s)	0.0	0.0			0.0	0.0			0.0	0.0
Total Lost Time (s)	6.0	6.0			6.0	6.0			6.0	6.0
Lead/Lag										
Lead-Lag Optimize?										
Vehicle Extension (s)	3.0	3.0			3.0	3.0			3.0	3.0
Recall Mode	C-Max	C-Max			C-Max	C-Max			Min	Min
Act Effct Green (s)		50.0			50.0	50.0			28.0	28.0
Actuated g/C Ratio		0.56			0.56	0.56			0.31	0.31
v/c Ratio		0.96			0.61	0.82			0.93	0.99
Control Delay		24.0			15.2	21.4			59.2	71.0
Queue Delay		45.2			4.2	0.0			0.0	0.0
Total Delay		69.2			19.4	21.4			59.2	71.0
LOS		E			B	C			E	E
Approach Delay		69.2			20.4				65.1	
Approach LOS		E			C				E	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NWL	NWR
Queue Length 50th (ft)		619			227	308			252	271
Queue Length 95th (ft)		m590			291	418			#441	#478
Internal Link Dist (ft)		292			314		518		439	
Turn Bay Length (ft)						200				
Base Capacity (vph)		1966			1966	1564			492	467
Starvation Cap Reductn		929			0	0			0	0
Spillback Cap Reductn		0			664	0			0	0
Storage Cap Reductn		0			0	0			0	0
Reduced v/c Ratio		1.82			0.93	0.82			0.93	0.99

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:EBWB, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 45.5 Intersection LOS: D
Intersection Capacity Utilization 129.2% ICU Level of Service H
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 21: Exit 4A NB Off & Connector Road & Exit 4A NB On

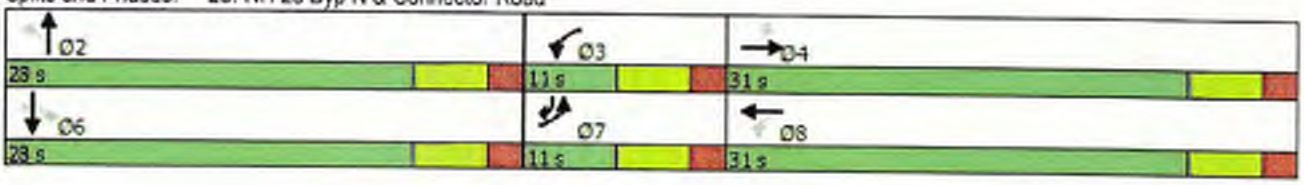
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	100	380	10	10	390	10	20	50	10	10	60	100
Future Volume (vph)	100	380	10	10	390	10	20	50	10	10	60	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	275		0	75		100	75		0	210		210
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996			0.996			0.975				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1855	0	1770	1855	0	1770	1816	0	1770	1863	1583
Flt Permitted	0.290			0.424			0.715			0.715		
Satd. Flow (perm)	540	1855	0	790	1855	0	1332	1816	0	1332	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			2			11				109
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		314			303			290			341	
Travel Time (s)		7.1			6.9			6.6			7.8	
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
Adj. Flow (vph)	109	413	11	11	424	11	22	54	11	11	65	109
Shared Lane Traffic (%)												
Lane Group Flow (vph)	109	424	0	11	435	0	22	65	0	11	65	109
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4		3	8			2			6	7
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		3	8		2	2		6	6	7
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	11.0	28.0		11.0	28.0		28.0	28.0		28.0	28.0	11.0
Total Split (s)	11.0	31.0		11.0	31.0		28.0	28.0		28.0	28.0	11.0
Total Split (%)	15.7%	44.3%		15.7%	44.3%		40.0%	40.0%		40.0%	40.0%	15.7%
Maximum Green (s)	5.0	25.0		5.0	25.0		22.0	22.0		22.0	22.0	5.0
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
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		Max	Max		Max	Max	None
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		15.0			15.0		15.0	15.0		15.0	15.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	26.2	25.3		22.8	19.0		22.6	22.6		22.6	22.6	33.9
Actuated g/C Ratio	0.42	0.41		0.37	0.31		0.36	0.36		0.36	0.36	0.55
v/c Ratio	0.33	0.56		0.03	0.76		0.05	0.10		0.02	0.10	0.12
Control Delay	12.2	17.6		8.9	29.5		16.7	14.7		16.5	16.8	2.9
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	12.2	17.6		8.9	29.5		16.7	14.7		16.5	16.8	2.9

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	B	B		A	C		B	B		B	B	A
Approach Delay		16.5			29.0			15.2			8.6	
Approach LOS		B			C			B			A	
Queue Length 50th (ft)	23	107		2	153		6	14		3	17	0
Queue Length 95th (ft)	46	239		9	247		21	42		14	46	23
Internal Link Dist (ft)		234			223			210			261	
Turn Bay Length (ft)	275			75			75			210		210
Base Capacity (vph)	329	872		370	766		483	666		483	676	911
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	0.49		0.03	0.57		0.05	0.10		0.02	0.10	0.12

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 62.2
Natural Cycle: 70
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.76
Intersection Signal Delay: 19.7 — Intersection LOS: B
Intersection Capacity Utilization 49.4% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 23: NH 28 Byp N & Connector Road



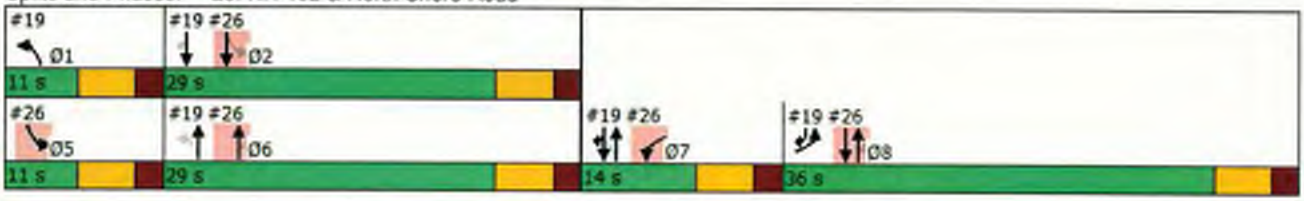
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø1	Ø2	Ø6	Ø8
Lane Configurations										
Traffic Volume (vph)	90	10	540	40	10	650				
Future Volume (vph)	90	10	540	40	10	650				
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900				
Storage Length (ft)	0	0		90	100					
Storage Lanes	1	0		1	1					
Taper Length (ft)	25				25					
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00				
Frt	0.983			0.850						
Flt Protected	0.958				0.950					
Satd. Flow (prot)	1774	0	1900	1615	1805	1900				
Flt Permitted	0.958				0.256					
Satd. Flow (perm)	1774	0	1900	1615	486	1900				
Right Turn on Red		Yes		Yes						
Satd. Flow (RTOR)	6			38						
Link Speed (mph)	30		30			30				
Link Distance (ft)	524		258			288				
Travel Time (s)	11.9		5.9			6.5				
Peak Hour Factor	0.87	0.67	0.95	0.84	0.73	0.96				
Heavy Vehicles (%)	1%	0%	0%	0%	0%	0%				
Adj. Flow (vph)	103	15	568	48	14	677				
Shared Lane Traffic (%)										
Lane Group Flow (vph)	118	0	568	48	14	677				
Turn Type	Prot		NA	Perm	custom	NA				
Protected Phases	7		6 8		5	2 8	1	2	6	8
Permitted Phases				6 8	2					
Detector Phase	7		6 8	6 8	5	2 8				
Switch Phase										
Minimum Initial (s)	5.0				5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	11.0				11.0		11.0	28.0	28.0	26.5
Total Split (s)	14.0				11.0		11.0	29.0	29.0	36.0
Total Split (%)	15.6%				12.2%		12%	32%	32%	40%
Maximum Green (s)	8.0				5.0		5.0	23.0	23.0	30.0
Yellow Time (s)	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
Lost Time Adjust (s)	0.0				0.0					
Total Lost Time (s)	6.0				6.0					
Lead/Lag	Lead				Lead		Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes				Yes		Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0				3.0		3.0	3.0	3.0	3.0
Recall Mode	None				None		None	Min	Min	None
Walk Time (s)								7.0	7.0	
Flash Dont Walk (s)								15.0	15.0	
Pedestrian Calls (#/hr)								0	0	
Act Effct Green (s)	8.1		52.3	52.3	16.3	49.3				
Actuated g/C Ratio	0.11		0.69	0.69	0.22	0.65				
v/c Ratio	0.60		0.43	0.04	0.07	0.55				
Control Delay	48.5		2.2	0.8	19.7	7.3				
Queue Delay	0.0		0.2	0.0	0.0	0.0				

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø1	Ø2	Ø6	Ø8
Total Delay	48.5		2.5	0.8	19.7	7.3				
LOS	D		A	A	B	A				
Approach Delay	48.5		2.3			7.6				
Approach LOS	D		A			A				
Queue Length 50th (ft)	45		7	0	5	103				
Queue Length 95th (ft)	#140		m78	m0	14	151				
Internal Link Dist (ft)	444		178			208				
Turn Bay Length (ft)				90	100					
Base Capacity (vph)	197		1529	1308	194	1465				
Starvation Cap Reductn	0		360	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		0.49	0.04	0.07	0.46				

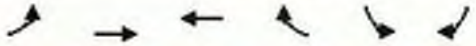
Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 75.5
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 8.7 Intersection LOS: A
Intersection Capacity Utilization 49.8% ICU Level of Service A
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

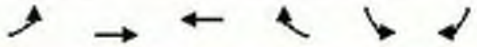
Splits and Phases: 26: NH 102 & North Shore Road



APPENDIX P-4: 2040 ALTERNATIVE B INTERSECTION CAPACITY ANALYSES – SYNCHRO PRINOUTS – PM PEAK HOUR



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↰	↱↱
Traffic Volume (vph)	0	1180	1385	0	390	1300
Future Volume (vph)	0	1180	1385	0	390	1300
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	16	12
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	0.88
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	3471	3406	0	1930	2682
Flt Permitted					0.950	
Satd. Flow (perm)	0	3471	3406	0	1930	2682
Right Turn on Red				Yes		No
Satd. Flow (RTOR)						
Link Speed (mph)		30	30		25	
Link Distance (ft)		712	388		212	
Travel Time (s)		16.2	8.8		5.8	
Peak Hour Factor	0.93	0.93	0.88	0.88	0.89	0.89
Heavy Vehicles (%)	4%	4%	6%	6%	6%	6%
Adj. Flow (vph)	0	1269	1574	0	438	1461
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1269	1574	0	438	1461
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		24	24		16	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	0.85	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors		3	3		3	3
Detector Template		Thru	Thru		Left	
Leading Detector (ft)		256	256		256	256
Trailing Detector (ft)		-5	-5		-5	-5
Detector 1 Position(ft)		-5	-5		-5	-5
Detector 1 Size(ft)		50	50		50	50
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0
Detector 2 Position(ft)		125	125		125	125
Detector 2 Size(ft)		6	6		6	6
Detector 2 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0		0.0	0.0
Detector 3 Position(ft)		250	250		250	250
Detector 3 Size(ft)		6	6		6	6
Detector 3 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 3 Channel						



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector 3 Extend (s)		0.0	0.0		0.0	0.0
Turn Type		NA	NA		Prot	Prot
Protected Phases		2	6		4	4
Permitted Phases						
Detector Phase		2	6		4	4
Switch Phase						
Minimum Initial (s)		8.0	8.0		5.0	5.0
Minimum Split (s)		14.0	21.0		27.0	27.0
Total Split (s)		70.0	70.0		80.0	80.0
Total Split (%)		46.7%	46.7%		53.3%	53.3%
Maximum Green (s)		64.0	64.0		74.0	74.0
Yellow Time (s)		2.0	2.0		2.0	2.0
All-Red Time (s)		4.0	4.0		4.0	4.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0
Total Lost Time (s)		6.0	6.0		6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Recall Mode		C-Min	C-Min		None	None
Walk Time (s)			7.0		7.0	7.0
Flash Dont Walk (s)			8.0		14.0	14.0
Pedestrian Calls (#/hr)			0		0	0
Act Effct Green (s)		64.0	64.0		74.0	74.0
Actuated g/C Ratio		0.43	0.43		0.49	0.49
v/c Ratio		0.86	1.08		0.46	1.10
Control Delay		31.3	46.1		26.9	94.6
Queue Delay		0.0	1.2		0.0	0.0
Total Delay		31.3	47.4		26.9	94.6
LOS		C	D		C	F
Approach Delay		31.3	47.4		79.0	
Approach LOS		C	D		E	
Queue Length 50th (ft)		373	~913		276	~921
Queue Length 95th (ft)		443	m34		365	#1051
Internal Link Dist (ft)		632	308		132	
Turn Bay Length (ft)						
Base Capacity (vph)		1480	1453		952	1323
Starvation Cap Reductn		0	0		0	0
Spillback Cap Reductn		0	4		0	0
Storage Cap Reductn		0	0		0	0
Reduced v/c Ratio		0.86	1.09		0.46	1.10

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow, Master Intersection
Natural Cycle: 130
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.10

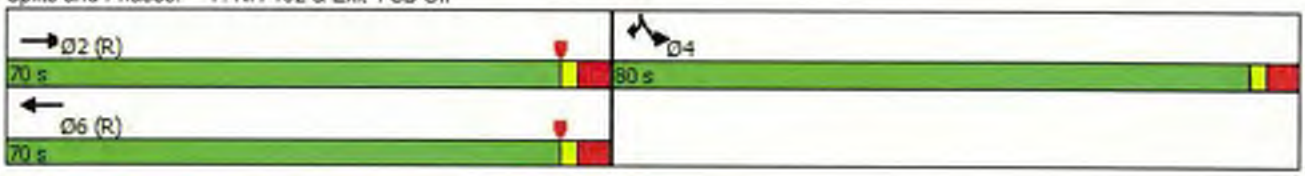
Intersection Signal Delay: 55.7 Intersection LOS: E
Intersection Capacity Utilization 95.8% ICU Level of Service F
Analysis Period (min) 15

~ 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.

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

Splits and Phases: 7: NH 102 & Exit 4 SB Off



Lane Group	NBL2	NBL	NBR	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Traffic Volume (vph)	1345	0	750	0	0	1140	430	0	0	310	330
Future Volume (vph)	1345	0	750	0	0	1140	430	0	0	310	330
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	0	0	0	550		0	0		0
Storage Lanes		2	2	0	0	2		0	0		1
Taper Length (ft)		25		25		25			25		
Lane Util. Factor	0.97	1.00	0.88	1.00	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Frt			0.850								0.850
Flt Protected	0.950					0.950					
Satd. Flow (prot)	3242	0	2632	0	0	3335	3438	0	0	3505	1568
Flt Permitted	0.950					0.950					
Satd. Flow (perm)	3242	0	2632	0	0	3335	3438	0	0	3505	1568
Right Turn on Red			No					Yes			Yes
Satd. Flow (RTOR)											359
Link Speed (mph)		25		30			30			30	
Link Distance (ft)		856		390			760			857	
Travel Time (s)		23.3		8.9			17.3			19.5	
Peak Hour Factor	0.88	0.88	0.88	0.92	0.92	0.94	0.94	0.94	0.92	0.92	0.92
Heavy Vehicles (%)	8%	8%	8%	2%	2%	5%	5%	5%	3%	3%	3%
Adj. Flow (vph)	1528	0	852	0	0	1213	457	0	0	337	359
Shared Lane Traffic (%)											
Lane Group Flow (vph)	1528	0	852	0	0	1213	457	0	0	337	359
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Right	Left	Left	Right	Left	Right	Right
Median Width(ft)		24		0			24			24	
Link Offset(ft)		12		0			0			0	
Crosswalk Width(ft)		16		16			16			16	
Two way Left Turn Lane											
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	15	25	15	9	15		9	15		25
Number of Detectors	3		3			3	3			3	0
Detector Template											
Leading Detector (ft)	256		256			256	256			256	0
Trailing Detector (ft)	-5		-5			-5	-5			-5	0
Detector 1 Position(ft)	-5		-5			-5	-5			-5	-5
Detector 1 Size(ft)	55		55			55	55			55	50
Detector 1 Type	Cl+Ex		Cl+Ex			Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel											
Detector 1 Extend (s)	0.0		0.0			0.0	0.0			0.0	0.0
Detector 1 Queue (s)	0.0		0.0			0.0	0.0			0.0	0.0
Detector 1 Delay (s)	0.0		0.0			0.0	0.0			0.0	0.0
Detector 2 Position(ft)	125		125			125	125			125	
Detector 2 Size(ft)	6		6			6	6			6	
Detector 2 Type	Cl+Ex		Cl+Ex			Cl+Ex	Cl+Ex			Cl+Ex	
Detector 2 Channel											
Detector 2 Extend (s)	0.0		0.0			0.0	0.0			0.0	
Detector 3 Position(ft)	250		250			250	250			250	
Detector 3 Size(ft)	6		6			6	6			6	

Lane Group	NBL2	NBL	NBR	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Detector 3 Type	Cl+Ex		Cl+Ex			Cl+Ex	Cl+Ex			Cl+Ex	
Detector 3 Channel											
Detector 3 Extend (s)	0.0		0.0			0.0	0.0			0.0	
Turn Type	Prot		Prot			Prot	NA			NA	Free
Protected Phases	8		8			5	2			6	
Permitted Phases											Free
Detector Phase	8		2			5	2			6	
Switch Phase											
Minimum Initial (s)	10.0		10.0			5.0	8.0			8.0	
Minimum Split (s)	16.0		16.0			11.0	42.0			31.0	
Total Split (s)	66.0		66.0			52.0	84.0			32.0	
Total Split (%)	44.0%		44.0%			34.7%	56.0%			21.3%	
Maximum Green (s)	60.0		60.0			46.0	78.0			26.0	
Yellow Time (s)	2.0		2.0			2.0	2.0			2.0	
All-Red Time (s)	4.0		4.0			4.0	4.0			4.0	
Lost Time Adjust (s)	0.0		0.0			0.0	0.0			0.0	
Total Lost Time (s)	6.0		6.0			6.0	6.0			6.0	
Lead/Lag						Lead				Lag	
Lead-Lag Optimize?											
Vehicle Extension (s)	3.0		3.0			3.0	3.0			3.0	
Recall Mode	None		None			None	C-Min			C-Min	
Walk Time (s)							7.0			7.0	
Flash Dont Walk (s)							29.0			17.0	
Pedestrian Calls (#/hr)							0			0	
Act Effct Green (s)	60.0		60.0			46.0	78.0			26.0	150.0
Actuated g/C Ratio	0.40		0.40			0.31	0.52			0.17	1.00
v/c Ratio	1.18		0.81			1.19	0.26			0.56	0.23
Control Delay	128.9		47.3			122.6	8.2			60.7	0.3
Queue Delay	0.0		0.0			0.0	0.0			0.0	0.0
Total Delay	128.9		47.3			122.6	8.2			60.7	0.3
LOS	F		D			F	A			E	A
Approach Delay		99.7					91.3			29.6	
Approach LOS		F					F			C	
Queue Length 50th (ft)	~919		417			~734	80			161	0
Queue Length 95th (ft)	#1018		498			#863	m97			215	0
Internal Link Dist (ft)		776		310			680			777	
Turn Bay Length (ft)						550					
Base Capacity (vph)	1296		1052			1022	1787			607	1568
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	1.18		0.81			1.19	0.26			0.56	0.23

Intersection Summary	
Area Type:	Other
Cycle Length: 150	
Actuated Cycle Length: 150	
Offset: 57 (38%), Referenced to phase 2:NET and 6:SWT, Start of Yellow	
Natural Cycle: 150	

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.19
Intersection Signal Delay: 86.4 Intersection LOS: F
Intersection Capacity Utilization 95.5% 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.

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

Splits and Phases: 8: NH 102 & Exit 4 NB Off

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱	↰	↑↑					↰↰		↱
Traffic Volume (vph)	0	790	420	150	610	0	0	0	0	175	0	425
Future Volume (vph)	0	790	420	150	610	0	0	0	0	175	0	425
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		350	0		0	0		0	0		0
Storage Lanes	0		1	1		0	0		0	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850									0.850
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	3471	1553	1719	3438	0	0	0	0	3367	0	1553
Flt Permitted				0.950						0.950		
Satd. Flow (perm)	0	3471	1553	1719	3438	0	0	0	0	3367	0	1553
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			483									213
Link Speed (mph)		30			30			30			35	
Link Distance (ft)		851			693			486			581	
Travel Time (s)		19.3			15.8			11.0			11.3	
Peak Hour Factor	0.87	0.87	0.87	0.86	0.86	0.86	0.92	0.92	0.92	0.91	0.91	0.91
Heavy Vehicles (%)	4%	4%	4%	5%	5%	5%	2%	2%	2%	4%	4%	4%
Adj. Flow (vph)	0	908	483	174	709	0	0	0	0	192	0	467
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	908	483	174	709	0	0	0	0	192	0	467
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Right	Left	Right
Median Width(ft)		36			36			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		25	15		9	15		9	15		25
Number of Detectors		3	3	3	3					3		3
Detector Template		Thru	Right	Left	Thru					Left		Right
Leading Detector (ft)		256	256	256	256					256		256
Trailing Detector (ft)		-5	-5	-5	-5					-5		-5
Detector 1 Position(ft)		-5	-5	-5	-5					-5		-5
Detector 1 Size(ft)		50	50	50	50					50		50
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0					0.0		0.0
Detector 1 Queue (s)		0.0	0.0	0.0	0.0					0.0		0.0
Detector 1 Delay (s)		0.0	0.0	0.0	0.0					0.0		0.0
Detector 2 Position(ft)		125	125	125	125					125		125
Detector 2 Size(ft)		6	6	6	6					6		6
Detector 2 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex		Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0	0.0	0.0	0.0					0.0		0.0
Detector 3 Position(ft)		250	250	250	250					250		250
Detector 3 Size(ft)		6	6	6	6					6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 3 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex		Cl+Ex
Detector 3 Channel												
Detector 3 Extend (s)		0.0	0.0	0.0	0.0					0.0		0.0
Turn Type		NA	Free	Prot	NA					Prot		Prot
Protected Phases		2		1	6					4		4
Permitted Phases			Free									
Detector Phase		2		1	6					4		4
Switch Phase												
Minimum Initial (s)		9.0		4.0	9.0					4.0		4.0
Minimum Split (s)		21.0		10.0	21.0					10.0		10.0
Total Split (s)		37.0		20.0	57.0					33.0		33.0
Total Split (%)		41.1%		22.2%	63.3%					36.7%		36.7%
Maximum Green (s)		31.0		14.0	51.0					27.0		27.0
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
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		0.0
Total Lost Time (s)		6.0		6.0	6.0					6.0		6.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)		5.0		3.0	5.0					3.0		3.0
Recall Mode		C-Min		None	C-Min					None		None
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		8.0			8.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)		36.6	90.0	12.8	55.3					22.7		22.7
Actuated g/C Ratio		0.41	1.00	0.14	0.61					0.25		0.25
v/c Ratio		0.64	0.31	0.72	0.34					0.23		0.85
Control Delay		25.8	0.5	23.2	0.3					26.0		31.8
Queue Delay		0.0	0.0	0.0	0.0					0.0		0.0
Total Delay		25.8	0.5	23.2	0.3					26.0		31.8
LOS		C	A	C	A					C		C
Approach Delay		17.0			4.8						30.1	
Approach LOS		B			A						C	
Queue Length 50th (ft)		238	0	2	0					41		132
Queue Length 95th (ft)		296	0	3	m0					67		#265
Internal Link Dist (ft)		771			613			406			501	
Turn Bay Length (ft)			350									
Base Capacity (vph)		1410	1553	269	2114					1010		615
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		0.64	0.31	0.65	0.34					0.19		0.76

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 51 (57%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle: 60

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 16.3 Intersection LOS: B
Intersection Capacity Utilization 75.1% 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Exit 5 SB On/Exit 5 SB Off & NH 28

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	495	470	0	0	410	400	350	0	385	0	0	0
Future Volume (vph)	495	470	0	0	410	400	350	0	385	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850			0.850			
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1752	3505	0	0	3505	1568	1703	0	1524	0	0	0
Flt Permitted	0.950						0.950					
Satd. Flow (perm)	1752	3505	0	0	3505	1568	1703	0	1524	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						440			339			
Link Speed (mph)		30			30			35			30	
Link Distance (ft)		693			542			867			392	
Travel Time (s)		15.8			12.3			16.9			8.9	
Peak Hour Factor	0.92	0.92	0.92	0.91	0.91	0.91	0.67	0.67	0.67	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	6%	6%	6%	2%	2%	2%
Adj. Flow (vph)	538	511	0	0	451	440	522	0	575	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	538	511	0	0	451	440	522	0	575	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Right	Left	Right	Left	Left	Right
Median Width(ft)		36			42			12			12	
Link Offset(ft)		0			0			0			36	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		25	15		25	15		9
Number of Detectors	3	3			3	3	3		0			
Detector Template	Left					Right	Left					
Leading Detector (ft)	256	256			256	256	256		0			
Trailing Detector (ft)	-5	-5			-5	-5	-5		0			
Detector 1 Position(ft)	-5	-5			-5	-5	-5		-5			
Detector 1 Size(ft)	50	50			50	50	50		50			
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Detector 1 Queue (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Detector 1 Delay (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Detector 2 Position(ft)	125	125			125	125	125					
Detector 2 Size(ft)	6	6			6	6	6					
Detector 2 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex					
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0			0.0	0.0	0.0					
Detector 3 Position(ft)	250	250			250	250	250					
Detector 3 Size(ft)	6	6			6	6	6					
Detector 3 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex					
Detector 3 Channel												
Detector 3 Extend (s)	0.0	0.0			0.0	0.0	0.0					

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA			NA	Free	Prot		Prot			
Protected Phases	5	2			6		8		8			
Permitted Phases		2			6	Free						
Detector Phase	5	2			6		8		8			
Switch Phase												
Minimum Initial (s)	4.0	16.0			16.0		4.0		4.0			
Minimum Split (s)	10.0	23.0			23.0		11.0		11.0			
Total Split (s)	33.0	57.0			24.0		33.0		33.0			
Total Split (%)	36.7%	63.3%			26.7%		36.7%		36.7%			
Maximum Green (s)	27.0	51.0			18.0		27.0		27.0			
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			
Lost Time Adjust (s)	0.0	0.0			0.0		0.0		0.0			
Total Lost Time (s)	6.0	6.0			6.0		6.0		6.0			
Lead/Lag	Lead				Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0			5.0		3.0		3.0			
Recall Mode	None	C-Min			C-Min		None		None			
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		10.0			10.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)	27.0	50.6			17.6	90.0	27.4		27.4			
Actuated g/C Ratio	0.30	0.56			0.20	1.00	0.30		0.30			
v/c Ratio	1.02	0.26			0.66	0.28	1.01		0.82			
Control Delay	53.9	3.3			38.5	0.4	75.1		23.2			
Queue Delay	0.0	0.0			0.0	0.0	0.0		0.0			
Total Delay	53.9	3.3			38.5	0.4	75.1		23.2			
LOS	D	A			D	A	E		C			
Approach Delay		29.3			19.7			47.9				
Approach LOS		C			B			D				
Queue Length 50th (ft)	~316	6			124	0	~307		127			
Queue Length 95th (ft)	#493	8			176	0	287		110			
Internal Link Dist (ft)		613			462			787			312	
Turn Bay Length (ft)												
Base Capacity (vph)	525	1986			701	1568	518		699			
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	1.02	0.26			0.64	0.28	1.01		0.82			

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow, Master Intersection	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.02	
Intersection Signal Delay: 33.2	Intersection LOS: C

Intersection Capacity Utilization 75.1% 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.
Queue shown is maximum after two cycles.

Splits and Phases: 3: Exit 5 NB Off & NH 28

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	80	5	120	10	0	10	210	830	120	5	610	100
Future Volume (vph)	80	5	120	10	0	10	210	830	120	5	610	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		225	0		0	350		0	100		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.932			0.981			0.979	
Flt Protected		0.955			0.976		0.950			0.950		
Satd. Flow (prot)	0	1779	1583	0	1728	0	1770	3472	0	1770	3465	0
Flt Permitted		0.808			0.795		0.950			0.950		
Satd. Flow (perm)	0	1505	1583	0	1408	0	1770	3472	0	1770	3465	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			182		182			28			23	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		593			447			750			330	
Travel Time (s)		13.5			10.2			17.0			7.5	
Peak Hour Factor	0.92	0.92	0.92	0.25	0.25	0.25	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	87	5	130	40	0	40	228	902	130	5	663	109
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	92	130	0	80	0	228	1032	0	5	772	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	3	3	1	3	1		3	3		3	3	
Detector Template	Left	Thru	Right	Left			Left	Thru		Left	Thru	
Leading Detector (ft)	256	256	45	256	45		256	256		256	256	
Trailing Detector (ft)	-5	-5	-5	-5	-5		-5	-5		-5	-5	
Detector 1 Position(ft)	-5	-5	-5	-5	-5		-5	-5		-5	-5	
Detector 1 Size(ft)	50	50	50	50	50		50	50		50	50	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)	125	125		125			125	125		125	125	
Detector 2 Size(ft)	6	6		6			6	6		6	6	
Detector 2 Type	Cl+Ex	Cl+Ex		Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0		0.0			0.0	0.0		0.0	0.0	
Detector 3 Position(ft)	250	250		250			250	250		250	250	
Detector 3 Size(ft)	6	6		6			6	6		6	6	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector 3 Type	Cl+Ex	Cl+Ex		Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 3 Channel												
Detector 3 Extend (s)	0.0	0.0		0.0			0.0	0.0		0.0	0.0	
Turn Type	Perm	NA	custom	Perm	NA		Prot	NA		Prot	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8		6	4								
Detector Phase	8	8	6	4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	8.0	5.0	5.0		5.0	8.0		5.0	8.0	
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0		24.0	24.0		11.0	24.0	
Total Split (s)	24.0	24.0	38.0	24.0	24.0		28.0	55.0		11.0	38.0	
Total Split (%)	26.7%	26.7%	42.2%	26.7%	26.7%		31.1%	61.1%		12.2%	42.2%	
Maximum Green (s)	18.0	18.0	32.0	18.0	18.0		22.0	49.0		5.0	32.0	
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	
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.0	6.0		6.0		6.0	6.0		6.0	6.0	
Lead/Lag			Lag				Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	Min	None	None		None	Min		None	Min	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0			0	
Act Effct Green (s)		10.7	27.3		10.5		14.8	49.5		5.6	27.3	
Actuated g/C Ratio		0.16	0.40		0.15		0.22	0.73		0.08	0.40	
v/c Ratio		0.39	0.17		0.22		0.59	0.41		0.03	0.55	
Control Delay		35.6	1.8		1.4		34.2	6.9		38.0	18.8	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		35.6	1.8		1.4		34.2	6.9		38.0	18.8	
LOS		D	A		A		C	A		D	B	
Approach Delay		15.8			1.4			11.8			18.9	
Approach LOS		B			A			B			B	
Queue Length 50th (ft)		40	0		0		99	85		2	131	
Queue Length 95th (ft)		90	15		0		181	224		14	235	
Internal Link Dist (ft)		513			367			670			250	
Turn Bay Length (ft)			225				350			100		
Base Capacity (vph)		443	915		542		637	2595		144	1824	
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	0.14		0.15		0.36	0.40		0.03	0.42	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 68.2
Natural Cycle: 75
Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.59
Intersection Signal Delay: 14.2 Intersection LOS: B
Intersection Capacity Utilization 58.4% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 9: NH 102 & St. Charles Street/Londonderry Road

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	20	80	5	250	0	60	0	680	130	15	345	0
Future Volume (vph)	20	80	5	250	0	60	0	680	130	15	345	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.994			0.974			0.978				
Flt Protected		0.991			0.961						0.998	
Satd. Flow (prot)	0	1835	0	0	1727	0	0	1721	0	0	1806	0
Flt Permitted		0.906			0.644						0.819	
Satd. Flow (perm)	0	1678	0	0	1157	0	0	1721	0	0	1482	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			36			18				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		356			493			1124			603	
Travel Time (s)		8.1			11.2			25.5			13.7	
Peak Hour Factor	0.60	0.60	0.60	0.96	0.96	0.96	0.89	0.89	0.89	0.86	0.86	0.86
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	8%	8%	8%	5%	5%	5%
Adj. Flow (vph)	33	133	8	260	0	63	0	764	146	17	401	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	174	0	0	323	0	0	910	0	0	418	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		-22			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	3	1		3	2			2		3	2	
Detector Template	Left			Left						Left		
Leading Detector (ft)	256	45		256	131			131		256	131	
Trailing Detector (ft)	-5	-5		-5	-5			-5		-5	-5	
Detector 1 Position(ft)	-5	-5		-5	-5			-5		-5	-5	
Detector 1 Size(ft)	50	50		50	50			50		50	50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Detector 2 Position(ft)	125			125	125			125		125	125	
Detector 2 Size(ft)	6			6	6			6		6	6	
Detector 2 Type	Cl+Ex			Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)	0.0			0.0	0.0			0.0		0.0	0.0	
Detector 3 Position(ft)	250			250						250		
Detector 3 Size(ft)	6			6						6		
Detector 3 Type	Cl+Ex			Cl+Ex						Cl+Ex		
Detector 3 Channel												
Detector 3 Extend (s)	0.0			0.0						0.0		

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Turn Type	Perm	NA		Perm	NA			NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4						2		
Detector Phase	4	4		4	4			2		2	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0			5.0		5.0	5.0	
Minimum Split (s)	24.0	24.0		24.0	24.0			24.0		24.0	24.0	
Total Split (s)	32.0	32.0		32.0	32.0			58.0		58.0	58.0	
Total Split (%)	35.6%	35.6%		35.6%	35.6%			64.4%		64.4%	64.4%	
Maximum Green (s)	26.0	26.0		26.0	26.0			52.0		52.0	52.0	
Yellow Time (s)	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	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		6.0			6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Recall Mode	None	None		None	None			Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0			0		0	0	
Act Effct Green (s)		24.5			24.5			48.8			48.8	
Actuated g/C Ratio		0.29			0.29			0.57			0.57	
v/c Ratio		0.36			0.91			0.92			0.49	
Control Delay		27.3			58.1			32.6			13.5	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		27.3			58.1			32.6			13.5	
LOS		C			E			C			B	
Approach Delay		27.3			58.1			32.6			13.5	
Approach LOS		C			E			C			B	
Queue Length 50th (ft)		77			158			420			130	
Queue Length 95th (ft)		83			#320			#700			191	
Internal Link Dist (ft)		276			413			1044			523	
Turn Bay Length (ft)												
Base Capacity (vph)		519			381			1069			915	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.34			0.85			0.85			0.46	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 85.4			
Natural Cycle: 70			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.92			
Intersection Signal Delay: 32.2		Intersection LOS: C	
Intersection Capacity Utilization 81.2%		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: 10: NH 102 & Fordway/Madden Hill Road

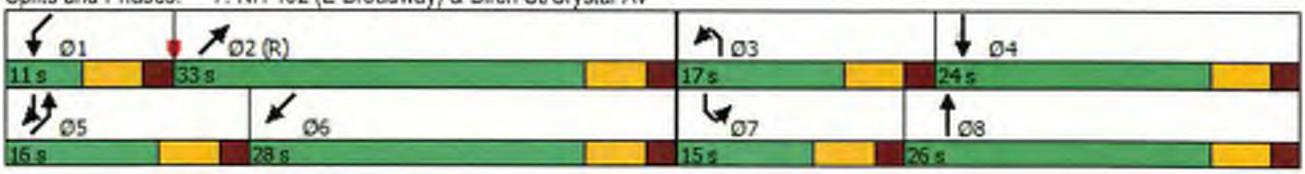
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	150	200	20	70	240	10	90	420	40	60	280	210
Future Volume (vph)	150	200	20	70	240	10	90	420	40	60	280	210
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	70		0	245		245	390		0	110		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.986				0.850		0.987			0.936	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1819	0	1752	1845	1568	1787	1857	0	1787	1761	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1752	1819	0	1752	1845	1568	1787	1857	0	1787	1761	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6				116		6			43	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		361			411			477			530	
Travel Time (s)		8.2			9.3			10.8			12.0	
Peak Hour Factor	0.91	0.91	0.91	0.93	0.93	0.93	0.95	0.95	0.95	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	165	220	22	75	258	11	95	442	42	64	298	223
Shared Lane Traffic (%)												
Lane Group Flow (vph)	165	242	0	75	258	11	95	484	0	64	521	0
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA		Prot	NA	
Protected Phases	3	8		7	4	5	5	2		1	6	
Permitted Phases						4						
Detector Phase	3	8		7	4	5	5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	5.0		4.0	10.0	4.0	4.0	10.0		4.0	9.0	
Minimum Split (s)	17.0	24.0		11.0	24.0	16.0	16.0	24.0		11.0	24.0	
Total Split (s)	17.0	26.0		15.0	24.0	16.0	16.0	33.0		11.0	28.0	
Total Split (%)	20.0%	30.6%		17.6%	28.2%	18.8%	18.8%	38.8%		12.9%	32.9%	
Maximum Green (s)	11.0	20.0		9.0	18.0	10.0	10.0	27.0		5.0	22.0	
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	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	C-Max		None	None	
Act Effct Green (s)	10.5	20.5		8.0	15.7	30.6	8.8	31.2		5.9	28.3	
Actuated g/C Ratio	0.12	0.24		0.09	0.18	0.36	0.10	0.37		0.07	0.33	
v/c Ratio	0.76	0.55		0.45	0.76	0.02	0.51	0.71		0.52	0.85	
Control Delay	59.4	33.3		45.1	47.3	0.0	45.7	31.9		55.6	42.9	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	59.4	33.3		45.1	47.3	0.0	45.7	31.9		55.6	42.9	
LOS	E	C		D	D	A	D	C		E	D	
Approach Delay		43.9			45.3			34.2			44.3	

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Approach LOS		D			D			C			D	
Queue Length 50th (ft)	86	113		38	129	0	48	233		34	~268	
Queue Length 95th (ft)	#180	186		80	207	0	95	#394		#93	#488	
Internal Link Dist (ft)		281			331			397			450	
Turn Bay Length (ft)	70			245		245	390			110		
Base Capacity (vph)	226	456		185	390	657	210	686		123	615	
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	0.73	0.53		0.41	0.66	0.02	0.45	0.71		0.52	0.85	

Intersection Summary

Area Type: Other
Cycle Length: 85
Actuated Cycle Length: 85
Offset: 0 (0%), Referenced to phase 2:NET, Start of Green
Natural Cycle: 85
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 41.3 Intersection LOS: D
Intersection Capacity Utilization 87.9% 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.
Queue shown is maximum after two cycles.

Splits and Phases: 7: NH 102 (E Broadway) & Birch St/Crystal Av



Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	60	320	110	550	390	0	60	360	50	45	180	625
Future Volume (vph)	60	320	110	550	390	0	60	360	50	45	180	625
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	110		90	360		0	190		180	0		210
Storage Lanes	1		1	2		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850						0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	3433	3539	0	1770	1863	1583	1787	1881	1599
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	3433	3539	0	1770	1863	1583	1787	1881	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			208						208			165
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		639			503			532			387	
Travel Time (s)		14.5			11.4			12.1			8.8	
Peak Hour Factor	0.92	0.92	0.92	0.94	0.94	0.94	0.96	0.96	0.96	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Adj. Flow (vph)	65	348	120	585	415	0	63	375	52	47	189	658
Shared Lane Traffic (%)												
Lane Group Flow (vph)	65	348	120	585	415	0	63	375	52	47	189	658
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		7	4		3	8	1
Permitted Phases			2						4			8
Detector Phase	5	2	2	1	6		7	4	4	3	8	1
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0		7.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	14.0	22.0	22.0	14.0	22.0		13.0	22.0	22.0	14.0	22.0	14.0
Total Split (s)	14.0	23.0	23.0	35.0	44.0		15.0	38.0	38.0	14.0	37.0	35.0
Total Split (%)	12.7%	20.9%	20.9%	31.8%	40.0%		13.6%	34.5%	34.5%	12.7%	33.6%	31.8%
Maximum Green (s)	8.0	17.0	17.0	29.0	38.0		9.0	32.0	32.0	8.0	31.0	29.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	None		None	None	None	None	None	None
Walk Time (s)		5.0	5.0		5.0			5.0	5.0		5.0	
Flash Dont Walk (s)		11.0	11.0		11.0			11.0	11.0		11.0	
Pedestrian Calls (#/hr)		0	0		0			0	0		0	
Act Effct Green (s)	8.4	28.9	28.9	25.2	48.4		8.4	26.7	26.7	8.0	26.2	57.4
Actuated g/C Ratio	0.08	0.26	0.26	0.23	0.44		0.08	0.24	0.24	0.07	0.24	0.52
v/c Ratio	0.48	0.38	0.21	0.74	0.27		0.47	0.83	0.10	0.36	0.42	0.72
Control Delay	61.1	38.3	0.8	55.3	26.8		60.4	55.0	0.4	57.0	37.7	18.7
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Total Delay	61.1	38.3	0.8	55.3	26.8		60.4	55.0	0.4	57.0	37.7	18.7
LOS	E	D	A	E	C		E	E	A	E	D	B
Approach Delay		32.6			43.5			49.9			24.7	
Approach LOS		C			D			D			C	
Queue Length 50th (ft)	44	112	0	226	102		43	250	0	32	113	253
Queue Length 95th (ft)	91	173	0	288	155		88	343	0	71	171	330
Internal Link Dist (ft)		559			423			452			307	
Turn Bay Length (ft)	110		90	360			190		180			210
Base Capacity (vph)	135	928	568	905	1558		144	541	608	129	530	962
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.38	0.21	0.65	0.27		0.44	0.69	0.09	0.36	0.36	0.68

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 0 (0%), Referenced to phase 2:NBT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 36.8 Intersection LOS: D
Intersection Capacity Utilization 70.2% ICU Level of Service C
Analysis Period (min) 15

Splits and Phases: 11: Folsom Rd/Tsienneto Rd & NH 28 S/NH 28

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	160	1185	5	20	890	80	15	10	15	10	10	60
Future Volume (vph)	160	1185	5	20	890	80	15	10	15	10	10	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	115		0	0		0	0		0
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.988				0.850			0.850
Flt Protected	0.950			0.950				0.971			0.976	
Satd. Flow (prot)	1787	3571	0	1787	3531	0	0	1845	1615	0	1836	1599
Flt Permitted	0.950			0.950				0.799			0.827	
Satd. Flow (perm)	1787	3571	0	1787	3531	0	0	1518	1615	0	1556	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			11				149			149
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		277			644			230			387	
Travel Time (s)		6.3			14.6			5.2			8.8	
Peak Hour Factor	0.97	0.97	0.97	0.95	0.95	0.95	0.90	0.90	0.90	0.80	0.80	0.80
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Adj. Flow (vph)	165	1222	5	21	937	84	17	11	17	13	13	75
Shared Lane Traffic (%)												
Lane Group Flow (vph)	165	1227	0	21	1021	0	0	28	17	0	26	75
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4	4	4
Detector Phase	5	2		1	6		8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	8.0		5.0	8.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	26.0	63.0		11.0	48.0		21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	30.0	74.0		13.0	57.0		23.0	23.0	23.0	23.0	23.0	23.0
Total Split (%)	27.3%	67.3%		11.8%	51.8%		20.9%	20.9%	20.9%	20.9%	20.9%	20.9%
Maximum Green (s)	24.0	68.0		7.0	51.0		17.0	17.0	17.0	17.0	17.0	17.0
Yellow Time (s)	4.0	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	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0		6.0	6.0			6.0	6.0		6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max		None	C-Max		None	None	None	None	None	None
Walk Time (s)		7.0			7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		11.0			11.0		8.0	8.0	8.0	8.0	8.0	8.0
Pedestrian Calls (#/hr)		0			0		0	0	0	0	0	0
Act Effct Green (s)	15.4	88.4		6.9	71.4			7.5	7.5		7.5	7.5
Actuated g/C Ratio	0.14	0.80		0.06	0.65			0.07	0.07		0.07	0.07
v/c Ratio	0.66	0.43		0.19	0.44			0.27	0.07		0.25	0.30
Control Delay	54.6	6.4		52.7	11.3			54.7	0.5		53.5	3.1
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Total Delay	54.6	6.4		52.7	11.3			54.7	0.5		53.5	3.1
LOS	D	A		D	B			D	A		D	A
Approach Delay		12.1			12.1			34.2			16.1	
Approach LOS		B			B			C			B	
Queue Length 50th (ft)	115	82		13	190			19	0		18	0
Queue Length 95th (ft)	m177	284		m27	253			48	0		40	0
Internal Link Dist (ft)		197			564			150			307	
Turn Bay Length (ft)	100			115								
Base Capacity (vph)	389	2869		120	2296			234	375		240	373
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	0.43		0.17	0.44			0.12	0.05		0.11	0.20

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 0 (0%), Referenced to phase 2:SET and 6:NWT, Start of Green
Natural Cycle: 95
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.66
Intersection Signal Delay: 12.7 Intersection LOS: B
Intersection Capacity Utilization 60.1% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 13: Applebee's/Linlew Dr & NH 28

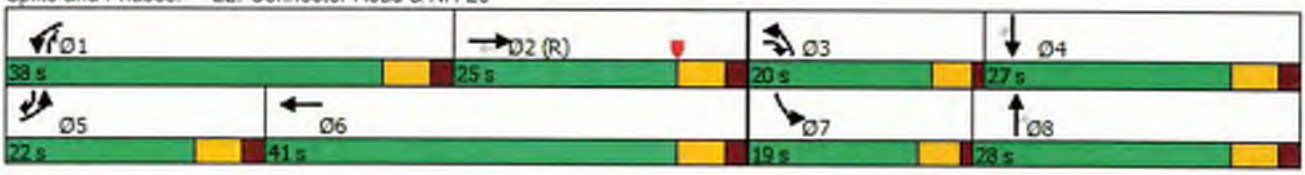
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	180	140	820	300	20	130	640	940	30	530	180
Future Volume (vph)	50	180	140	820	300	20	130	640	940	30	530	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	220		0	100		265	200		0
Storage Lanes	1		1	2		0	1		2	1		1
Taper Length (ft)	150			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	0.97	0.95	0.95	1.00	0.95	0.88	1.00	0.95	1.00
Frt			0.850		0.991				0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1787	1881	1599	3433	3507	0	1805	3610	2842	1805	3610	1615
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1787	1881	1599	3433	3507	0	1805	3610	2842	1805	3610	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			149		6				806			209
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		877			438			391			343	
Travel Time (s)		19.9			10.0			8.9			7.8	
Peak Hour Factor	0.84	0.84	0.84	0.90	0.90	0.90	0.78	0.78	0.78	0.86	0.86	0.86
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	60	214	167	911	333	22	167	821	1205	35	616	209
Shared Lane Traffic (%)												
Lane Group Flow (vph)	60	214	167	911	355	0	167	821	1205	35	616	209
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	pm+ov	Prot	NA	pm+ov
Protected Phases	5	2	3	1	6		3	8	1	7	4	5
Permitted Phases			2						8		4	4
Detector Phase	5	2	3	1	6		3	8	1	7	4	5
Switch Phase												
Minimum Initial (s)	8.0	8.0	5.0	8.0	8.0		5.0	5.0	8.0	5.0	8.0	8.0
Minimum Split (s)	22.0	22.0	9.5	22.0	22.0		9.5	22.0	22.0	9.5	22.0	22.0
Total Split (s)	22.0	25.0	20.0	38.0	41.0		20.0	28.0	38.0	19.0	27.0	22.0
Total Split (%)	20.0%	22.7%	18.2%	34.5%	37.3%		18.2%	25.5%	34.5%	17.3%	24.5%	20.0%
Maximum Green (s)	16.0	19.0	15.5	32.0	35.0		15.5	22.0	32.0	14.5	21.0	16.0
Yellow Time (s)	4.0	4.0	3.5	4.0	4.0		3.5	4.0	4.0	3.5	4.0	4.0
All-Red Time (s)	2.0	2.0	1.0	2.0	2.0		1.0	2.0	2.0	1.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	4.5	6.0	6.0		4.5	6.0	6.0	4.5	6.0	6.0
Lead/Lag	Lead	Lag	Lead	Lead	Lag		Lead	Lag	Lead	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	Max	C-Max	None	None	None		None	None	None	None	None	Max
Walk Time (s)	5.0	5.0		5.0	5.0			5.0	5.0		5.0	5.0
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			11.0	11.0		11.0	11.0
Pedestrian Calls (#/hr)	0	0		0	0			0	0		0	0
Act Effct Green (s)	16.0	19.0	38.9	32.0	35.0		13.9	33.1	71.1	7.6	22.6	44.6
Actuated g/C Ratio	0.15	0.17	0.35	0.29	0.32		0.13	0.30	0.65	0.07	0.21	0.41
v/c Ratio	0.23	0.66	0.25	0.91	0.32		0.73	0.76	0.57	0.28	0.83	0.27
Control Delay	44.2	53.3	6.2	50.5	40.1		65.0	41.7	4.7	53.5	53.4	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	44.2	53.3	6.2	50.5	40.1		65.0	41.7	4.7	53.5	53.4	4.0
LOS	D	D	A	D	D		E	D	A	D	D	A
Approach Delay		34.2			47.5			23.1			41.4	
Approach LOS		C			D			C			D	
Queue Length 50th (ft)	38	142	8	344	128		113	291	68	24	225	0
Queue Length 95th (ft)	73	207	44	#445	176		158	315	72	53	#299	39
Internal Link Dist (ft)		797			358			311			263	
Turn Bay Length (ft)	100			220			100		265	200		
Base Capacity (vph)	259	324	682	998	1119		254	1084	2121	237	741	778
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.66	0.24	0.91	0.32		0.66	0.76	0.57	0.15	0.83	0.27

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 0 (0%), Referenced to phase 2:EBT, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.91
Intersection Signal Delay: 33.9 Intersection LOS: C
Intersection Capacity Utilization 73.5% 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: 22: Connector Road & NH 28



Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	30	70	20	80	60	20	30	430	70	20	210	50
Future Volume (vph)	30	70	20	80	60	20	30	430	70	20	210	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		150	190		190	135		150	120		150
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.967				0.850		0.979			0.971	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1801	0	1787	1881	1599	1805	1860	0	1805	1845	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1801	0	1787	1881	1599	1805	1860	0	1805	1845	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15				123		11			16	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		481			347			479			371	
Travel Time (s)		10.9			7.9			10.9			8.4	
Peak Hour Factor	0.99	0.99	0.99	0.95	0.95	0.95	0.89	0.89	0.89	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	30	71	20	84	63	21	34	483	79	22	226	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	30	91	0	84	63	21	34	562	0	22	280	0
Turn Type	Prot	NA		Prot	NA	pt+ov	Prot	NA		Prot	NA	
Protected Phases	1	6		5	2	2 3	3	8		7	4	
Permitted Phases		6			2							
Detector Phase	1	6		5	2	2 3	3	8		7	4	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0		8.0	8.0		8.0	8.0	
Minimum Split (s)	14.0	20.0		14.0	20.0		14.0	28.0		14.0	14.0	
Total Split (s)	14.0	20.0		14.0	20.0		14.0	32.0		14.0	32.0	
Total Split (%)	17.5%	25.0%		17.5%	25.0%		17.5%	40.0%		17.5%	40.0%	
Maximum Green (s)	8.0	14.0		8.0	14.0		8.0	26.0		8.0	26.0	
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	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	C-Max		None	None		None	None	
Walk Time (s)								7.0				
Flash Dont Walk (s)								15.0				
Pedestrian Calls (#/hr)								0				
Act Effct Green (s)	8.0	24.1		8.2	29.9	43.9	8.0	26.9		8.0	24.1	
Actuated g/C Ratio	0.10	0.30		0.10	0.37	0.55	0.10	0.34		0.10	0.30	
v/c Ratio	0.17	0.16		0.46	0.09	0.02	0.19	0.89		0.12	0.49	
Control Delay	35.5	23.4		42.6	23.8	0.1	35.8	43.8		34.6	25.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Total Delay	35.5	23.4		42.6	23.8	0.1	35.8	43.8		34.6	25.1	
LOS	D	C		D	C	A	D	D		C	C	
Approach Delay		26.4			30.2			43.3			25.8	
Approach LOS		C			C			D			C	
Queue Length 50th (ft)	14	29		40	17	0	16	236		10	123	
Queue Length 95th (ft)	39	74		85	61	0	42	#450		32	173	
Internal Link Dist (ft)		401			267			399			291	
Turn Bay Length (ft)	200			190		190	135			120		
Base Capacity (vph)	177	553		183	704	933	180	644		180	621	
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	0.17	0.16		0.46	0.09	0.02	0.19	0.87		0.12	0.45	

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 0 (0%), Referenced to phase 2:SBT, Start of Green
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 35.3 Intersection LOS: D
Intersection Capacity Utilization 48.0% ICU Level of Service A
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 18: Tsienneto Rd & NH 28 Byp SB

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2	Ø5	Ø6	Ø7
Lane Configurations										
Traffic Volume (vph)	660	10	40	140	100	720				
Future Volume (vph)	660	10	40	140	100	720				
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900				
Storage Length (ft)	0	0	120			90				
Storage Lanes	1	0	1			1				
Taper Length (ft)	25		25							
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00				
Frt	0.998					0.850				
Flt Protected	0.953		0.950							
Satd. Flow (prot)	1789	0	1770	1863	1845	1568				
Flt Permitted	0.953		0.653							
Satd. Flow (perm)	1789	0	1216	1863	1845	1568				
Right Turn on Red		Yes				Yes				
Satd. Flow (RTOR)	1					809				
Link Speed (mph)	30			30	30					
Link Distance (ft)	475			709	258					
Travel Time (s)	10.8			16.1	5.9					
Peak Hour Factor	0.90	0.90	0.87	0.87	0.89	0.89				
Heavy Vehicles (%)	1%	1%	2%	2%	3%	3%				
Adj. Flow (vph)	733	11	46	161	112	809				
Shared Lane Traffic (%)										
Lane Group Flow (vph)	744	0	46	161	112	809				
Turn Type	Prot		pm+pt	NA	NA	custom				
Protected Phases	8		1	6 7	2 7	7 8	2	5	6	7
Permitted Phases			6 7			2				
Detector Phase	8		1	6 7	2 7	7 8				
Switch Phase										
Minimum Initial (s)	5.0		5.0				5.0	5.0	5.0	5.0
Minimum Split (s)	26.5		11.0				28.0	11.0	28.0	11.0
Total Split (s)	46.0		11.0				29.0	11.0	29.0	14.0
Total Split (%)	46.0%		11.0%				29%	11%	29%	14%
Maximum Green (s)	40.0		5.0				23.0	5.0	23.0	8.0
Yellow Time (s)	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
Lost Time Adjust (s)	0.0		0.0							
Total Lost Time (s)	6.0		6.0							
Lead/Lag	Lag		Lead				Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes		Yes				Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0		3.0				3.0	3.0	3.0	3.0
Recall Mode	None		None				Max	None	Max	None
Walk Time (s)							7.0		7.0	
Flash Dont Walk (s)							15.0		15.0	
Pedestrian Calls (#/hr)							0		0	
Act Effct Green (s)	40.1		42.3	41.3	37.1	85.8				
Actuated g/C Ratio	0.42		0.44	0.43	0.39	0.90				
v/c Ratio	0.99		0.08	0.20	0.16	0.54				
Control Delay	60.5		14.6	18.4	23.6	1.6				
Queue Delay	0.0		0.0	0.0	0.0	0.5				

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2	Ø5	Ø6	Ø7
Total Delay	60.5		14.6	18.4	23.6	2.1				
LOS	E		B	B	C	A				
Approach Delay	60.5			17.5	4.7					
Approach LOS	E			B	A					
Queue Length 50th (ft)	~515		15	56	47	9				
Queue Length 95th (ft)	#744		33	114	m80	7				
Internal Link Dist (ft)	395			629	178					
Turn Bay Length (ft)			120			90				
Base Capacity (vph)	751		566	805	716	1490				
Starvation Cap Reductn	0		0	0	0	287				
Spillback Cap Reductn	0		0	0	0	0				
Storage Cap Reductn	0		0	0	0	0				
Reduced v/c Ratio	0.99		0.08	0.20	0.16	0.67				

Intersection Summary

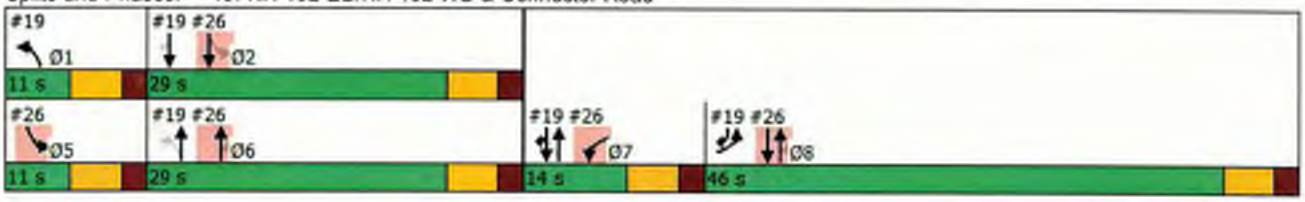
Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 95.6
Natural Cycle: 100
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 28.3 Intersection LOS: C
Intersection Capacity Utilization 58.7% ICU Level of Service B
Analysis Period (min) 15

~ 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.

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

Splits and Phases: 19: NH 102 EB/NH 102 WB & Connector Road



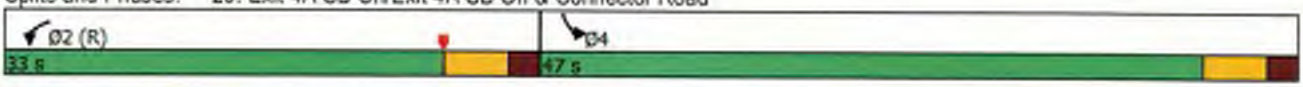
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	1010	0	0	0	1575	0
Future Volume (vph)	1010	0	0	0	1575	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	1.00	1.00	1.00	0.97	1.00
Frt						
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3433	0	0	0	3433	0
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	3433	0	0	0	3433	0
Right Turn on Red		Yes		Yes		
Satd. Flow (RTOR)						
Link Speed (mph)	30		30			30
Link Distance (ft)	372		529			557
Travel Time (s)	8.5		12.0			12.7
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	1074	0	0	0	1676	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1074	0	0	0	1676	0
Turn Type	Prot				Prot	
Protected Phases	2				4	
Permitted Phases						
Detector Phase	2				4	
Switch Phase						
Minimum Initial (s)	5.0				9.0	
Minimum Split (s)	24.0				24.0	
Total Split (s)	33.0				47.0	
Total Split (%)	41.3%				58.8%	
Maximum Green (s)	27.0				41.0	
Yellow Time (s)	4.0				4.0	
All-Red Time (s)	2.0				2.0	
Lost Time Adjust (s)	0.0				0.0	
Total Lost Time (s)	6.0				6.0	
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)	3.0				3.0	
Recall Mode	C-Max				Min	
Act Effct Green (s)	27.0				41.0	
Actuated g/C Ratio	0.34				0.51	
v/c Ratio	0.93				0.95	
Control Delay	41.8				32.7	
Queue Delay	38.6				0.0	
Total Delay	80.4				32.7	
LOS	F				C	
Approach Delay	80.4					32.7
Approach LOS	F					C
Queue Length 50th (ft)	307				387	
Queue Length 95th (ft)	#408				#563	
Internal Link Dist (ft)	292		449			477

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Turn Bay Length (ft)						
Base Capacity (vph)	1158				1759	
Starvation Cap Reductn	167				0	
Spillback Cap Reductn	0				0	
Storage Cap Reductn	0				0	
Reduced v/c Ratio	1.08				0.95	

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 25 (31%), Referenced to phase 2:WBL, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 51.3 — Intersection LOS: D
Intersection Capacity Utilization 129.3% — ICU Level of Service H
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 20: Exit 4A SB On/Exit 4A SB Off & Connector Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NWL	NWR
Lane Configurations										
Traffic Volume (vph)	0	1575	0	0	1010	1075	0	0	0	770
Future Volume (vph)	0	1575	0	0	1010	1075	0	0	0	770
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	0		200	0	0	0	0
Storage Lanes	1		0	0		2	0	0	1	1
Taper Length (ft)	75			25			25		25	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.88	1.00	1.00	1.00	0.95
Frt						0.850			0.850	0.850
Flt Protected										
Satd. Flow (prot)	1863	3539	0	0	3539	2787	0	0	1583	1504
Flt Permitted										
Satd. Flow (perm)	1863	3539	0	0	3539	2787	0	0	1583	1504
Right Turn on Red			Yes			Yes		Yes		
Satd. Flow (RTOR)						64				
Link Speed (mph)		30			30		30		30	
Link Distance (ft)		372			394		598		519	
Travel Time (s)		8.5			9.0		13.6		11.8	
Peak Hour Factor	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	1676	0	0	1074	1144	0	0	0	819
Shared Lane Traffic (%)										50%
Lane Group Flow (vph)	0	1676	0	0	1074	1144	0	0	410	409
Turn Type	Perm	NA			NA	Perm			Prot	Prot
Protected Phases		2			2				4	4
Permitted Phases	2					2				
Detector Phase	2	2			2	2			4	4
Switch Phase										
Minimum Initial (s)	5.0	5.0			5.0	5.0			9.0	9.0
Minimum Split (s)	24.0	24.0			24.0	24.0			24.0	24.0
Total Split (s)	48.0	48.0			48.0	48.0			32.0	32.0
Total Split (%)	60.0%	60.0%			60.0%	60.0%			40.0%	40.0%
Maximum Green (s)	42.0	42.0			42.0	42.0			26.0	26.0
Yellow Time (s)	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
Lost Time Adjust (s)	0.0	0.0			0.0	0.0			0.0	0.0
Total Lost Time (s)	6.0	6.0			6.0	6.0			6.0	6.0
Lead/Lag										
Lead-Lag Optimize?										
Vehicle Extension (s)	3.0	3.0			3.0	3.0			3.0	3.0
Recall Mode	C-Max	C-Max			C-Max	C-Max			Max	Max
Act Effct Green (s)		42.0			42.0	42.0			26.0	26.0
Actuated g/C Ratio		0.52			0.52	0.52			0.32	0.32
v/c Ratio		0.90			0.58	0.77			0.80	0.84
Control Delay		4.6			14.5	18.5			38.3	42.6
Queue Delay		0.4			0.9	0.0			0.0	0.0
Total Delay		5.0			15.5	18.5			38.3	42.6
LOS		A			B	B			D	D
Approach Delay		5.0			17.0				40.5	
Approach LOS		A			B				D	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NWL	NWR
Queue Length 50th (ft)		3			180	228			184	196
Queue Length 95th (ft)		m5			238	319			#330	#361
Internal Link Dist (ft)		292			314		518		439	
Turn Bay Length (ft)						200				
Base Capacity (vph)		1857			1857	1493			514	488
Starvation Cap Reductn		26			0	0			0	0
Spillback Cap Reductn		0			474	0			0	0
Storage Cap Reductn		0			0	0			0	0
Reduced v/c Ratio		0.92			0.78	0.77			0.80	0.84

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 0 (0%), Referenced to phase 2:EBWB, Start of Yellow
Natural Cycle: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.90
Intersection Signal Delay: 16.8 Intersection LOS: B
Intersection Capacity Utilization 115.2% ICU Level of Service H
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 21: Exit 4A NB Off & Connector Road & Exit 4A NB On

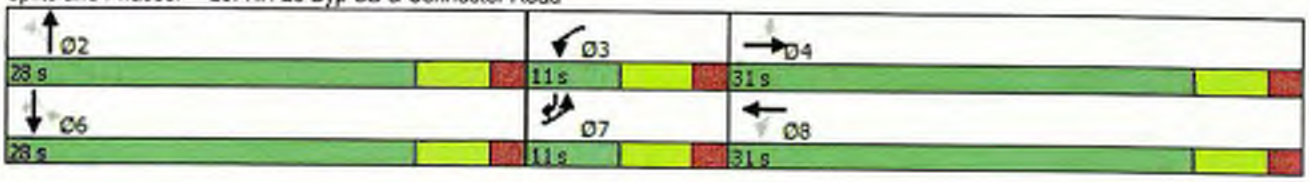
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	490	10	10	500	10	20	70	10	10	70	130
Future Volume (vph)	130	490	10	10	500	10	20	70	10	10	70	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	275		0	75		100	75		0	210		210
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997			0.997			0.961				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1857	0	1770	1857	0	1770	1827	0	1770	1863	1583
Flt Permitted	0.198			0.332			0.708			0.701		
Satd. Flow (perm)	369	1857	0	618	1857	0	1319	1827	0	1306	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			2			11				141
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		310			410			481			432	
Travel Time (s)		7.0			9.3			10.9			9.8	
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
Adj. Flow (vph)	141	533	11	11	543	11	22	76	11	11	76	141
Shared Lane Traffic (%)												
Lane Group Flow (vph)	141	544	0	11	554	0	22	87	0	11	76	141
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4		3	8			2			6	7
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		3	8		2	2		6	6	7
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	11.0	28.0		11.0	28.0		28.0	28.0		28.0	28.0	11.0
Total Split (s)	11.0	31.0		11.0	31.0		28.0	28.0		28.0	28.0	11.0
Total Split (%)	15.7%	44.3%		15.7%	44.3%		40.0%	40.0%		40.0%	40.0%	15.7%
Maximum Green (s)	5.0	25.0		5.0	25.0		22.0	22.0		22.0	22.0	5.0
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
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	None		Max	Max		None	None	None
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		15.0			15.0		15.0	15.0		15.0	15.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	32.8	31.8		27.9	22.9		22.0	22.0		22.0	22.0	33.1
Actuated g/C Ratio	0.48	0.47		0.41	0.34		0.32	0.32		0.32	0.32	0.49
v/c Ratio	0.50	0.63		0.03	0.88		0.05	0.15		0.03	0.13	0.17
Control Delay	16.3	19.4		8.8	39.3		17.2	16.2		17.0	17.8	2.7
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	16.3	19.4		8.8	39.3		17.2	16.2		17.0	17.8	2.7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	B	B		A	D		B	B		B	B	A
Approach Delay		16.8			38.7			16.4			8.5	
Approach LOS		B			D			B			A	
Queue Length 50th (ft)	30	149		2	213		7	23		3	23	0
Queue Length 95th (ft)	58	#373		9	#384		21	53		14	51	26
Internal Link Dist (ft)		230			330			401			352	
Turn Bay Length (ft)	275			75			75			210		210
Base Capacity (vph)	281	869		338	685		427	599		423	603	841
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	0.50	0.63		0.03	0.81		0.05	0.15		0.03	0.13	0.17

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 68
Natural Cycle: 70
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 24.2 — Intersection LOS: C
Intersection Capacity Utilization 56.9% — ICU Level of Service B
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 23: NH 28 Byp SB & Connector Road



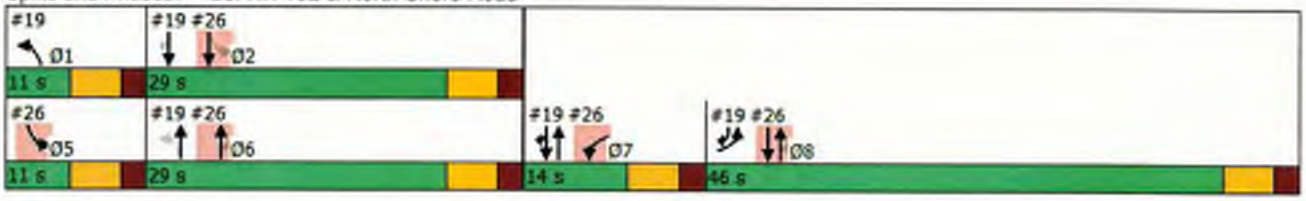
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø1	Ø2	Ø6	Ø8
Lane Configurations										
Traffic Volume (vph)	80	10	640	160	10	740				
Future Volume (vph)	80	10	640	160	10	740				
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900				
Storage Length (ft)	0	0		90	100					
Storage Lanes	1	0		1	1					
Taper Length (ft)	25				25					
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00				
Frt	0.981			0.850						
Flt Protected	0.959				0.950					
Satd. Flow (prot)	1772	0	1900	1615	1805	1900				
Flt Permitted	0.959				0.218					
Satd. Flow (perm)	1772	0	1900	1615	414	1900				
Right Turn on Red		Yes		Yes						
Satd. Flow (RTOR)	6			126						
Link Speed (mph)	30		30			30				
Link Distance (ft)	524		258			288				
Travel Time (s)	11.9		5.9			6.5				
Peak Hour Factor	0.87	0.67	0.95	0.84	0.73	0.96				
Heavy Vehicles (%)	1%	0%	0%	0%	0%	0%				
Adj. Flow (vph)	92	15	674	190	14	771				
Shared Lane Traffic (%)										
Lane Group Flow (vph)	107	0	674	190	14	771				
Turn Type	Prot		NA	Perm	custom	NA				
Protected Phases	7		6 8		5	2 8	1	2	6	8
Permitted Phases				6 8	2					
Detector Phase	7		6 8	6 8	5	2 8				
Switch Phase										
Minimum Initial (s)	5.0				5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	11.0				11.0		11.0	28.0	28.0	26.5
Total Split (s)	14.0				11.0		11.0	29.0	29.0	46.0
Total Split (%)	14.0%				11.0%		11%	29%	29%	46%
Maximum Green (s)	8.0				5.0		5.0	23.0	23.0	40.0
Yellow Time (s)	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
Lost Time Adjust (s)	0.0				0.0					
Total Lost Time (s)	6.0				6.0					
Lead/Lag	Lead				Lead		Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes				Yes		Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0				3.0		3.0	3.0	3.0	3.0
Recall Mode	None				None		None	Max	Max	None
Walk Time (s)								7.0	7.0	
Flash Dont Walk (s)								15.0	15.0	
Pedestrian Calls (#/hr)								0	0	
Act Effct Green (s)	8.0		72.3	72.3	25.9	65.8				
Actuated g/C Ratio	0.08		0.76	0.76	0.27	0.69				
v/c Ratio	0.69		0.47	0.15	0.08	0.59				
Control Delay	65.8		1.5	0.5	23.2	7.4				
Queue Delay	0.0		1.6	0.5	0.0	0.0				

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø1	Ø2	Ø6	Ø8
Total Delay	65.8		3.1	1.0	23.2	7.4				
LOS	E		A	A	C	A				
Approach Delay	65.8		2.6			7.7				
Approach LOS	E		A			A				
Queue Length 50th (ft)	64		13	0	6	127				
Queue Length 95th (ft)	#142		m59	m0	16	182				
Internal Link Dist (ft)	444		178			208				
Turn Bay Length (ft)				90	100					
Base Capacity (vph)	154		1437	1252	185	1307				
Starvation Cap Reductn	0		555	726	0	0				
Spillback Cap Reductn	0		0	0	0	0				
Storage Cap Reductn	0		0	0	0	0				
Reduced v/c Ratio	0.69		0.76	0.36	0.08	0.59				

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 95.6
Natural Cycle: 100
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 8.8 Intersection LOS: A
Intersection Capacity Utilization 54.0% ICU Level of Service A
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 26: NH 102 & North Shore Road



APPENDIX Q-1: ALTERNATIVE C INTERSECTION CAPACITY ANALYSES – HCS PRINTSOUTS – AM PEAK HOUR

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↰	↱↱
Traffic Volume (vph)	0	1255	1330	0	125	1325
Future Volume (vph)	0	1255	1330	0	125	1325
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	16	12
Total Lost time (s)		6.0	6.0		6.0	6.0
Lane Util. Factor		0.95	0.95		1.00	0.88
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3471	3406		1930	2682
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3471	3406		1930	2682
Peak-hour factor, PHF	0.93	0.93	0.88	0.88	0.89	0.89
Adj. Flow (vph)	0	1349	1511	0	140	1489
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	1349	1511	0	140	1489
Heavy Vehicles (%)	4%	4%	6%	6%	6%	6%
Turn Type		NA	NA		Prot	Prot
Protected Phases		2	6		4	4
Permitted Phases						
Actuated Green, G (s)		57.0	57.0		71.0	71.0
Effective Green, g (s)		57.0	57.0		71.0	71.0
Actuated g/C Ratio		0.41	0.41		0.51	0.51
Clearance Time (s)		6.0	6.0		6.0	6.0
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)		1413	1386		978	1360
v/s Ratio Prot		0.39	c0.44		0.07	c0.56
v/s Ratio Perm						
v/c Ratio		0.95	1.09		0.14	1.09
Uniform Delay, d1		40.2	41.5		18.3	34.5
Progression Factor		0.71	0.07		1.00	1.00
Incremental Delay, d2		11.0	42.0		0.1	54.6
Delay (s)		39.6	45.0		18.4	89.1
Level of Service		D	D		B	F
Approach Delay (s)		39.6	45.0		83.0	
Approach LOS		D	D		F	

Intersection Summary			
HCM 2000 Control Delay	57.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	95.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	NBL2	NBL	NBR	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Traffic Volume (vph)	1250	0	910	0	0	1085	295	0	0	420	240
Future Volume (vph)	1250	0	910	0	0	1085	295	0	0	420	240
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0			6.0	6.0			6.0	4.0
Lane Util. Factor	0.97		0.88			0.97	0.95			0.95	1.00
Frt	1.00		0.85			1.00	1.00			1.00	0.85
Flt Protected	0.95		1.00			0.95	1.00			1.00	1.00
Satd. Flow (prot)	3242		2632			3335	3438			3505	1568
Flt Permitted	0.95		1.00			0.95	1.00			1.00	1.00
Satd. Flow (perm)	3242		2632			3335	3438			3505	1568
Peak-hour factor, PHF	0.88	0.88	0.88	0.92	0.92	0.94	0.94	0.94	0.92	0.92	0.92
Adj. Flow (vph)	1420	0	1034	0	0	1154	314	0	0	457	261
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	1420	0	1034	0	0	1154	314	0	0	457	261
Heavy Vehicles (%)	8%	8%	8%	2%	2%	5%	5%	5%	3%	3%	3%
Turn Type	Prot		Prot			Prot	NA			NA	Free
Protected Phases	8		8			5	2			6	
Permitted Phases											Free
Actuated Green, G (s)	54.0		54.0			42.0	74.0			26.0	140.0
Effective Green, g (s)	54.0		54.0			42.0	74.0			26.0	140.0
Actuated g/C Ratio	0.39		0.39			0.30	0.53			0.19	1.00
Clearance Time (s)	6.0		6.0			6.0	6.0			6.0	
Vehicle Extension (s)	3.0		3.0			3.0	3.0			3.0	
Lane Grp Cap (vph)	1250		1015			1000	1817			650	1568
v/s Ratio Prot	c0.44		0.39			c0.35	0.09			c0.13	
v/s Ratio Perm											0.17
v/c Ratio	1.14		1.02			1.15	0.17			0.70	0.17
Uniform Delay, d1	43.0		43.0			49.0	17.1			53.4	0.0
Progression Factor	1.00		1.00			0.44	0.15			1.00	1.00
Incremental Delay, d2	71.5		33.0			75.1	0.1			6.3	0.2
Delay (s)	114.5		76.0			96.4	2.7			59.6	0.2
Level of Service	F		E			F	A			E	A
Approach Delay (s)		98.3		0.0			76.4			38.0	
Approach LOS		F		A			E			D	

Intersection Summary			
HCM 2000 Control Delay	82.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.05		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	94.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱	↰	↑↑					↰↰		↱
Traffic Volume (vph)	0	640	470	160	615	0	0	0	0	180	0	390
Future Volume (vph)	0	640	470	160	615	0	0	0	0	180	0	390
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	4.0	6.0	6.0					6.0		6.0
Lane Util. Factor		0.95	1.00	1.00	0.95					0.97		1.00
Frt		1.00	0.85	1.00	1.00					1.00		0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (prot)		3471	1553	1719	3438					3367		1553
Flt Permitted		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (perm)		3471	1553	1719	3438					3367		1553
Peak-hour factor, PHF	0.87	0.87	0.87	0.86	0.86	0.86	0.92	0.92	0.92	0.91	0.91	0.91
Adj. Flow (vph)	0	736	540	186	715	0	0	0	0	198	0	429
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	154
Lane Group Flow (vph)	0	736	540	186	715	0	0	0	0	198	0	275
Heavy Vehicles (%)	4%	4%	4%	5%	5%	5%	2%	2%	2%	4%	4%	4%
Turn Type		NA	Free	Prot	NA					Prot		Prot
Protected Phases		2		1	6					4		4
Permitted Phases			Free									
Actuated Green, G (s)		36.1	90.0	14.2	56.3					21.7		21.7
Effective Green, g (s)		36.1	90.0	14.2	56.3					21.7		21.7
Actuated g/C Ratio		0.40	1.00	0.16	0.63					0.24		0.24
Clearance Time (s)		6.0		6.0	6.0					6.0		6.0
Vehicle Extension (s)		5.0		3.0	5.0					3.0		3.0
Lane Grp Cap (vph)		1392	1553	271	2150					811		374
v/s Ratio Prot		c0.21		c0.11	0.21					0.06		c0.18
v/s Ratio Perm			0.35									
v/c Ratio		0.53	0.35	0.69	0.33					0.24		0.74
Uniform Delay, d1		20.5	0.0	35.8	8.0					27.5		31.5
Progression Factor		1.00	1.00	0.35	0.02					1.00		1.00
Incremental Delay, d2		1.4	0.6	4.6	0.2					0.2		7.3
Delay (s)		21.9	0.6	17.3	0.4					27.7		38.8
Level of Service		C	A	B	A					C		D
Approach Delay (s)		12.9			3.9			0.0			35.3	
Approach LOS		B			A			A			D	

Intersection Summary			
HCM 2000 Control Delay	15.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	70.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	440	380	0	0	455	230	320	0	370	0	0	0
Future Volume (vph)	440	380	0	0	455	230	320	0	370	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0	4.0	6.0		6.0			
Lane Util. Factor	1.00	0.95			0.95	1.00	1.00		1.00			
Frt	1.00	1.00			1.00	0.85	1.00		0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (prot)	1752	3505			3505	1568	1703		1524			
Flt Permitted	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (perm)	1752	3505			3505	1568	1703		1524			
Peak-hour factor, PHF	0.92	0.92	0.92	0.91	0.91	0.91	0.67	0.67	0.67	0.92	0.92	0.92
Adj. Flow (vph)	478	413	0	0	500	253	478	0	552	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	288	0	0	0
Lane Group Flow (vph)	478	413	0	0	500	253	478	0	264	0	0	0
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	6%	6%	6%	2%	2%	2%
Turn Type	Prot	NA			NA	Free	Prot		Prot			
Protected Phases	5	2			6		8		8			
Permitted Phases		2			6	Free						
Actuated Green, G (s)	26.9	50.1			17.2	90.0	27.9		27.9			
Effective Green, g (s)	26.9	50.1			17.2	90.0	27.9		27.9			
Actuated g/C Ratio	0.30	0.56			0.19	1.00	0.31		0.31			
Clearance Time (s)	6.0	6.0			6.0		6.0		6.0			
Vehicle Extension (s)	5.0	5.0			5.0		3.0		3.0			
Lane Grp Cap (vph)	523	1951			669	1568	527		472			
v/s Ratio Prot	c0.27	0.12			c0.14		c0.28		0.17			
v/s Ratio Perm						0.16						
v/c Ratio	0.91	0.21			0.75	0.16	0.91		0.56			
Uniform Delay, d1	30.4	10.0			34.3	0.0	29.8		25.9			
Progression Factor	0.27	0.33			1.00	1.00	1.00		1.00			
Incremental Delay, d2	19.1	0.2			7.5	0.2	19.2		1.4			
Delay (s)	27.2	3.6			41.8	0.2	49.0		27.3			
Level of Service	C	A			D	A	D		C			
Approach Delay (s)		16.3			27.8			37.4			0.0	
Approach LOS		B			C			D			A	

Intersection Summary			
HCM 2000 Control Delay	27.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	70.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	10	5	210	10	0	10	270	820	120	5	590	130
Future Volume (vph)	10	5	210	10	0	10	270	820	120	5	590	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0		6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.93		1.00	0.98		1.00	0.97	
Flt Protected		0.97	1.00		0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1801	1583		1729		1770	3472		1770	3443	
Flt Permitted		0.87	1.00		0.83		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1622	1583		1477		1770	3472		1770	3443	
Peak-hour factor, PHF	0.92	0.92	0.92	0.25	0.25	0.25	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	5	228	40	0	40	293	891	130	5	641	141
RTOR Reduction (vph)	0	0	125	0	75	0	0	9	0	0	17	0
Lane Group Flow (vph)	0	16	103	0	5	0	293	1012	0	5	765	0
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA	custom	Perm	NA		Prot	NA		Prot	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8		6	4								
Actuated Green, G (s)		4.8	32.6		4.8		16.9	48.7		0.8	32.6	
Effective Green, g (s)		4.8	32.6		4.8		16.9	48.7		0.8	32.6	
Actuated g/C Ratio		0.07	0.45		0.07		0.23	0.67		0.01	0.45	
Clearance Time (s)		6.0	6.0		6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		107	713		98		413	2338		19	1552	
v/s Ratio Prot							c0.17	0.29		0.00	c0.22	
v/s Ratio Perm		c0.01	0.06		0.00							
v/c Ratio		0.15	0.14		0.05		0.71	0.43		0.26	0.49	
Uniform Delay, d1		31.8	11.7		31.6		25.4	5.4		35.5	14.0	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		0.6	0.1		0.2		5.5	0.1		7.3	0.2	
Delay (s)		32.5	11.8		31.9		31.0	5.6		42.7	14.3	
Level of Service		C	B		C		C	A		D	B	
Approach Delay (s)		13.1			31.9			11.2			14.4	
Approach LOS		B			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	13.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	72.3	Sum of lost time (s)	18.0
Intersection Capacity Utilization	62.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	20	20	5	270	0	50	0	730	130	10	380	0
Future Volume (vph)	20	20	5	270	0	50	0	730	130	10	380	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			6.0			6.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.99			0.98			0.98			1.00	
Flt Protected		0.98			0.96			1.00			1.00	
Satd. Flow (prot)		1796			1733			1723			1807	
Flt Permitted		0.83			0.71			1.00			0.89	
Satd. Flow (perm)		1530			1279			1723			1610	
Peak-hour factor, PHF	0.60	0.60	0.60	0.96	0.96	0.96	0.89	0.89	0.89	0.86	0.86	0.86
Adj. Flow (vph)	33	33	8	281	0	52	0	820	146	12	442	0
RTOR Reduction (vph)	0	5	0	0	27	0	0	7	0	0	0	0
Lane Group Flow (vph)	0	69	0	0	306	0	0	959	0	0	454	0
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	8%	8%	8%	5%	5%	5%
Turn Type	Perm	NA		Perm	NA			NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4						2		
Actuated Green, G (s)		22.3			22.3			52.1			52.1	
Effective Green, g (s)		22.3			22.3			52.1			52.1	
Actuated g/C Ratio		0.26			0.26			0.60			0.60	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		394			330			1038			970	
v/s Ratio Prot								c0.56				
v/s Ratio Perm		0.04			c0.24						0.28	
v/c Ratio		0.17			0.93			0.92			0.47	
Uniform Delay, d1		24.9			31.3			15.4			9.5	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.2			31.2			13.2			0.4	
Delay (s)		25.1			62.5			28.6			9.8	
Level of Service		C			E			C			A	
Approach Delay (s)		25.1			62.5			28.6			9.8	
Approach LOS		C			E			C			A	

Intersection Summary			
HCM 2000 Control Delay	30.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	86.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	84.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	70	310	20	130	400	60	80	390	30	50	270	60
Future Volume (vph)	70	310	20	130	400	60	80	390	30	50	270	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.99		1.00	0.97	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	1828		1752	1845	1568	1787	1861		1787	1830	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1752	1828		1752	1845	1568	1787	1861		1787	1830	
Peak-hour factor, PHF	0.91	0.91	0.91	0.93	0.93	0.93	0.95	0.95	0.95	0.94	0.94	0.94
Adj. Flow (vph)	77	341	22	140	430	65	84	411	32	53	287	64
RTOR Reduction (vph)	0	3	0	0	0	42	0	3	0	0	9	0
Lane Group Flow (vph)	77	360	0	140	430	23	84	440	0	53	342	0
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	1%	1%	1%	1%	1%	1%
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA		Prot	NA	
Protected Phases	3	8		7	4	5	5	2		1	6	
Permitted Phases						4						
Actuated Green, G (s)	5.8	18.7		8.4	21.3	28.1	6.8	26.7		2.7	22.6	
Effective Green, g (s)	5.8	18.7		8.4	21.3	28.1	6.8	26.7		2.7	22.6	
Actuated g/C Ratio	0.07	0.23		0.10	0.26	0.35	0.08	0.33		0.03	0.28	
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	126	424		182	488	664	150	617		59	513	
v/s Ratio Prot	0.04	0.20		c0.08	c0.23	0.00	c0.05	c0.24		0.03	0.19	
v/s Ratio Perm						0.01						
v/c Ratio	0.61	0.85		0.77	0.88	0.03	0.56	0.71		0.90	0.67	
Uniform Delay, d1	36.3	29.5		35.1	28.4	17.3	35.4	23.5		38.8	25.6	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	8.5	14.6		17.6	16.8	0.0	4.7	6.9		80.5	3.3	
Delay (s)	44.7	44.2		52.7	45.2	17.3	40.1	30.4		119.3	28.9	
Level of Service	D	D		D	D	B	D	C		F	C	
Approach Delay (s)		44.3			44.0			32.0			40.8	
Approach LOS		D			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	40.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	80.5	Sum of lost time (s)	24.0
Intersection Capacity Utilization	87.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	465	10	10	160	100	535
Future Volume (vph)	465	10	10	160	100	535
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	120	0			220
Storage Lanes	1	1	0			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950			0.997		
Satd. Flow (prot)	1787	1599	0	1857	1881	1599
Flt Permitted	0.950			0.997		
Satd. Flow (perm)	1787	1599	0	1857	1881	1599
Link Speed (mph)	30			30	30	
Link Distance (ft)	322			309	354	
Travel Time (s)	7.3			7.0	8.0	
Peak Hour Factor	0.90	0.90	0.87	0.87	0.87	0.87
Heavy Vehicles (%)	1%	1%	2%	2%	1%	1%
Adj. Flow (vph)	517	11	11	184	115	615
Shared Lane Traffic (%)						
Lane Group Flow (vph)	517	11	0	195	115	615
Sign Control	Stop			Stop	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 53.1%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Intersection Delay, s/veh	68.8
Intersection LOS	F

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	465	10	10	160	100	535
Future Vol, veh/h	465	10	10	160	100	535
Peak Hour Factor	0.90	0.90	0.87	0.87	0.87	0.87
Heavy Vehicles, %	1	1	2	2	1	1
Mvmt Flow	517	11	11	184	115	615
Number of Lanes	1	1	0	1	1	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	2
HCM Control Delay	88.9	16.1	68.3
HCM LOS	F	C	F

Lane	NBLn1	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	6%	100%	0%	0%	0%
Vol Thru, %	94%	0%	0%	100%	0%
Vol Right, %	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	170	465	10	100	535
LT Vol	10	465	0	0	0
Through Vol	160	0	0	100	0
RT Vol	0	0	10	0	535
Lane Flow Rate	195	517	11	115	615
Geometry Grp	4	7	7	7	7
Degree of Util (X)	0.404	1.075	0.019	0.22	1.057
Departure Headway (Hd)	7.845	7.695	6.471	7.175	6.458
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	461	475	556	503	566
Service Time	5.845	5.395	4.171	4.875	4.158
HCM Lane V/C Ratio	0.423	1.088	0.02	0.229	1.087
HCM Control Delay	16.1	90.6	9.3	11.9	78.9
HCM Lane LOS	C	F	A	B	F
HCM 95th-tile Q	1.9	16.1	0.1	0.8	17

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	10	0	0	625	635	10
Future Volume (vph)	10	0	0	625	635	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.998	
Flt Protected	0.950					
Satd. Flow (prot)	1703	0	0	1881	1877	0
Flt Permitted	0.950					
Satd. Flow (perm)	1703	0	0	1881	1877	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	160			224	319	
Travel Time (s)	3.6			5.1	7.3	
Peak Hour Factor	0.50	0.50	0.93	0.93	0.86	0.86
Heavy Vehicles (%)	6%	6%	1%	1%	1%	1%
Adj. Flow (vph)	20	0	0	672	738	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	20	0	0	672	750	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 50.5%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	0	0	625	635	10
Future Vol, veh/h	10	0	0	625	635	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	50	50	93	93	86	86
Heavy Vehicles, %	6	6	1	1	1	1
Mvmt Flow	20	0	0	672	738	12

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1416	744	750	0	-	0
Stage 1	744	-	-	-	-	-
Stage 2	672	-	-	-	-	-
Critical Hdwy	6.46	6.26	4.11	-	-	-
Critical Hdwy Stg 1	5.46	-	-	-	-	-
Critical Hdwy Stg 2	5.46	-	-	-	-	-
Follow-up Hdwy	3.554	3.354	2.209	-	-	-
Pot Cap-1 Maneuver	148	408	864	-	-	-
Stage 1	463	-	-	-	-	-
Stage 2	500	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	148	408	864	-	-	-
Mov Cap-2 Maneuver	148	-	-	-	-	-
Stage 1	463	-	-	-	-	-
Stage 2	500	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	33.1	0	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	864	-	148	-	-
HCM Lane V/C Ratio	-	-	0.135	-	-
HCM Control Delay (s)	0	-	33.1	-	-
HCM Lane LOS	A	-	D	-	-
HCM 95th %tile Q(veh)	0	-	0.5	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	40	590	5	30	410	20	100	40	230	5	20	150
Future Volume (vph)	40	590	5	30	410	20	100	40	230	5	20	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	150		150	0		0	150		150
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.994			0.916			0.884	
Flt Protected		0.997			0.997			0.987			0.999	
Satd. Flow (prot)	0	1874	0	0	1846	0	0	1718	0	0	1678	0
Flt Permitted		0.997			0.997			0.987			0.999	
Satd. Flow (perm)	0	1874	0	0	1846	0	0	1718	0	0	1678	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		327			240			246			251	
Travel Time (s)		7.4			5.5			5.6			5.7	
Peak Hour Factor	0.94	0.94	0.94	0.88	0.88	0.88	0.67	0.67	0.67	0.82	0.82	0.82
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	43	628	5	34	466	23	149	60	343	6	24	183
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	676	0	0	523	0	0	552	0	0	213	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 89.7%		ICU Level of Service E	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	312.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	40	590	5	30	410	20	100	40	230	5	20	150
Future Vol, veh/h	40	590	5	30	410	20	100	40	230	5	20	150
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Yield	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	94	94	94	88	88	88	67	67	67	82	82	82
Heavy Vehicles, %	1	1	1	2	2	2	0	0	0	0	0	0
Mvmt Flow	43	628	5	34	466	23	149	60	343	6	24	183

Major/Minor	Major1			Major2			Minor2			Minor1		
Conflicting Flow All	489	0	0	633	0	0	1366	1265	478	1293	1274	631
Stage 1	-	-	-	-	-	-	546	546	-	717	717	-
Stage 2	-	-	-	-	-	-	820	719	-	576	557	-
Critical Hdwy	4.11	-	-	4.12	-	-	7.1	6.5	6.2	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.1	5.5	-	6.1	5.5	-
Follow-up Hdwy	2.209	-	-	2.218	-	-	3.5	4	3.3	3.5	4	3.3
Pot Cap-1 Maneuver	1079	-	-	950	-	-	~ 126	171	591	141	169	485
Stage 1	-	-	-	-	-	-	526	521	-	424	437	-
Stage 2	-	-	-	-	-	-	372	436	-	506	515	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1079	-	-	950	-	-	~ 63	153	591	38	151	485
Mov Cap-2 Maneuver	-	-	-	-	-	-	~ 63	153	-	38	151	-
Stage 1	-	-	-	-	-	-	493	495	-	398	410	-
Stage 2	-	-	-	-	-	-	204	409	-	177	490	-

Approach	EB	WB	SE	NW
HCM Control Delay, s	0.5	0.6	$ 1094.7	40.2
HCM LOS			F	E

Minor Lane/Major Mvmt	NWLn1	EBL	EBT	EBR	WBL	WBT	WBR	SELn1
Capacity (veh/h)	305	1079	-	-	950	-	-	167
HCM Lane V/C Ratio	0.7	0.039	-	-	0.036	-	-	3.307
HCM Control Delay (s)	40.2	8.5	0	-	8.9	0	-	$ 1094.7
HCM Lane LOS	E	A	A	-	A	A	-	F
HCM 95th %tile Q(veh)	4.9	0.1	-	-	0.1	-	-	52.1

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	80	330	140	560	530	0	320	500	120	50	290	590
Future Volume (vph)	80	330	140	560	530	0	320	500	120	50	290	590
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1770	3539	1583	3433	3539		1770	1863	1583	1787	1881	1599
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1770	3539	1583	3433	3539		1770	1863	1583	1787	1881	1599
Peak-hour factor, PHF	0.92	0.92	0.92	0.94	0.94	0.94	0.96	0.96	0.96	0.95	0.95	0.95
Adj. Flow (vph)	87	359	152	596	564	0	333	521	125	53	305	621
RTOR Reduction (vph)	0	0	126	0	0	0	0	0	82	0	0	89
Lane Group Flow (vph)	87	359	26	596	564	0	333	521	43	53	305	532
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		7	4		3	8	1
Permitted Phases			2						4			8
Actuated Green, G (s)	8.3	18.6	18.6	22.1	32.4		23.4	37.6	37.6	7.7	21.9	44.0
Effective Green, g (s)	8.3	18.6	18.6	22.1	32.4		23.4	37.6	37.6	7.7	21.9	44.0
Actuated g/C Ratio	0.08	0.17	0.17	0.20	0.29		0.21	0.34	0.34	0.07	0.20	0.40
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	133	598	267	689	1042		376	636	541	125	374	726
v/s Ratio Prot	0.05	0.10		c0.17	c0.16		c0.19	c0.28		0.03	0.16	c0.15
v/s Ratio Perm			0.02						0.03			0.19
v/c Ratio	0.65	0.60	0.10	0.87	0.54		0.89	0.82	0.08	0.42	0.82	0.73
Uniform Delay, d1	49.5	42.3	38.6	42.5	32.6		42.0	33.1	24.5	49.0	42.1	28.0
Progression Factor	1.00	1.00	1.00	1.32	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	11.0	4.4	0.7	10.2	0.5		21.2	8.1	0.1	2.3	12.8	3.8
Delay (s)	60.5	46.7	39.3	66.5	33.1		63.2	41.2	24.6	51.3	54.9	31.8
Level of Service	E	D	D	E	C		E	D	C	D	D	C
Approach Delay (s)		46.8			50.3			46.6			40.1	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	46.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	78.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Volume (vph)	290	110	680	520	90	640
Future Volume (vph)	290	110	680	520	90	640
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	180	0		0	180	
Storage Lanes	1	1		1	0	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95
Frt		0.850		0.850		
Flt Protected	0.950					0.994
Satd. Flow (prot)	1787	1599	1881	1599	0	3553
Flt Permitted	0.950					0.994
Satd. Flow (perm)	1787	1599	1881	1599	0	3553
Link Speed (mph)	30		30			30
Link Distance (ft)	403		387			233
Travel Time (s)	9.2		8.8			5.3
Peak Hour Factor	0.86	0.86	0.96	0.96	0.85	0.85
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	337	128	708	542	106	753
Shared Lane Traffic (%)						
Lane Group Flow (vph)	337	128	708	542	0	859
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 82.2%		ICU Level of Service E	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	101.7

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Vol, veh/h	290	110	680	520	90	640
Future Vol, veh/h	290	110	680	520	90	640
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Yield	-	None
Storage Length	180	0	-	0	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	86	86	96	96	85	85
Heavy Vehicles, %	1	1	1	1	1	1
Mvmt Flow	337	128	708	542	106	753

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1297	708	0	0	708	0
Stage 1	708	-	-	-	-	-
Stage 2	589	-	-	-	-	-
Critical Hdwy	6.615	6.215	-	-	4.115	-
Critical Hdwy Stg 1	5.415	-	-	-	-	-
Critical Hdwy Stg 2	5.815	-	-	-	-	-
Follow-up Hdwy	3.5095	3.3095	-	-	2.2095	-
Pot Cap-1 Maneuver	~ 167	436	-	-	894	-
Stage 1	490	-	-	-	-	-
Stage 2	521	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 133	436	-	-	894	-
Mov Cap-2 Maneuver	~ 133	-	-	-	-	-
Stage 1	390	-	-	-	-	-
Stage 2	521	-	-	-	-	-

Approach	NW	NE	SW
HCM Control Delay, s	$ 559.3	0	1.9
HCM LOS	F		

Minor Lane/Major Mvmt	NET	NER	NWLn1	NWLn2	SWL	SWT
Capacity (veh/h)	-	-	133	436	894	-
HCM Lane V/C Ratio	-	-	2.535	0.293	0.118	-
HCM Control Delay (s)	-	-	$ 765.1	16.6	9.6	0.8
HCM Lane LOS	-	-	F	C	A	A
HCM 95th %tile Q(veh)	-	-	29.8	1.2	0.4	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	90	1225	5	20	1030	100	15	10	15	10	10	30
Future Volume (vph)	90	1225	5	20	1030	100	15	10	15	10	10	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0			6.0	6.0		6.0	6.0
Lane Util. Factor	1.00	0.95		1.00	0.95			1.00	1.00		1.00	1.00
Frt	1.00	1.00		1.00	0.99			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00			0.97	1.00		0.98	1.00
Satd. Flow (prot)	1787	3572		1787	3527			1844	1615		1835	1599
Flt Permitted	0.95	1.00		0.95	1.00			0.80	1.00		0.83	1.00
Satd. Flow (perm)	1787	3572		1787	3527			1518	1615		1557	1599
Peak-hour factor, PHF	0.97	0.97	0.97	0.95	0.95	0.95	0.90	0.90	0.90	0.80	0.80	0.80
Adj. Flow (vph)	93	1263	5	21	1084	105	17	11	17	12	12	38
RTOR Reduction (vph)	0	0	0	0	4	0	0	0	16	0	0	36
Lane Group Flow (vph)	93	1268	0	21	1185	0	0	28	1	0	26	2
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4	4	4
Actuated Green, G (s)	9.7	82.4		3.2	75.9			6.4	6.4		6.4	6.4
Effective Green, g (s)	9.7	82.4		3.2	75.9			6.4	6.4		6.4	6.4
Actuated g/C Ratio	0.09	0.75		0.03	0.69			0.06	0.06		0.06	0.06
Clearance Time (s)	6.0	6.0		6.0	6.0			6.0	6.0		6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	157	2675		51	2433			88	93		90	93
v/s Ratio Prot	c0.05	c0.35		0.01	0.34							
v/s Ratio Perm								c0.02	0.00		0.02	0.00
v/c Ratio	0.59	0.47		0.41	0.49			0.32	0.01		0.29	0.02
Uniform Delay, d1	48.2	5.4		52.5	8.0			49.7	48.8		49.6	48.9
Progression Factor	0.99	1.64		1.00	1.13			1.00	1.00		1.00	1.00
Incremental Delay, d2	5.0	0.5		3.6	0.5			2.1	0.0		1.8	0.1
Delay (s)	52.7	9.3		56.1	9.5			51.8	48.9		51.4	49.0
Level of Service	D	A		E	A			D	D		D	D
Approach Delay (s)		12.3			10.3			50.7			49.9	
Approach LOS		B			B			D			D	

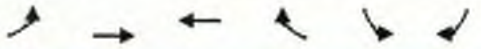
Intersection Summary			
HCM 2000 Control Delay	12.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	61.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	530	1270	5	5	1080	70	40	10	10	80	5	490
Future Volume (vph)	530	1270	5	5	1080	70	40	10	10	80	5	490
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0			6.0	6.0
Lane Util. Factor	0.97	0.95		1.00	0.95		1.00	1.00			1.00	1.00
Frt	1.00	1.00		1.00	0.99		1.00	0.93			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.96	1.00
Satd. Flow (prot)	3467	3572		1770	3507		1805	1758			1815	1615
Flt Permitted	0.95	1.00		0.95	1.00		0.69	1.00			0.72	1.00
Satd. Flow (perm)	3467	3572		1770	3507		1317	1758			1368	1615
Peak-hour factor, PHF	0.84	0.84	0.84	0.90	0.90	0.90	0.78	0.78	0.78	0.86	0.86	0.86
Adj. Flow (vph)	631	1512	6	6	1200	78	51	13	13	93	6	570
RTOR Reduction (vph)	0	0	0	0	4	0	0	11	0	0	0	18
Lane Group Flow (vph)	631	1518	0	6	1274	0	51	15	0	0	99	552
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	5	2		1	6			8			4	5
Permitted Phases							8	8		4		4
Actuated Green, G (s)	29.0	77.3		1.4	49.7		13.3	13.3			13.3	42.3
Effective Green, g (s)	29.0	77.3		1.4	49.7		13.3	13.3			13.3	42.3
Actuated g/C Ratio	0.26	0.70		0.01	0.45		0.12	0.12			0.12	0.38
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0			6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	3.0
Lane Grp Cap (vph)	914	2510		22	1584		159	212			165	709
v/s Ratio Prot	0.18	0.42		0.00	c0.36			0.01				c0.21
v/s Ratio Perm							0.04				0.07	0.14
v/c Ratio	0.69	0.60		0.27	0.80		0.32	0.07			0.60	0.78
Uniform Delay, d1	36.5	8.5		53.8	26.0		44.2	42.9			45.8	29.7
Progression Factor	1.00	1.00		0.81	1.59		1.00	1.00			1.00	1.00
Incremental Delay, d2	2.3	1.1		6.2	2.9		1.2	0.1			5.8	5.4
Delay (s)	38.7	9.5		50.0	44.0		45.4	43.0			51.6	35.1
Level of Service	D	A		D	D		D	D			D	D
Approach Delay (s)		18.1			44.1			44.6			37.5	
Approach LOS		B			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	29.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	81.6%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	210	1870	1510	30	10	70
Future Volume (vph)	210	1870	1510	30	10	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300			0	0	175
Storage Lanes	1			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.997			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3529	0	1752	1568
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1770	3539	3529	0	1752	1568
Link Speed (mph)		30	30		30	
Link Distance (ft)		535	210		522	
Travel Time (s)		12.2	4.8		11.9	
Peak Hour Factor	0.91	0.91	0.90	0.90	0.75	0.75
Heavy Vehicles (%)	2%	2%	2%	2%	3%	3%
Adj. Flow (vph)	231	2055	1678	33	13	93
Shared Lane Traffic (%)						
Lane Group Flow (vph)	231	2055	1711	0	13	93
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 67.7%		ICU Level of Service C	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	14.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	210	1870	1510	30	10	70
Future Vol, veh/h	210	1870	1510	30	10	70
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	300	-	-	-	0	175
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	91	91	90	90	75	75
Heavy Vehicles, %	2	2	2	2	3	3
Mvmt Flow	231	2055	1678	33	13	93

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1711	0	-	0	3185	856
Stage 1	-	-	-	-	1695	-
Stage 2	-	-	-	-	1490	-
Critical Hdwy	4.14	-	-	-	6.86	6.96
Critical Hdwy Stg 1	-	-	-	-	5.86	-
Critical Hdwy Stg 2	-	-	-	-	5.86	-
Follow-up Hdwy	2.22	-	-	-	3.53	3.33
Pot Cap-1 Maneuver	367	-	-	-	~ 8	299
Stage 1	-	-	-	-	133	-
Stage 2	-	-	-	-	172	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	367	-	-	-	~ 3	299
Mov Cap-2 Maneuver	-	-	-	-	~ 3	-
Stage 1	-	-	-	-	49	-
Stage 2	-	-	-	-	172	-

Approach	EB	WB	SB
HCM Control Delay, s	3	0	$ 483.6
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	367	-	-	-	3	299
HCM Lane V/C Ratio	0.629	-	-	-	4.444	0.312
HCM Control Delay (s)	30	-	-	-	$ 3712.2	22.4
HCM Lane LOS	D	-	-	-	F	C
HCM 95th %tile Q(veh)	4.1	-	-	-	3	1.3

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Lane Group	WBL2	WBL	WBR	WBR2	NBL	NBT	NBR	NBR2	SBL2	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	220	340	20	80	140	80	5	10	290	210	30
Future Volume (vph)	10	220	340	20	80	140	80	5	10	290	210	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.918				0.962					0.992	
Flt Protected		0.981				0.987					0.973	
Satd. Flow (prot)	0	1694	0	0	0	1769	0	0	0	0	1816	0
Flt Permitted		0.981				0.987					0.973	
Satd. Flow (perm)	0	1694	0	0	0	1769	0	0	0	0	1816	0
Link Speed (mph)		30				30					30	
Link Distance (ft)		449				456					370	
Travel Time (s)		10.2				10.4					8.4	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.87	0.87	0.87	0.87	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	1%	1%	1%	1%	2%	2%	2%	2%	1%	1%	1%	1%
Adj. Flow (vph)	11	242	374	22	92	161	92	6	11	315	228	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	649	0	0	0	351	0	0	0	0	587	0
Sign Control		Yield				Yield					Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization 124.5%		ICU Level of Service H	
Analysis Period (min) 15			

Lane Group	NEL	NET	NER	NER2	SWL2	SWL	SWT	SWR
Lane Configurations								
Traffic Volume (vph)	30	80	310	50	5	30	100	10
Future Volume (vph)	30	80	310	50	5	30	100	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.897					0.991	
Flt Protected		0.997					0.988	
Satd. Flow (prot)	0	1682	0	0	0	0	1824	0
Flt Permitted		0.997					0.988	
Satd. Flow (perm)	0	1682	0	0	0	0	1824	0
Link Speed (mph)		30					30	
Link Distance (ft)		390					523	
Travel Time (s)		8.9					11.9	
Peak Hour Factor	0.90	0.90	0.90	0.90	0.91	0.91	0.91	0.91
Heavy Vehicles (%)	1%	1%	1%	1%	2%	2%	2%	2%
Adj. Flow (vph)	33	89	344	56	5	33	110	11
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	522	0	0	0	0	159	0
Sign Control		Yield					Yield	

Intersection Summary

Intersection	
Intersection Delay, s/veh	18.9
Intersection LOS	C

Approach	WB	NB	SB	NE	SW
Entry Lanes	1	1	1	1	1
Conflicting Circle Lanes	1	1	1	1	1
Adj Approach Flow, veh/h	649	351	587	522	159
Demand Flow Rate, veh/h	655	358	592	527	162
Vehicles Circulating, veh/h	486	804	500	609	924
Vehicles Exiting, veh/h	676	332	586	483	217
Ped Vol Crossing Leg, #/h	0	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000	1.000
Approach Delay, s/veh	21.7	17.3	18.1	19.6	11.3
Approach LOS	C	C	C	C	B

Lane	Left	Left	Left	Left	Left
Designated Moves	LR	LTR	LTR	LTR	LTR
Assumed Moves	LR	LTR	LTR	LTR	LTR
RT Channelized					
Lane Util	1.000	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976	4.976
Entry Flow, veh/h	655	358	592	527	162
Cap Entry Lane, veh/h	841	608	829	741	538
Entry HV Adj Factor	0.991	0.980	0.991	0.991	0.980
Flow Entry, veh/h	649	351	587	522	159
Cap Entry, veh/h	833	595	821	735	527
V/C Ratio	0.779	0.589	0.714	0.711	0.301
Control Delay, s/veh	21.7	17.3	18.1	19.6	11.3
LOS	C	C	C	C	B
95th %tile Queue, veh	8	4	6	6	1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	50	425	5	30	20	320	190	10	10	110	10
Future Volume (vph)	10	50	425	5	30	20	320	190	10	10	110	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		50	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.952			0.997			0.990	
Flt Protected		0.992			0.996			0.970			0.996	
Satd. Flow (prot)	0	1848	1583	0	1802	0	0	1819	0	0	1855	0
Flt Permitted		0.992			0.996			0.970			0.996	
Satd. Flow (perm)	0	1848	1583	0	1802	0	0	1819	0	0	1855	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		168			453			475			436	
Travel Time (s)		3.8			10.3			10.8			9.9	
Peak Hour Factor	0.88	0.88	0.88	0.82	0.82	0.82	0.93	0.93	0.93	0.91	0.91	0.91
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	11	57	483	6	37	24	344	204	11	11	121	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	68	483	0	67	0	0	559	0	0	143	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 48.8%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	11.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱		✣			✣			✣	
Traffic Vol, veh/h	10	50	425	5	30	20	320	190	10	10	110	10
Future Vol, veh/h	10	50	425	5	30	20	320	190	10	10	110	10
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	50	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	88	88	88	82	82	82	93	93	93	91	91	91
Heavy Vehicles, %	2	2	2	0	0	0	1	1	1	1	1	1
Mvmt Flow	11	57	483	6	37	24	344	204	11	11	121	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1077	1052	127	1317	1052	210	132	0	0	215	0	0
Stage 1	149	149	-	898	898	-	-	-	-	-	-	-
Stage 2	928	903	-	419	154	-	-	-	-	-	-	-
Critical Hdwy	7.12	6.52	6.22	7.1	6.5	6.2	4.11	-	-	4.11	-	-
Critical Hdwy Stg 1	6.12	5.52	-	6.1	5.5	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.12	5.52	-	6.1	5.5	-	-	-	-	-	-	-
Follow-up Hdwy	3.518	4.018	3.318	3.5	4	3.3	2.209	-	-	2.209	-	-
Pot Cap-1 Maneuver	197	227	923	136	228	835	1459	-	-	1361	-	-
Stage 1	854	774	-	337	361	-	-	-	-	-	-	-
Stage 2	321	356	-	616	774	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	126	165	923	38	165	835	1459	-	-	1361	-	-
Mov Cap-2 Maneuver	126	165	-	38	165	-	-	-	-	-	-	-
Stage 1	625	767	-	247	264	-	-	-	-	-	-	-
Stage 2	196	261	-	269	767	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	17	41.7	5.1	0.6
HCM LOS	C	E		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1459	-	-	157	923	163	1361	-	-
HCM Lane V/C Ratio	0.236	-	-	0.434	0.523	0.411	0.008	-	-
HCM Control Delay (s)	8.2	0	-	44.5	13.1	41.7	7.7	0	-
HCM Lane LOS	A	A	-	E	B	E	A	A	-
HCM 95th %tile Q(veh)	0.9	-	-	2	3.1	1.8	0	-	-

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	30	70	30	30	30	50	40	660	70	20	180	30
Future Volume (vph)	30	70	30	30	30	50	40	660	70	20	180	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.99		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	1780		1787	1881	1599	1805	1873		1805	1860	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1780		1787	1881	1599	1805	1873		1805	1860	
Peak-hour factor, PHF	0.99	0.99	0.99	0.95	0.95	0.95	0.89	0.89	0.89	0.93	0.93	0.93
Adj. Flow (vph)	30	71	30	32	32	53	45	742	79	22	194	32
RTOR Reduction (vph)	0	19	0	0	0	39	0	5	0	0	7	0
Lane Group Flow (vph)	30	82	0	32	32	14	45	816	0	22	219	0
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA	pt+ov	Prot	NA		Prot	NA	
Protected Phases	1	6		5	2	2 3	3	8		7	4	
Permitted Phases		6			2							
Actuated Green, G (s)	1.6	8.3		1.6	8.3	18.7	4.4	34.8		2.4	32.8	
Effective Green, g (s)	1.6	8.3		1.6	8.3	18.7	4.4	34.8		2.4	32.8	
Actuated g/C Ratio	0.02	0.12		0.02	0.12	0.26	0.06	0.49		0.03	0.46	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	39	207		40	219	420	111	916		60	858	
v/s Ratio Prot	0.02	c0.05		c0.02	0.02	0.01	c0.02	c0.44		0.01	0.12	
v/s Ratio Perm												
v/c Ratio	0.77	0.40		0.80	0.15	0.03	0.41	0.89		0.37	0.26	
Uniform Delay, d1	34.6	29.1		34.6	28.2	19.5	32.1	16.4		33.6	11.7	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	60.6	1.3		69.2	1.4	0.0	2.4	10.9		3.8	0.2	
Delay (s)	95.2	30.3		103.8	29.6	19.5	34.5	27.3		37.4	11.9	
Level of Service	F	C		F	C	B	C	C		D	B	
Approach Delay (s)		45.2			45.3			27.7			14.1	
Approach LOS		D			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	28.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	71.1	Sum of lost time (s)	24.0
Intersection Capacity Utilization	57.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	700	10	40	130	130	650
Future Volume (vph)	700	10	40	130	130	650
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0	4.0	4.0	6.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frt	1.00		1.00	1.00	1.00	0.85
Flt Protected	0.95		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1772		1626	1712	1863	1583
Flt Permitted	0.95		0.60	1.00	1.00	1.00
Satd. Flow (perm)	1772		1020	1712	1863	1583
Peak-hour factor, PHF	0.94	0.94	0.91	0.91	0.82	0.82
Adj. Flow (vph)	745	11	44	143	159	793
RTOR Reduction (vph)	1	0	0	0	0	173
Lane Group Flow (vph)	755	0	44	143	159	620
Heavy Vehicles (%)	2%	2%	11%	11%	2%	2%
Turn Type	Prot		pm+pt	NA	NA	custom
Protected Phases	8		1	6 7	2 7	7 8
Permitted Phases			6 7			2
Actuated Green, G (s)	40.4		27.7	24.9	24.9	67.3
Effective Green, g (s)	40.4		23.7	24.9	24.9	67.3
Actuated g/C Ratio	0.47		0.28	0.29	0.29	0.78
Clearance Time (s)	6.0		6.0			
Vehicle Extension (s)	3.0		3.0			
Lane Grp Cap (vph)	831		300	495	538	1237
v/s Ratio Prot	c0.43		c0.00	0.08	0.09	c0.32
v/s Ratio Perm			0.04			0.07
v/c Ratio	0.91		0.15	0.29	0.30	0.50
Uniform Delay, d1	21.2		23.3	23.7	23.8	3.4
Progression Factor	1.00		1.00	1.00	1.06	1.66
Incremental Delay, d2	13.6		0.2	0.3	0.3	0.3
Delay (s)	34.8		23.5	24.1	25.4	5.9
Level of Service	C		C	C	C	A
Approach Delay (s)	34.8			23.9	9.1	
Approach LOS	C			C	A	

Intersection Summary			
HCM 2000 Control Delay	20.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	86.1	Sum of lost time (s)	22.0
Intersection Capacity Utilization	63.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations			↰↰		↰↰	
Traffic Volume (vph)	0	0	1405	0	410	0
Future Volume (vph)	0	0	1405	0	410	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			6.0		6.0	
Lane Util. Factor			0.97		0.97	
Frt			1.00		1.00	
Flt Protected			0.95		0.95	
Satd. Flow (prot)			3433		3433	
Flt Permitted			0.95		0.95	
Satd. Flow (perm)			3433		3433	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	0	1495	0	436	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	1495	0	436	0
Turn Type			Prot		Prot	
Protected Phases			4		2	
Permitted Phases						
Actuated Green, G (s)			57.0		21.0	
Effective Green, g (s)			57.0		21.0	
Actuated g/C Ratio			0.63		0.23	
Clearance Time (s)			6.0		6.0	
Vehicle Extension (s)			3.0		3.0	
Lane Grp Cap (vph)			2174		801	
v/s Ratio Prot			c0.44		c0.13	
v/s Ratio Perm						
v/c Ratio			0.69		0.54	
Uniform Delay, d1			10.7		30.3	
Progression Factor			1.00		1.17	
Incremental Delay, d2			1.8		2.6	
Delay (s)			12.5		38.1	
Level of Service			B		D	
Approach Delay (s)	0.0			12.5	38.1	
Approach LOS	A			B	D	

Intersection Summary			
HCM 2000 Control Delay	18.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	112.7%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBR	NWL	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations										
Traffic Volume (vph)	0	0	0	225	0	1405	0	0	410	1090
Future Volume (vph)	0	0	0	225	0	1405	0	0	410	1090
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			6.0	6.0		6.0			6.0	6.0
Lane Util. Factor			1.00	0.95		0.95			0.95	0.88
Frt			0.85	0.85		1.00			1.00	0.85
Flt Protected			1.00	1.00		1.00			1.00	1.00
Satd. Flow (prot)			1583	1504		3539			3539	2787
Flt Permitted			1.00	1.00		1.00			1.00	1.00
Satd. Flow (perm)			1583	1504		3539			3539	2787
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	0	0	239	0	1495	0	0	436	1160
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	133
Lane Group Flow (vph)	0	0	120	119	0	1495	0	0	436	1027
Turn Type			Prot	Prot	Perm	NA			NA	Perm
Protected Phases			4	4		2			2	
Permitted Phases					2					2
Actuated Green, G (s)			13.3	13.3		64.7			64.7	64.7
Effective Green, g (s)			13.3	13.3		64.7			64.7	64.7
Actuated g/C Ratio			0.15	0.15		0.72			0.72	0.72
Clearance Time (s)			6.0	6.0		6.0			6.0	6.0
Vehicle Extension (s)			3.0	3.0		3.0			3.0	3.0
Lane Grp Cap (vph)			233	222		2544			2544	2003
v/s Ratio Prot			0.08	c0.08		c0.42			0.12	
v/s Ratio Perm										0.37
v/c Ratio			0.52	0.54		0.59			0.17	0.51
Uniform Delay, d1			35.4	35.5		6.2			4.1	5.6
Progression Factor			1.00	1.00		0.45			1.00	1.00
Incremental Delay, d2			1.9	2.5		0.7			0.1	0.9
Delay (s)			37.3	38.0		3.5			4.2	6.6
Level of Service			D	D		A			A	A
Approach Delay (s)	0.0		37.6			3.5			5.9	
Approach LOS	A		D			A			A	

Intersection Summary			
HCM 2000 Control Delay	7.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	88.2%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	460	5	10	490	10	5	60	10	10	60	70
Future Volume (vph)	60	460	5	10	490	10	5	60	10	10	60	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00		1.00	1.00		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1860		1770	1857		1770	1822		1770	1863	1583
Flt Permitted	0.22	1.00		0.36	1.00		0.71	1.00		0.71	1.00	1.00
Satd. Flow (perm)	415	1860		664	1857		1331	1822		1318	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	65	500	5	11	533	11	5	65	11	11	65	76
RTOR Reduction (vph)	0	1	0	0	1	0	0	8	0	0	0	49
Lane Group Flow (vph)	65	504	0	11	543	0	5	68	0	11	65	27
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4		3	8			2			6	7
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	34.8	30.9		29.0	28.0		22.1	22.1		22.1	22.1	26.0
Effective Green, g (s)	34.8	30.9		29.0	28.0		22.1	22.1		22.1	22.1	26.0
Actuated g/C Ratio	0.48	0.43		0.40	0.39		0.31	0.31		0.31	0.31	0.36
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	273	798		282	722		408	559		404	571	703
v/s Ratio Prot	c0.01	c0.27		0.00	c0.29			c0.04			0.03	0.00
v/s Ratio Perm	0.10			0.02			0.00			0.01		0.02
v/c Ratio	0.24	0.63		0.04	0.75		0.01	0.12		0.03	0.11	0.04
Uniform Delay, d1	11.9	16.1		13.3	19.0		17.4	18.0		17.4	17.9	14.9
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.5	3.8		0.1	4.4		0.1	0.4		0.0	0.1	0.0
Delay (s)	12.3	19.9		13.3	23.4		17.4	18.4		17.5	18.0	14.9
Level of Service	B	B		B	C		B	B		B	B	B
Approach Delay (s)		19.0			23.2			18.4			16.4	
Approach LOS		B			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	72.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	52.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	410	0	250	440	0	300
Future Volume (vph)	410	0	250	440	0	300
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	0		0	80
Storage Lanes		0	0		1	1
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850
Flt Protected				0.982		
Satd. Flow (prot)	1863	0	0	1829	1863	1583
Flt Permitted				0.982		
Satd. Flow (perm)	1863	0	0	1829	1863	1583
Link Speed (mph)	30			30	30	
Link Distance (ft)	410			475	676	
Travel Time (s)	9.3			10.8	15.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	446	0	272	478	0	326
Shared Lane Traffic (%)						
Lane Group Flow (vph)	446	0	0	750	0	326
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 65.2%		ICU Level of Service C	
Analysis Period (min) 15			

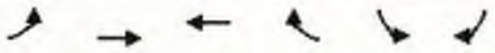
Intersection	
Int Delay, s/veh	5.4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	410	0	250	440	0	300
Future Vol, veh/h	410	0	250	440	0	300
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	80
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	446	0	272	478	0	326

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	446	0	1468	446
Stage 1	-	-	-	-	446	-
Stage 2	-	-	-	-	1022	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1114	-	141	612
Stage 1	-	-	-	-	645	-
Stage 2	-	-	-	-	347	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1114	-	94	612
Mov Cap-2 Maneuver	-	-	-	-	94	-
Stage 1	-	-	-	-	430	-
Stage 2	-	-	-	-	347	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.4	17.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	612	-	-	1114	-
HCM Lane V/C Ratio	-	0.533	-	-	0.244	-
HCM Control Delay (s)	0	17.4	-	-	9.3	0
HCM Lane LOS	A	C	-	-	A	A
HCM 95th %tile Q(veh)	-	3.1	-	-	1	-



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	125	1510	1425	290	120	75
Future Volume (vph)	125	1510	1425	290	120	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3539	1583	1770	1583
Flt Permitted	0.09	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	174	3539	3539	1583	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	136	1641	1549	315	130	82
RTOR Reduction (vph)	0	0	0	83	0	14
Lane Group Flow (vph)	136	1641	1549	232	130	68
Turn Type	pm+pt	NA	NA	pm+ov	Prot	pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases	2			6		4
Actuated Green, G (s)	46.4	46.4	36.7	47.0	10.3	14.0
Effective Green, g (s)	46.4	46.4	36.7	47.0	10.3	14.0
Actuated g/C Ratio	0.68	0.68	0.53	0.68	0.15	0.20
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	203	2390	1890	1221	265	460
v/s Ratio Prot	0.04	c0.46	c0.44	0.03	c0.07	0.01
v/s Ratio Perm	0.41			0.12		0.04
v/c Ratio	0.67	0.69	0.82	0.19	0.49	0.15
Uniform Delay, d1	11.2	6.7	13.3	3.9	26.8	22.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	8.1	0.8	2.9	0.1	1.4	0.2
Delay (s)	19.3	7.6	16.2	4.0	28.2	22.6
Level of Service	B	A	B	A	C	C
Approach Delay (s)		8.5	14.1		26.1	
Approach LOS		A	B		C	

Intersection Summary			
HCM 2000 Control Delay	12.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	68.7	Sum of lost time (s)	18.0
Intersection Capacity Utilization	68.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	70	10	680	150	30	710
Future Volume (vph)	70	10	680	150	30	710
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		4.0	4.0	6.0	4.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frt	0.98		1.00	0.85	1.00	1.00
Flt Protected	0.96		1.00	1.00	0.95	1.00
Satd. Flow (prot)	1769		1900	1615	1805	1900
Flt Permitted	0.96		1.00	1.00	0.31	1.00
Satd. Flow (perm)	1769		1900	1615	594	1900
Peak-hour factor, PHF	0.87	0.67	0.95	0.84	0.73	0.96
Adj. Flow (vph)	80	15	716	179	41	740
RTOR Reduction (vph)	7	0	0	48	0	0
Lane Group Flow (vph)	88	0	716	131	41	740
Heavy Vehicles (%)	1%	0%	0%	0%	0%	0%
Turn Type	Prot		NA	Perm	custom	NA
Protected Phases	7		6 8		5	2 8
Permitted Phases				6 8	2	
Actuated Green, G (s)	8.1		53.2	53.2	15.6	53.2
Effective Green, g (s)	8.1		53.2	53.2	15.6	53.2
Actuated g/C Ratio	0.09		0.62	0.62	0.18	0.62
Clearance Time (s)	6.0				6.0	
Vehicle Extension (s)	3.0				3.0	
Lane Grp Cap (vph)	166		1173	997	147	1173
v/s Ratio Prot	c0.05		0.38		c0.01	c0.39
v/s Ratio Perm				0.08	0.04	
v/c Ratio	0.53		0.61	0.13	0.28	0.63
Uniform Delay, d1	37.2		10.1	6.8	30.0	10.3
Progression Factor	1.00		0.24	0.23	1.00	1.00
Incremental Delay, d2	3.0		0.6	0.0	1.0	1.1
Delay (s)	40.2		3.0	1.6	31.0	11.4
Level of Service	D		A	A	C	B
Approach Delay (s)	40.2		2.7			12.4
Approach LOS	D		A			B

Intersection Summary			
HCM 2000 Control Delay	9.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	86.1	Sum of lost time (s)	22.0
Intersection Capacity Utilization	50.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	10	10	30	660	730	10
Future Volume (vph)	10	10	30	660	730	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.939				0.998	
Flt Protected	0.973		0.950			
Satd. Flow (prot)	1736	0	1787	1900	1878	0
Flt Permitted	0.973		0.950			
Satd. Flow (perm)	1736	0	1787	1900	1878	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	332			288	365	
Travel Time (s)	7.5			6.5	8.3	
Peak Hour Factor	0.64	0.77	0.71	0.90	0.75	0.55
Heavy Vehicles (%)	0%	0%	1%	0%	1%	0%
Adj. Flow (vph)	16	13	42	733	973	18
Shared Lane Traffic (%)						
Lane Group Flow (vph)	29	0	42	733	991	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 49.0%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	10	30	660	730	10
Future Vol, veh/h	10	10	30	660	730	10
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	64	77	71	90	75	55
Heavy Vehicles, %	0	0	1	0	1	0
Mvmt Flow	16	13	42	733	973	18

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1799	982	991	0	-	0
Stage 1	982	-	-	-	-	-
Stage 2	817	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.11	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.209	-	-	-
Pot Cap-1 Maneuver	89	305	702	-	-	-
Stage 1	366	-	-	-	-	-
Stage 2	438	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	84	305	702	-	-	-
Mov Cap-2 Maneuver	84	-	-	-	-	-
Stage 1	344	-	-	-	-	-
Stage 2	438	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	42.1	0.6	0
HCM LOS	E		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	702	-	125	-	-
HCM Lane V/C Ratio	0.06	-	0.229	-	-
HCM Control Delay (s)	10.5	-	42.1	-	-
HCM Lane LOS	B	-	E	-	-
HCM 95th %tile Q(veh)	0.2	-	0.8	-	-

APPENDIX Q-2: ALTERNATIVE C INTERSECTION CAPACITY ANALYSES – HCS PRINTSOUTS – PM PEAK HOUR

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↰	↱↱
Traffic Volume (vph)	0	1345	715	0	115	1010
Future Volume (vph)	0	1345	715	0	115	1010
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	16	12
Total Lost time (s)		6.0	6.0		6.0	6.0
Lane Util. Factor		0.95	0.95		1.00	0.88
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3471	3406		1930	2682
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3471	3406		1930	2682
Peak-hour factor, PHF	0.93	0.93	0.88	0.88	0.89	0.89
Adj. Flow (vph)	0	1446	812	0	129	1135
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	1446	813	0	129	1135
Heavy Vehicles (%)	4%	4%	6%	6%	6%	6%
Turn Type		NA	NA		Prot	Prot
Protected Phases		2	6		4	4
Permitted Phases						
Actuated Green, G (s)		32.0	32.0		31.0	31.0
Effective Green, g (s)		32.0	32.0		31.0	31.0
Actuated g/C Ratio		0.43	0.43		0.41	0.41
Clearance Time (s)		6.0	6.0		6.0	6.0
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)		1480	1453		797	1108
v/s Ratio Prot		c0.42	0.24		0.07	c0.42
v/s Ratio Perm						
v/c Ratio		0.98	0.56		0.16	1.02
Uniform Delay, d1		21.1	16.2		13.8	22.0
Progression Factor		1.00	1.23		1.00	1.00
Incremental Delay, d2		10.9	0.1		0.1	33.4
Delay (s)		32.0	20.0		13.9	55.4
Level of Service		C	B		B	E
Approach Delay (s)		32.0	20.0		51.2	
Approach LOS		C	B		D	

Intersection Summary			
HCM 2000 Control Delay	36.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.00		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	NBL2	NBL	NBR	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Traffic Volume (vph)	455	0	300	0	0	1350	110	0	0	990	375
Future Volume (vph)	455	0	300	0	0	1350	110	0	0	990	375
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0			6.0	6.0			6.0	4.0
Lane Util. Factor	0.97		0.88			0.97	0.95			0.95	1.00
Frt	1.00		0.85			1.00	1.00			1.00	0.85
Flt Protected	0.95		1.00			0.95	1.00			1.00	1.00
Satd. Flow (prot)	3242		2632			3335	3438			3505	1568
Flt Permitted	0.95		1.00			0.95	1.00			1.00	1.00
Satd. Flow (perm)	3242		2632			3335	3438			3505	1568
Peak-hour factor, PHF	0.88	0.88	0.88	0.92	0.92	0.94	0.94	0.94	0.92	0.92	0.92
Adj. Flow (vph)	517	0	341	0	0	1436	117	0	0	1076	408
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	517	0	341	0	0	1436	117	0	0	1076	408
Heavy Vehicles (%)	8%	8%	8%	2%	2%	5%	5%	5%	3%	3%	3%
Turn Type	Prot		Prot			Prot	NA			NA	Free
Protected Phases	8		8			5	2			6	
Permitted Phases											Free
Actuated Green, G (s)	23.0		23.0			63.0	115.0			46.0	150.0
Effective Green, g (s)	23.0		23.0			63.0	115.0			46.0	150.0
Actuated g/C Ratio	0.15		0.15			0.42	0.77			0.31	1.00
Clearance Time (s)	6.0		6.0			6.0	6.0			6.0	
Vehicle Extension (s)	3.0		3.0			3.0	3.0			3.0	
Lane Grp Cap (vph)	497		403			1400	2635			1074	1568
v/s Ratio Prot	c0.16		0.13			c0.43	0.03			c0.31	
v/s Ratio Perm											0.26
v/c Ratio	1.04		0.85			1.03	0.04			1.00	0.26
Uniform Delay, d1	63.5		61.8			43.5	4.2			52.0	0.0
Progression Factor	1.00		1.00			0.59	1.90			1.00	1.00
Incremental Delay, d2	51.2		15.0			22.4	0.0			27.9	0.4
Delay (s)	114.7		76.8			48.2	8.0			79.9	0.4
Level of Service	F		E			D	A			E	A
Approach Delay (s)		99.6		0.0			45.2			58.1	
Approach LOS		F		A			D			E	

Intersection Summary			
HCM 2000 Control Delay	62.1	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	94.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱	↰	↑↑					↰↰		↱
Traffic Volume (vph)	0	575	470	260	730	0	0	0	0	105	0	360
Future Volume (vph)	0	575	470	260	730	0	0	0	0	105	0	360
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	4.0	6.0	6.0					6.0		6.0
Lane Util. Factor		0.95	1.00	1.00	0.95					0.97		1.00
Frt		1.00	0.85	1.00	1.00					1.00		0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (prot)		3167	1417	1687	3374					3303		1524
Flt Permitted		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (perm)		3167	1417	1687	3374					3303		1524
Peak-hour factor, PHF	0.92	0.92	0.92	0.73	0.73	0.73	0.92	0.92	0.92	0.74	0.74	0.74
Adj. Flow (vph)	0	625	511	384	1000	0	0	0	0	142	0	486
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	79
Lane Group Flow (vph)	0	625	511	384	1000	0	0	0	0	142	0	407
Heavy Vehicles (%)	14%	14%	14%	7%	7%	7%	2%	2%	2%	6%	6%	6%
Turn Type		NA	Free	Prot	NA					Prot		Prot
Protected Phases		2		1	6					4		4
Permitted Phases			Free									
Actuated Green, G (s)		31.6	110.0	28.1	65.7					32.3		32.3
Effective Green, g (s)		31.6	110.0	28.1	65.7					32.3		32.3
Actuated g/C Ratio		0.29	1.00	0.26	0.60					0.29		0.29
Clearance Time (s)		6.0		6.0	6.0					6.0		6.0
Vehicle Extension (s)		5.0		3.0	5.0					3.0		3.0
Lane Grp Cap (vph)		909	1417	430	2015					969		447
v/s Ratio Prot		c0.20		c0.23	0.30					0.04		c0.27
v/s Ratio Perm			0.36									
v/c Ratio		0.69	0.36	0.89	0.50					0.15		0.91
Uniform Delay, d1		34.8	0.0	39.5	12.7					28.7		37.5
Progression Factor		1.00	1.00	0.38	0.10					1.00		1.00
Incremental Delay, d2		4.2	0.7	17.4	0.5					0.1		22.5
Delay (s)		39.0	0.7	32.5	1.7					28.7		59.9
Level of Service		D	A	C	A					C		E
Approach Delay (s)		21.8			10.3			0.0			52.9	
Approach LOS		C			B			A			D	

Intersection Summary			
HCM 2000 Control Delay	22.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	71.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	480	200	0	0	595	340	415	0	160	0	0	0
Future Volume (vph)	480	200	0	0	595	340	415	0	160	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0	4.0	6.0		6.0			
Lane Util. Factor	1.00	0.95			0.95	1.00	1.00		1.00			
Frt	1.00	1.00			1.00	0.85	1.00		0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (prot)	1641	3282			3438	1538	1656		1482			
Flt Permitted	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (perm)	1641	3282			3438	1538	1656		1482			
Peak-hour factor, PHF	0.87	0.87	0.87	0.90	0.90	0.90	0.78	0.78	0.78	0.92	0.92	0.92
Adj. Flow (vph)	552	230	0	0	661	378	532	0	205	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	139	0	0	0
Lane Group Flow (vph)	552	230	0	0	661	378	532	0	66	0	0	0
Heavy Vehicles (%)	10%	10%	10%	5%	5%	5%	9%	9%	9%	2%	2%	2%
Turn Type	Prot	NA			NA	Free	Prot		Prot			
Protected Phases	5	2			6		8		8			
Permitted Phases		2			6	Free						
Actuated Green, G (s)	36.0	64.0			22.0	110.0	34.0		34.0			
Effective Green, g (s)	36.0	64.0			22.0	110.0	34.0		34.0			
Actuated g/C Ratio	0.33	0.58			0.20	1.00	0.31		0.31			
Clearance Time (s)	6.0	6.0			6.0		6.0		6.0			
Vehicle Extension (s)	5.0	5.0			5.0		3.0		3.0			
Lane Grp Cap (vph)	537	1909			687	1538	511		458			
v/s Ratio Prot	c0.34	0.07			c0.19		c0.32		0.04			
v/s Ratio Perm						0.25						
v/c Ratio	1.03	0.12			0.96	0.25	1.04		0.14			
Uniform Delay, d1	37.0	10.3			43.6	0.0	38.0		27.5			
Progression Factor	0.26	0.14			1.00	1.00	1.00		1.00			
Incremental Delay, d2	41.1	0.1			26.2	0.4	50.9		0.1			
Delay (s)	50.8	1.6			69.8	0.4	88.9		27.6			
Level of Service	D	A			E	A	F		C			
Approach Delay (s)		36.3			44.6			71.9			0.0	
Approach LOS		D			D			E			A	

Intersection Summary			
HCM 2000 Control Delay	49.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	71.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	10	0	170	0	0	0	100	450	5	5	1010	40
Future Volume (vph)	10	0	170	0	0	0	100	450	5	5	1010	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0				6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00	1.00				1.00	0.95		1.00	0.95	
Frt		1.00	0.85				1.00	1.00		1.00	0.99	
Flt Protected		0.95	1.00				0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1770	1583				1770	3534		1770	3519	
Flt Permitted		1.00	1.00				0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1863	1583				1770	3534		1770	3519	
Peak-hour factor, PHF	0.92	0.92	0.92	0.25	0.25	0.25	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	0	185	0	0	0	109	489	5	5	1098	43
RTOR Reduction (vph)	0	0	70	0	0	0	0	1	0	0	2	0
Lane Group Flow (vph)	0	11	115	0	0	0	109	493	0	5	1139	0
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA	custom				Prot	NA		Prot	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8		6	4								
Actuated Green, G (s)		1.2	43.9				7.6	50.7		0.8	43.9	
Effective Green, g (s)		1.2	43.9				7.6	50.7		0.8	43.9	
Actuated g/C Ratio		0.02	0.62				0.11	0.72		0.01	0.62	
Clearance Time (s)		6.0	6.0				6.0	6.0		6.0	6.0	
Vehicle Extension (s)		3.0	3.0				3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		31	982				190	2534		20	2185	
v/s Ratio Prot							c0.06	0.14		0.00	c0.32	
v/s Ratio Perm		c0.01	0.07									
v/c Ratio		0.35	0.12				0.57	0.19		0.25	0.52	
Uniform Delay, d1		34.4	5.5				30.0	3.3		34.7	7.5	
Progression Factor		1.00	1.00				1.00	1.00		1.00	1.00	
Incremental Delay, d2		6.9	0.1				4.1	0.0		6.5	0.2	
Delay (s)		41.2	5.5				34.2	3.3		41.1	7.7	
Level of Service		D	A				C	A		D	A	
Approach Delay (s)		7.5			0.0			8.9			7.9	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	8.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	70.7	Sum of lost time (s)	18.0
Intersection Capacity Utilization	57.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	10	10	10	360	0	40	0	380	110	15	525	0
Future Volume (vph)	10	10	10	360	0	40	0	380	110	15	525	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			6.0			6.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.95			0.99			0.97			1.00	
Flt Protected		0.98			0.96			1.00			1.00	
Satd. Flow (prot)		1750			1741			1706			1807	
Flt Permitted		0.84			0.71			1.00			0.98	
Satd. Flow (perm)		1501			1293			1706			1774	
Peak-hour factor, PHF	0.60	0.60	0.60	0.96	0.96	0.96	0.89	0.89	0.89	0.86	0.86	0.86
Adj. Flow (vph)	17	17	17	375	0	42	0	427	124	17	610	0
RTOR Reduction (vph)	0	11	0	0	23	0	0	12	0	0	0	0
Lane Group Flow (vph)	0	40	0	0	394	0	0	539	0	0	627	0
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	8%	8%	8%	5%	5%	5%
Turn Type	Perm	NA		Perm	NA			NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4						2		
Actuated Green, G (s)		27.9			27.9			34.8			34.8	
Effective Green, g (s)		27.9			27.9			34.8			34.8	
Actuated g/C Ratio		0.37			0.37			0.47			0.47	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		560			482			794			826	
v/s Ratio Prot								0.32				
v/s Ratio Perm		0.03			c0.30						c0.35	
v/c Ratio		0.07			0.82			0.68			0.76	
Uniform Delay, d1		15.1			21.1			15.6			16.5	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.1			10.4			2.3			4.0	
Delay (s)		15.1			31.5			17.9			20.5	
Level of Service		B			C			B			C	
Approach Delay (s)		15.1			31.5			17.9			20.5	
Approach LOS		B			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	22.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	74.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	80.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	210	50	20	400	50	70	270	20	70	270	40
Future Volume (vph)	60	210	50	20	400	50	70	270	20	70	270	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.97		1.00	0.98		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1656	1693		1703	1763		1719	1790		1703	1792	1524
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1656	1693		1703	1763		1719	1790		1703	1792	1524
Peak-hour factor, PHF	0.96	0.96	0.96	0.94	0.94	0.94	0.85	0.85	0.85	0.91	0.91	0.91
Adj. Flow (vph)	62	219	52	21	426	53	82	318	24	77	297	44
RTOR Reduction (vph)	0	9	0	0	5	0	0	3	0	0	0	34
Lane Group Flow (vph)	63	262	0	21	474	0	82	339	0	77	297	10
Heavy Vehicles (%)	9%	9%	9%	6%	6%	6%	5%	5%	5%	6%	6%	6%
Parking (#/hr)			0									
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												4
Actuated Green, G (s)	4.4	30.7		1.8	28.1		7.0	18.6		7.0	18.6	18.6
Effective Green, g (s)	4.4	30.7		1.8	28.1		7.0	18.6		7.0	18.6	18.6
Actuated g/C Ratio	0.05	0.37		0.02	0.34		0.09	0.23		0.09	0.23	0.23
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	88	633		37	603		146	405		145	405	345
v/s Ratio Prot	c0.04	c0.15		0.01	c0.27		c0.05	c0.19		0.05	0.17	
v/s Ratio Perm												0.01
v/c Ratio	0.72	0.41		0.57	0.79		0.56	0.84		0.53	0.73	0.03
Uniform Delay, d1	38.2	19.0		39.8	24.3		36.1	30.3		36.0	29.4	24.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	24.0	0.4		18.4	6.7		4.9	13.9		3.7	6.7	0.0
Delay (s)	62.3	19.5		58.2	31.0		40.9	44.2		39.7	36.2	24.8
Level of Service	E	B		E	C		D	D		D	D	C
Approach Delay (s)		27.5			32.1			43.6			35.6	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	35.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	82.1	Sum of lost time (s)	24.0
Intersection Capacity Utilization	66.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	350	20	5	130	115	415
Future Volume (vph)	350	20	5	130	115	415
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	120	0			220
Storage Lanes	1	1	0			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950			0.998		
Satd. Flow (prot)	1719	1538	0	1823	1863	1583
Flt Permitted	0.950			0.998		
Satd. Flow (perm)	1719	1538	0	1823	1863	1583
Link Speed (mph)	30			30	30	
Link Distance (ft)	322			309	292	
Travel Time (s)	7.3			7.0	6.6	
Peak Hour Factor	0.89	0.89	0.91	0.91	0.93	0.93
Heavy Vehicles (%)	5%	5%	4%	4%	2%	2%
Adj. Flow (vph)	393	22	5	143	124	446
Shared Lane Traffic (%)						
Lane Group Flow (vph)	393	22	0	148	124	446
Sign Control	Stop			Stop	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 39.5%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Intersection Delay, s/veh	21.1
Intersection LOS	C

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	350	20	5	130	115	415
Future Vol, veh/h	350	20	5	130	115	415
Peak Hour Factor	0.89	0.89	0.91	0.91	0.93	0.93
Heavy Vehicles, %	5	5	4	4	2	2
Mvmt Flow	393	22	5	143	124	446
Number of Lanes	1	1	0	1	1	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	2
HCM Control Delay	28.2	12.4	18.2
HCM LOS	D	B	C

Lane	NBLn1	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	4%	100%	0%	0%	0%
Vol Thru, %	96%	0%	0%	100%	0%
Vol Right, %	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	135	350	20	115	415
LT Vol	5	350	0	0	0
Through Vol	130	0	0	115	0
RT Vol	0	0	20	0	415
Lane Flow Rate	148	393	22	124	446
Geometry Grp	4	7	7	7	7
Degree of Util (X)	0.277	0.766	0.036	0.217	0.694
Departure Headway (Hd)	6.722	7.011	5.795	6.311	5.6
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	531	515	616	566	643
Service Time	4.802	4.763	3.547	4.078	3.367
HCM Lane V/C Ratio	0.279	0.763	0.036	0.219	0.694
HCM Control Delay	12.4	29.3	8.8	10.8	20.2
HCM Lane LOS	B	D	A	B	C
HCM 95th-tile Q	1.1	6.8	0.1	0.8	5.5

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	10	0	10	470	530	0
Future Volume (vph)	10	0	10	470	530	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						
Flt Protected	0.950			0.999		
Satd. Flow (prot)	1008	0	0	1825	1792	0
Flt Permitted	0.950			0.999		
Satd. Flow (perm)	1008	0	0	1825	1792	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	160			224	319	
Travel Time (s)	3.6			5.1	7.3	
Peak Hour Factor	0.44	0.44	0.95	0.95	0.96	0.96
Heavy Vehicles (%)	79%	79%	4%	4%	6%	6%
Adj. Flow (vph)	23	0	11	495	552	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	23	0	0	506	552	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 42.8%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.7

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	0	10	470	530	0
Future Vol, veh/h	10	0	10	470	530	0
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	44	44	95	95	96	96
Heavy Vehicles, %	79	79	4	4	6	6
Mvmt Flow	23	0	11	495	552	0

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1069	552	552	0	-	0
Stage 1	552	-	-	-	-	-
Stage 2	517	-	-	-	-	-
Critical Hdwy	7.19	6.99	4.14	-	-	-
Critical Hdwy Stg 1	6.19	-	-	-	-	-
Critical Hdwy Stg 2	6.19	-	-	-	-	-
Follow-up Hdwy	4.211	4.011	2.236	-	-	-
Pot Cap-1 Maneuver	177	411	1008	-	-	-
Stage 1	449	-	-	-	-	-
Stage 2	468	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	174	411	1008	-	-	-
Mov Cap-2 Maneuver	174	-	-	-	-	-
Stage 1	442	-	-	-	-	-
Stage 2	468	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	28.8	0.2	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1008	-	174	-	-
HCM Lane V/C Ratio	0.01	-	0.131	-	-
HCM Control Delay (s)	8.6	0	28.8	-	-
HCM Lane LOS	A	A	D	-	-
HCM 95th %tile Q(veh)	0	-	0.4	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	50	420	10	30	420	10	50	70	100	10	10	100
Future Volume (vph)	50	420	10	30	420	10	50	70	100	10	10	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	150		150	0		0	150		150
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997			0.997			0.939			0.888	
Flt Protected		0.995			0.997			0.989			0.996	
Satd. Flow (prot)	0	1762	0	0	1799	0	0	1730	0	0	1680	0
Flt Permitted		0.995			0.997			0.989			0.996	
Satd. Flow (perm)	0	1762	0	0	1799	0	0	1730	0	0	1680	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		327			240			246			251	
Travel Time (s)		7.4			5.5			5.6			5.7	
Peak Hour Factor	0.89	0.89	0.89	0.96	0.96	0.96	0.65	0.65	0.65	0.67	0.67	0.67
Heavy Vehicles (%)	7%	7%	7%	5%	5%	5%	2%	2%	2%	0%	0%	0%
Adj. Flow (vph)	56	472	11	31	438	10	77	108	154	15	15	149
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	539	0	0	479	0	0	339	0	0	179	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 63.8%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection												
Int Delay, s/veh	52.3											

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	50	420	10	30	420	10	50	70	100	10	10	100
Future Vol, veh/h	50	420	10	30	420	10	50	70	100	10	10	100
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Yield	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	96	96	96	65	65	65	67	67	67
Heavy Vehicles, %	7	7	7	5	5	5	2	2	2	0	0	0
Mvmt Flow	56	472	11	31	438	10	77	108	154	15	15	149

Major/Minor	Major1			Major2			Minor2			Minor1		
Conflicting Flow All	448	0	0	483	0	0	1177	1100	443	1149	1100	478
Stage 1	-	-	-	-	-	-	505	505	-	590	590	-
Stage 2	-	-	-	-	-	-	672	595	-	559	510	-
Critical Hdwy	4.17	-	-	4.15	-	-	7.12	6.52	6.22	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.1	5.5	-
Follow-up Hdwy	2.263	-	-	2.245	-	-	3.518	4.018	3.318	3.5	4	3.3
Pot Cap-1 Maneuver	1086	-	-	1064	-	-	168	212	615	177	214	591
Stage 1	-	-	-	-	-	-	549	540	-	497	498	-
Stage 2	-	-	-	-	-	-	445	492	-	517	541	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1086	-	-	1064	-	-	109	189	615	67	191	591
Mov Cap-2 Maneuver	-	-	-	-	-	-	109	189	-	67	191	-
Stage 1	-	-	-	-	-	-	510	519	-	462	463	-
Stage 2	-	-	-	-	-	-	299	457	-	295	520	-

Approach	EB	WB	SE	NW
HCM Control Delay, s	0.9	0.6	219.6	29
HCM LOS			F	D

Minor Lane/Major Mvmt	NWLn1	EBL	EBT	EBR	WBL	WBT	WBR	SELn1
Capacity (veh/h)	324	1086	-	-	1064	-	-	251
HCM Lane V/C Ratio	0.553	0.052	-	-	0.029	-	-	1.348
HCM Control Delay (s)	29	8.5	0	-	8.5	0	-	219.6
HCM Lane LOS	D	A	A	-	A	A	-	F
HCM 95th %tile Q(veh)	3.2	0.2	-	-	0.1	-	-	18

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	20	220	115	345	270	0	190	280	20	40	370	530
Future Volume (vph)	20	220	115	345	270	0	190	280	20	40	370	530
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0	4.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	3471	1553	3335	3438		1752	1845	1568	1752	1845	1568
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1736	3471	1553	3335	3438		1752	1845	1568	1752	1845	1568
Peak-hour factor, PHF	0.84	0.84	0.84	0.79	0.79	0.79	0.86	0.86	0.86	0.99	0.99	0.99
Adj. Flow (vph)	24	262	137	437	342	0	221	326	23	40	374	535
RTOR Reduction (vph)	0	0	113	0	0	0	0	0	0	0	0	95
Lane Group Flow (vph)	24	262	24	437	342	0	221	326	23	40	374	440
Heavy Vehicles (%)	4%	4%	4%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Free	Prot	NA	pt+ov
Protected Phases	5	2		1	6		7	4		3	8	8 1
Permitted Phases		2	2		6			4	Free		8	
Actuated Green, G (s)	8.6	15.6	15.6	14.6	21.6		13.5	31.6	90.0	4.2	22.3	42.9
Effective Green, g (s)	8.6	15.6	15.6	14.6	21.6		13.5	31.6	90.0	4.2	22.3	42.9
Actuated g/C Ratio	0.10	0.17	0.17	0.16	0.24		0.15	0.35	1.00	0.05	0.25	0.48
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	165	601	269	541	825		262	647	1568	81	457	747
v/s Ratio Prot	0.01	0.08		c0.13	c0.10		c0.13	0.18		0.02	c0.20	0.28
v/s Ratio Perm			0.02						0.01			
v/c Ratio	0.15	0.44	0.09	0.81	0.41		0.84	0.50	0.01	0.49	0.82	0.59
Uniform Delay, d1	37.3	33.3	31.2	36.3	28.9		37.2	23.0	0.0	41.9	31.9	17.1
Progression Factor	1.00	1.00	1.00	0.91	0.70		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.8	2.3	0.6	8.3	1.5		21.2	0.6	0.0	4.7	10.9	1.2
Delay (s)	39.2	35.6	31.9	41.5	21.8		58.4	23.6	0.0	46.5	42.8	18.3
Level of Service	D	D	C	D	C		E	C	A	D	D	B
Approach Delay (s)		34.6			32.8			36.2			29.2	
Approach LOS		C			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	32.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	66.5%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Volume (vph)	320	70	430	310	80	620
Future Volume (vph)	320	70	430	310	80	620
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	180	0		0	180	
Storage Lanes	1	1		1	0	
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	1.00	1.00	1.00	0.95	0.95
Frt		0.850		0.850		
Flt Protected	0.950					0.994
Satd. Flow (prot)	1770	1583	1845	1568	0	3518
Flt Permitted	0.950					0.994
Satd. Flow (perm)	1770	1583	1845	1568	0	3518
Link Speed (mph)	30		30			30
Link Distance (ft)	408		387			233
Travel Time (s)	9.3		8.8			5.3
Peak Hour Factor	0.83	0.83	0.86	0.86	0.81	0.81
Heavy Vehicles (%)	2%	2%	3%	3%	2%	2%
Adj. Flow (vph)	386	84	500	360	99	765
Shared Lane Traffic (%)						
Lane Group Flow (vph)	386	84	500	360	0	864
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 69.8%		ICU Level of Service C	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	93.6

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Vol, veh/h	320	70	430	310	80	620
Future Vol, veh/h	320	70	430	310	80	620
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	Yield	-	None
Storage Length	180	0	-	0	-	-
Veh in Median Storage, #	0	-	0	-	-	0
Grade, %	0	-	0	-	-	0
Peak Hour Factor	83	83	86	86	81	81
Heavy Vehicles, %	2	2	3	3	2	2
Mvmt Flow	386	84	500	360	99	765

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1081	500	0	0	500	0
Stage 1	500	-	-	-	-	-
Stage 2	581	-	-	-	-	-
Critical Hdwy	6.63	6.23	-	-	4.13	-
Critical Hdwy Stg 1	5.43	-	-	-	-	-
Critical Hdwy Stg 2	5.83	-	-	-	-	-
Follow-up Hdwy	3.519	3.319	-	-	2.219	-
Pot Cap-1 Maneuver	~ 226	570	-	-	1062	-
Stage 1	608	-	-	-	-	-
Stage 2	523	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	~ 189	570	-	-	1062	-
Mov Cap-2 Maneuver	~ 189	-	-	-	-	-
Stage 1	510	-	-	-	-	-
Stage 2	523	-	-	-	-	-

Approach	NW	NE	SW
HCM Control Delay, s	$ 434.5	0	1.5
HCM LOS	F		

Minor Lane/Major Mvmt	NET	NER	NWLn1	NWLn2	SWL	SWT
Capacity (veh/h)	-	-	189	570	1062	-
HCM Lane V/C Ratio	-	-	2.04	0.148	0.093	-
HCM Control Delay (s)	-	-	$ 526.8	12.4	8.7	0.6
HCM Lane LOS	-	-	F	B	A	A
HCM 95th %tile Q(veh)	-	-	29.5	0.5	0.3	-

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	30	825	0	0	830	40	5	0	5	10	0	40
Future Volume (vph)	30	825	0	0	830	40	5	0	5	10	0	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0			6.0	6.0		6.0	6.0
Lane Util. Factor	1.00	0.95			0.95			1.00	1.00		1.00	1.00
Frt	1.00	1.00			0.99			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00			1.00			0.95	1.00		0.95	1.00
Satd. Flow (prot)	1687	3374			3515			1805	1615		1787	1599
Flt Permitted	0.95	1.00			1.00			0.98	1.00		0.98	1.00
Satd. Flow (perm)	1687	3374			3515			1854	1615		1835	1599
Peak-hour factor, PHF	0.83	0.83	0.83	0.92	0.92	0.92	0.50	0.50	0.50	0.90	0.90	0.90
Adj. Flow (vph)	36	994	0	0	902	43	10	0	10	11	0	44
RTOR Reduction (vph)	0	0	0	0	2	0	0	0	10	0	0	42
Lane Group Flow (vph)	36	994	0	0	943	0	0	10	0	0	11	2
Heavy Vehicles (%)	7%	7%	7%	2%	2%	2%	0%	0%	0%	1%	1%	1%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases					6		8	8	8	4		4
Actuated Green, G (s)	5.2	73.9			62.7			4.1	4.1		4.1	4.1
Effective Green, g (s)	5.2	73.9			62.7			4.1	4.1		4.1	4.1
Actuated g/C Ratio	0.06	0.82			0.70			0.05	0.05		0.05	0.05
Clearance Time (s)	6.0	6.0			6.0			6.0	6.0		6.0	6.0
Vehicle Extension (s)	3.0	3.0			3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	97	2770			2448			84	73		83	72
v/s Ratio Prot	0.02	c0.29			c0.27							
v/s Ratio Perm								0.01	0.00		c0.01	0.00
v/c Ratio	0.37	0.36			0.39			0.12	0.01		0.13	0.03
Uniform Delay, d1	40.8	2.0			5.7			41.2	41.0		41.2	41.0
Progression Factor	1.16	0.57			0.80			1.00	1.00		1.00	1.00
Incremental Delay, d2	2.2	0.3			0.1			0.6	0.0		0.7	0.2
Delay (s)	49.5	1.5			4.6			41.9	41.0		42.0	41.2
Level of Service	D	A			A			D	D		D	D
Approach Delay (s)		3.2			4.6			41.4			41.4	
Approach LOS		A			A			D			D	

Intersection Summary			
HCM 2000 Control Delay	5.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	47.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	420	830	5	5	875	60	10	5	5	60	5	400
Future Volume (vph)	420	830	5	5	875	60	10	5	5	60	5	400
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0			6.0	6.0
Lane Util. Factor	0.97	0.95		1.00	0.95		1.00	1.00			1.00	1.00
Frt	1.00	1.00		1.00	0.99		1.00	0.93			1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00			0.96	1.00
Satd. Flow (prot)	3303	3403		1736	3438		1805	1758			1764	1568
Flt Permitted	0.95	1.00		0.95	1.00		0.71	1.00			0.73	1.00
Satd. Flow (perm)	3303	3403		1736	3438		1348	1758			1353	1568
Peak-hour factor, PHF	0.83	0.83	0.83	0.97	0.97	0.97	0.67	0.67	0.67	0.90	0.90	0.90
Adj. Flow (vph)	506	1000	6	5	902	62	15	7	7	67	6	444
RTOR Reduction (vph)	0	0	0	0	6	0	0	6	0	0	0	37
Lane Group Flow (vph)	506	1006	0	5	958	0	15	8	0	0	73	407
Heavy Vehicles (%)	6%	6%	6%	4%	4%	4%	0%	0%	0%	3%	3%	3%
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	pt+ov
Protected Phases	5	2		1	6			8			4	4 5
Permitted Phases							8	8		4		
Actuated Green, G (s)	16.7	53.2		1.0	37.5		17.8	17.8			17.8	40.5
Effective Green, g (s)	16.7	53.2		1.0	37.5		17.8	17.8			17.8	40.5
Actuated g/C Ratio	0.19	0.59		0.01	0.42		0.20	0.20			0.20	0.45
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0			6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0			3.0	
Lane Grp Cap (vph)	612	2011		19	1432		266	347			267	705
v/s Ratio Prot	c0.15	0.30		0.00	c0.28			0.00				c0.26
v/s Ratio Perm							0.01				0.05	
v/c Ratio	0.83	0.50		0.26	0.67		0.06	0.02			0.27	0.58
Uniform Delay, d1	35.3	10.7		44.1	21.2		29.3	29.1			30.6	18.4
Progression Factor	1.00	1.00		0.80	0.95		1.00	1.00			1.00	1.00
Incremental Delay, d2	9.0	0.9		7.0	1.2		0.1	0.0			0.6	1.1
Delay (s)	44.2	11.6		42.3	21.4		29.4	29.1			31.2	19.5
Level of Service	D	B		D	C		C	C			C	B
Approach Delay (s)		22.5			21.5			29.3			21.2	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	22.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	70.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	110	1320	1220	10	10	80
Future Volume (vph)	110	1320	1220	10	10	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300			0	0	175
Storage Lanes	1			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.999			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1687	3374	3468	0	1703	1524
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	3374	3468	0	1703	1524
Link Speed (mph)		30	30		30	
Link Distance (ft)		535	210		522	
Travel Time (s)		12.2	4.8		11.9	
Peak Hour Factor	0.84	0.84	0.89	0.89	0.83	0.83
Heavy Vehicles (%)	7%	7%	4%	4%	6%	6%
Adj. Flow (vph)	131	1571	1371	11	12	96
Shared Lane Traffic (%)						
Lane Group Flow (vph)	131	1571	1382	0	12	96
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 53.5%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.6

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	110	1320	1220	10	10	80
Future Vol, veh/h	110	1320	1220	10	10	80
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	300	-	-	-	0	175
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	84	84	89	89	83	83
Heavy Vehicles, %	7	7	4	4	6	6
Mvmt Flow	131	1571	1371	11	12	96

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1382	0	-	0	2425	691
Stage 1	-	-	-	-	1377	-
Stage 2	-	-	-	-	1048	-
Critical Hdwy	4.24	-	-	-	6.92	7.02
Critical Hdwy Stg 1	-	-	-	-	5.92	-
Critical Hdwy Stg 2	-	-	-	-	5.92	-
Follow-up Hdwy	2.27	-	-	-	3.56	3.36
Pot Cap-1 Maneuver	467	-	-	-	25	378
Stage 1	-	-	-	-	192	-
Stage 2	-	-	-	-	290	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	467	-	-	-	18	378
Mov Cap-2 Maneuver	-	-	-	-	18	-
Stage 1	-	-	-	-	138	-
Stage 2	-	-	-	-	290	-

Approach	EB	WB	SB
HCM Control Delay, s	1.2	0	58.8
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	467	-	-	-	18	378
HCM Lane V/C Ratio	0.28	-	-	-	0.669	0.255
HCM Control Delay (s)	15.7	-	-	-	$ 387.1	17.8
HCM Lane LOS	C	-	-	-	F	C
HCM 95th %tile Q(veh)	1.1	-	-	-	1.8	1

Lane Group	WBL2	WBL	WBR	WBR2	NBL	NBT	NBR	NBR2	SBL2	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	180	340	20	20	125	110	5	10	105	170	40
Future Volume (vph)	10	180	340	20	20	125	110	5	10	105	170	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	150		0		150			0		0
Storage Lanes		1	0		0		0			0		0
Taper Length (ft)		25			25					25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.912				0.940					0.983	
Flt Protected		0.983				0.996					0.983	
Satd. Flow (prot)	0	1654	0	0	0	1727	0	0	0	0	1716	0
Flt Permitted		0.983				0.996					0.983	
Satd. Flow (perm)	0	1654	0	0	0	1727	0	0	0	0	1716	0
Link Speed (mph)		30				30					30	
Link Distance (ft)		465				456					371	
Travel Time (s)		10.6				10.4					8.4	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.86	0.86	0.86	0.86	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	7%	7%	7%	7%
Adj. Flow (vph)	11	198	374	22	23	145	128	6	13	131	213	50
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	605	0	0	0	302	0	0	0	0	407	0
Sign Control		Yield				Yield					Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization 100.3%		ICU Level of Service G	
Analysis Period (min) 15			

Intersection	
Intersection Delay, s/veh	14.1
Intersection LOS	B

Approach	WB	NB	SB	NE	SW
Entry Lanes	1	1	1	1	1
Conflicting Circle Lanes	1	1	1	1	1
Adj Approach Flow, veh/h	605	302	407	475	235
Demand Flow Rate, veh/h	623	311	436	513	252
Vehicles Circulating, veh/h	472	529	478	438	854
Vehicles Exiting, veh/h	368	422	628	476	241
Ped Vol Crossing Leg, #/h	0	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000	1.000
Approach Delay, s/veh	18.8	9.4	11.8	13.2	13.9
Approach LOS	C	A	B	B	B

Lane	Left	Left	Left	Left	Left
Designated Moves	LR	LTR	LTR	LTR	LTR
Assumed Moves	LR	LTR	LTR	LTR	LTR
RT Channelized					
Lane Util	1.000	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976	4.976
Entry Flow, veh/h	623	311	436	513	252
Cap Entry Lane, veh/h	853	804	847	883	578
Entry HV Adj Factor	0.971	0.970	0.934	0.925	0.932
Flow Entry, veh/h	605	302	407	475	235
Cap Entry, veh/h	828	780	791	817	538
V/C Ratio	0.731	0.387	0.514	0.581	0.436
Control Delay, s/veh	18.8	9.4	11.8	13.2	13.9
LOS	C	A	B	B	B
95th %tile Queue, veh	7	2	3	4	2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	5	20	220	5	40	50	375	140	5	10	100	20
Future Volume (vph)	5	20	220	5	40	50	375	140	5	10	100	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		50	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.929			0.999			0.979	
Flt Protected		0.990			0.997			0.965			0.996	
Satd. Flow (prot)	0	1742	1495	0	1676	0	0	1778	0	0	1781	0
Flt Permitted		0.990			0.997			0.965			0.996	
Satd. Flow (perm)	0	1742	1495	0	1676	0	0	1778	0	0	1781	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		144			453			475			436	
Travel Time (s)		3.3			10.3			10.8			9.9	
Peak Hour Factor	0.82	0.82	0.82	0.70	0.70	0.70	0.75	0.75	0.75	0.71	0.71	0.71
Heavy Vehicles (%)	8%	8%	8%	5%	5%	5%	3%	3%	3%	4%	4%	4%
Adj. Flow (vph)	6	24	268	7	57	71	500	187	7	14	141	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	30	268	0	135	0	0	694	0	0	183	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 51.3%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	21.4

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱		✣			✣			✣	
Traffic Vol, veh/h	5	20	220	5	40	50	375	140	5	10	100	20
Future Vol, veh/h	5	20	220	5	40	50	375	140	5	10	100	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	50	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	70	70	70	75	75	75	71	71	71
Heavy Vehicles, %	8	8	8	5	5	5	3	3	3	4	4	4
Mvmt Flow	6	24	268	7	57	71	500	187	7	14	141	28

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1438	1377	155	1520	1388	191	169	0	0	194	0	0
Stage 1	183	183	-	1191	1191	-	-	-	-	-	-	-
Stage 2	1255	1194	-	329	197	-	-	-	-	-	-	-
Critical Hdwy	7.18	6.58	6.28	7.15	6.55	6.25	4.13	-	-	4.14	-	-
Critical Hdwy Stg 1	6.18	5.58	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.18	5.58	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.572	4.072	3.372	3.545	4.045	3.345	2.227	-	-	2.236	-	-
Pot Cap-1 Maneuver	108	141	875	96	141	843	1402	-	-	1367	-	-
Stage 1	805	737	-	225	257	-	-	-	-	-	-	-
Stage 2	204	253	-	678	732	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	32	84	875	36	84	843	1402	-	-	1367	-	-
Mov Cap-2 Maneuver	32	84	-	36	84	-	-	-	-	-	-	-
Stage 1	483	729	-	135	154	-	-	-	-	-	-	-
Stage 2	70	152	-	449	724	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	20.7	127.6	6.5	0.6
HCM LOS	C	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1402	-	-	63	875	141	1367	-	-
HCM Lane V/C Ratio	0.357	-	-	0.484	0.307	0.963	0.01	-	-
HCM Control Delay (s)	9	0	-	107	10.9	127.6	7.7	0	-
HCM Lane LOS	A	A	-	F	B	F	A	A	-
HCM 95th %tile Q(veh)	1.6	-	-	1.9	1.3	6.6	0	-	-

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	30	50	20	10	40	90	20	230	90	70	280	40
Future Volume (vph)	30	50	20	10	40	90	20	230	90	70	280	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.96		1.00	0.98	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	1767		1736	1827	1553	1770	1784		1787	1846	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1752	1767		1736	1827	1553	1770	1784		1787	1846	
Peak-hour factor, PHF	0.82	0.82	0.82	0.81	0.81	0.81	0.68	0.68	0.68	0.78	0.78	0.78
Adj. Flow (vph)	37	61	24	12	49	111	29	338	132	90	359	51
RTOR Reduction (vph)	0	16	0	0	0	83	0	19	0	0	7	0
Lane Group Flow (vph)	37	69	0	12	49	28	29	451	0	90	403	0
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	2%	2%	2%	1%	1%	1%
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA		Prot	NA	
Protected Phases	1	6		5	2	3	3	8		7	4	
Permitted Phases						2						
Actuated Green, G (s)	2.4	11.3		1.2	10.1	16.0	5.9	20.9		5.9	20.9	
Effective Green, g (s)	2.4	11.3		1.2	10.1	16.0	5.9	20.9		5.9	20.9	
Actuated g/C Ratio	0.04	0.18		0.02	0.16	0.25	0.09	0.33		0.09	0.33	
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	66	315		32	291	539	164	589		166	609	
v/s Ratio Prot	c0.02	c0.04		0.01	0.03	0.00	0.02	c0.25		c0.05	0.22	
v/s Ratio Perm						0.01						
v/c Ratio	0.56	0.22		0.38	0.17	0.05	0.18	0.76		0.54	0.66	
Uniform Delay, d1	29.9	22.2		30.7	23.0	17.9	26.5	19.0		27.4	18.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	10.4	0.3		7.2	1.2	0.0	0.5	5.9		3.6	2.7	
Delay (s)	40.4	22.6		37.9	24.2	17.9	27.0	24.9		31.0	20.9	
Level of Service	D	C		D	C	B	C	C		C	C	
Approach Delay (s)		28.0			21.1			25.0			22.7	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	23.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	63.3	Sum of lost time (s)	24.0
Intersection Capacity Utilization	47.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	450	0	20	60	170	580
Future Volume (vph)	450	0	20	60	170	580
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0	4.0	4.0	6.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frt	1.00		1.00	1.00	1.00	0.85
Flt Protected	0.95		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1770		1626	1712	1863	1583
Flt Permitted	0.95		0.58	1.00	1.00	1.00
Satd. Flow (perm)	1770		993	1712	1863	1583
Peak-hour factor, PHF	0.94	0.94	0.91	0.91	0.82	0.82
Adj. Flow (vph)	479	0	22	66	207	707
RTOR Reduction (vph)	0	0	0	0	0	169
Lane Group Flow (vph)	479	0	22	66	207	538
Heavy Vehicles (%)	2%	2%	11%	11%	2%	2%
Turn Type	Prot		pm+pt	NA	NA	custom
Protected Phases	8		1	6 7	2 7	7 8
Permitted Phases			6 7			2
Actuated Green, G (s)	22.0		34.6	33.0	32.2	56.2
Effective Green, g (s)	22.0		30.6	33.0	32.2	56.2
Actuated g/C Ratio	0.30		0.41	0.45	0.44	0.76
Clearance Time (s)	6.0		6.0			
Vehicle Extension (s)	3.0		3.0			
Lane Grp Cap (vph)	527		425	765	812	1205
v/s Ratio Prot	c0.27		c0.00	0.04	0.11	c0.24
v/s Ratio Perm			0.02			0.10
v/c Ratio	0.91		0.05	0.09	0.25	0.45
Uniform Delay, d1	24.9		12.9	11.7	13.2	3.2
Progression Factor	1.00		1.00	1.00	1.05	1.72
Incremental Delay, d2	19.4		0.1	0.0	0.2	0.2
Delay (s)	44.4		12.9	11.8	14.0	5.7
Level of Service	D		B	B	B	A
Approach Delay (s)	44.4			12.1	7.6	
Approach LOS	D			B	A	

Intersection Summary			
HCM 2000 Control Delay	19.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	73.8	Sum of lost time (s)	22.0
Intersection Capacity Utilization	49.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations			↰↰		↰↰	
Traffic Volume (vph)	0	0	1575	0	460	0
Future Volume (vph)	0	0	1575	0	460	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			6.0		6.0	
Lane Util. Factor			0.97		0.97	
Frt			1.00		1.00	
Flt Protected			0.95		0.95	
Satd. Flow (prot)			3433		3433	
Flt Permitted			0.95		0.95	
Satd. Flow (perm)			3433		3433	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	0	1676	0	489	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	1676	0	489	0
Turn Type			Prot		Prot	
Protected Phases			4		2	
Permitted Phases						
Actuated Green, G (s)			57.0		21.0	
Effective Green, g (s)			57.0		21.0	
Actuated g/C Ratio			0.63		0.23	
Clearance Time (s)			6.0		6.0	
Vehicle Extension (s)			3.0		3.0	
Lane Grp Cap (vph)			2174		801	
v/s Ratio Prot			c0.49		c0.14	
v/s Ratio Perm						
v/c Ratio			0.77		0.61	
Uniform Delay, d1			11.8		30.8	
Progression Factor			1.00		1.16	
Incremental Delay, d2			2.7		3.4	
Delay (s)			14.5		39.3	
Level of Service			B		D	
Approach Delay (s)	0.0			14.5	39.3	
Approach LOS	A			B	D	

Intersection Summary			
HCM 2000 Control Delay	20.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	122.3%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBR	NWL	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations										
Traffic Volume (vph)	0	0	0	255	0	1575	0	0	460	1225
Future Volume (vph)	0	0	0	255	0	1575	0	0	460	1225
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			6.0	6.0		6.0			6.0	6.0
Lane Util. Factor			1.00	0.95		0.95			0.95	0.88
Frt			0.85	0.85		1.00			1.00	0.85
Flt Protected			1.00	1.00		1.00			1.00	1.00
Satd. Flow (prot)			1583	1504		3539			3539	2787
Flt Permitted			1.00	1.00		1.00			1.00	1.00
Satd. Flow (perm)			1583	1504		3539			3539	2787
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	0	0	271	0	1676	0	0	489	1303
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	102
Lane Group Flow (vph)	0	0	136	135	0	1676	0	0	489	1201
Turn Type			Prot	Prot	Perm	NA			NA	Perm
Protected Phases			4	4		2			2	
Permitted Phases					2					2
Actuated Green, G (s)			13.7	13.7		64.3			64.3	64.3
Effective Green, g (s)			13.7	13.7		64.3			64.3	64.3
Actuated g/C Ratio			0.15	0.15		0.71			0.71	0.71
Clearance Time (s)			6.0	6.0		6.0			6.0	6.0
Vehicle Extension (s)			3.0	3.0		3.0			3.0	3.0
Lane Grp Cap (vph)			240	228		2528			2528	1991
v/s Ratio Prot			0.09	c0.09		c0.47			0.14	
v/s Ratio Perm										0.43
v/c Ratio			0.57	0.59		0.66			0.19	0.60
Uniform Delay, d1			35.4	35.5		7.0			4.3	6.4
Progression Factor			1.00	1.00		0.43			1.00	1.00
Incremental Delay, d2			3.1	4.1		0.9			0.2	1.4
Delay (s)			38.4	39.6		3.9			4.4	7.8
Level of Service			D	D		A			A	A
Approach Delay (s)	0.0		39.0			3.9			6.9	
Approach LOS	A		D			A			A	

Intersection Summary			
HCM 2000 Control Delay	7.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	97.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	350	5	10	380	10	5	50	10	10	50	50
Future Volume (vph)	50	350	5	10	380	10	5	50	10	10	50	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00		1.00	1.00		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1770	1859		1770	1855		1770	1815		1770	1863	1583
Flt Permitted	0.30	1.00		0.48	1.00		0.72	1.00		0.71	1.00	1.00
Satd. Flow (perm)	553	1859		887	1855		1345	1815		1331	1863	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	54	380	5	11	413	11	5	54	11	11	54	54
RTOR Reduction (vph)	0	1	0	0	1	0	0	7	0	0	0	33
Lane Group Flow (vph)	54	384	0	11	423	0	5	58	0	11	54	21
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4		3	8			2			6	7
Permitted Phases	4			8			2			6		6
Actuated Green, G (s)	28.8	25.0		23.0	22.1		22.6	22.6		22.6	22.6	26.4
Effective Green, g (s)	28.8	25.0		23.0	22.1		22.6	22.6		22.6	22.6	26.4
Actuated g/C Ratio	0.43	0.38		0.35	0.33		0.34	0.34		0.34	0.34	0.40
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	309	698		318	616		457	616		452	633	771
v/s Ratio Prot	c0.01	c0.21		0.00	c0.23			c0.03			0.03	0.00
v/s Ratio Perm	0.07			0.01			0.00			0.01		0.01
v/c Ratio	0.17	0.55		0.03	0.69		0.01	0.09		0.02	0.09	0.03
Uniform Delay, d1	11.9	16.3		14.4	19.2		14.5	15.0		14.6	14.9	12.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.3	0.9		0.0	3.2		0.0	0.3		0.1	0.3	0.0
Delay (s)	12.2	17.3		14.4	22.4		14.6	15.3		14.7	15.2	12.2
Level of Service	B	B		B	C		B	B		B	B	B
Approach Delay (s)		16.6			22.2			15.2			13.8	
Approach LOS		B			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	18.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	66.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	47.0%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	255	0	215	385	0	195
Future Volume (vph)	255	0	215	385	0	195
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	0		0	80
Storage Lanes		0	0		1	1
Taper Length (ft)			25		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850
Flt Protected				0.982		
Satd. Flow (prot)	1863	0	0	1829	1863	1583
Flt Permitted				0.982		
Satd. Flow (perm)	1863	0	0	1829	1863	1583
Link Speed (mph)	30			30	30	
Link Distance (ft)	354			472	168	
Travel Time (s)	8.0			10.7	3.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	277	0	234	418	0	212
Shared Lane Traffic (%)						
Lane Group Flow (vph)	277	0	0	652	0	212
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 52.2%		ICU Level of Service A	
Analysis Period (min) 15			

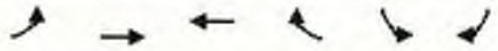
Intersection	
Int Delay, s/veh	3.9

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	255	0	215	385	0	195
Future Vol, veh/h	255	0	215	385	0	195
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	80
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	92	92	92	92	92	92
Heavy Vehicles, %	2	2	2	2	2	2
Mvmt Flow	277	0	234	418	0	212

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	277	0	1163	277
Stage 1	-	-	-	-	277	-
Stage 2	-	-	-	-	886	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	1286	-	215	762
Stage 1	-	-	-	-	770	-
Stage 2	-	-	-	-	403	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1286	-	164	762
Mov Cap-2 Maneuver	-	-	-	-	164	-
Stage 1	-	-	-	-	588	-
Stage 2	-	-	-	-	403	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3	11.5
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	762	-	-	1286	-
HCM Lane V/C Ratio	-	0.278	-	-	0.182	-
HCM Control Delay (s)	0	11.5	-	-	8.4	0
HCM Lane LOS	A	B	-	-	A	A
HCM 95th %tile Q(veh)	-	1.1	-	-	0.7	-



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	55	1775	1590	220	90	95
Future Volume (vph)	55	1775	1590	220	90	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3539	3539	1583	1770	1583
Flt Permitted	0.08	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	144	3539	3539	1583	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	60	1929	1728	239	98	103
RTOR Reduction (vph)	0	0	0	69	0	20
Lane Group Flow (vph)	60	1929	1728	170	98	83
Turn Type	pm+pt	NA	NA	pm+ov	Prot	pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases	2			6		4
Actuated Green, G (s)	55.5	55.5	45.8	53.4	7.6	11.3
Effective Green, g (s)	55.5	55.5	45.8	53.4	7.6	11.3
Actuated g/C Ratio	0.74	0.74	0.61	0.71	0.10	0.15
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	186	2615	2158	1252	179	364
v/s Ratio Prot	0.02	c0.55	c0.49	0.01	c0.06	0.01
v/s Ratio Perm	0.22			0.09		0.04
v/c Ratio	0.32	0.74	0.80	0.14	0.55	0.23
Uniform Delay, d1	9.9	5.6	11.2	3.5	32.1	28.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	1.1	2.2	0.0	3.4	0.3
Delay (s)	10.9	6.7	13.4	3.5	35.5	28.4
Level of Service	B	A	B	A	D	C
Approach Delay (s)		6.9	12.2		31.9	
Approach LOS		A	B		C	

Intersection Summary			
HCM 2000 Control Delay	10.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	75.1	Sum of lost time (s)	18.0
Intersection Capacity Utilization	64.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	70	10	460	50	10	680
Future Volume (vph)	70	10	460	50	10	680
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		4.0	4.0	6.0	4.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frt	0.98		1.00	0.85	1.00	1.00
Flt Protected	0.96		1.00	1.00	0.95	1.00
Satd. Flow (prot)	1769		1900	1615	1805	1900
Flt Permitted	0.96		1.00	1.00	0.26	1.00
Satd. Flow (perm)	1769		1900	1615	488	1900
Peak-hour factor, PHF	0.87	0.67	0.95	0.84	0.73	0.96
Adj. Flow (vph)	80	15	484	60	14	708
RTOR Reduction (vph)	8	0	0	25	0	0
Lane Group Flow (vph)	87	0	484	35	14	708
Heavy Vehicles (%)	1%	0%	0%	0%	0%	0%
Turn Type	Prot		NA	Perm	custom	NA
Protected Phases	7		6 8		5	2 8
Permitted Phases				6 8	2	
Actuated Green, G (s)	11.6		39.4	39.4	17.4	38.6
Effective Green, g (s)	11.6		39.4	39.4	17.4	38.6
Actuated g/C Ratio	0.16		0.53	0.53	0.24	0.52
Clearance Time (s)	6.0				6.0	
Vehicle Extension (s)	3.0				3.0	
Lane Grp Cap (vph)	278		1014	862	129	993
v/s Ratio Prot	c0.05		0.25		c0.00	c0.37
v/s Ratio Perm				0.02	0.02	
v/c Ratio	0.31		0.48	0.04	0.11	0.71
Uniform Delay, d1	27.6		10.8	8.2	22.1	13.4
Progression Factor	1.00		0.53	0.42	1.00	1.00
Incremental Delay, d2	0.7		0.2	0.0	0.4	2.4
Delay (s)	28.2		5.9	3.4	22.5	15.8
Level of Service	C		A	A	C	B
Approach Delay (s)	28.2		5.6			16.0
Approach LOS	C		A			B

Intersection Summary			
HCM 2000 Control Delay	12.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	73.8	Sum of lost time (s)	22.0
Intersection Capacity Utilization	48.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	5	30	20	450	660	20
Future Volume (vph)	5	30	20	450	660	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.888				0.995	
Flt Protected	0.992		0.950			
Satd. Flow (prot)	1674	0	1787	1900	1873	0
Flt Permitted	0.992		0.950			
Satd. Flow (perm)	1674	0	1787	1900	1873	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	332			288	365	
Travel Time (s)	7.5			6.5	8.3	
Peak Hour Factor	0.64	0.77	0.71	0.90	0.75	0.55
Heavy Vehicles (%)	0%	0%	1%	0%	1%	0%
Adj. Flow (vph)	8	39	28	500	880	36
Shared Lane Traffic (%)						
Lane Group Flow (vph)	47	0	28	500	916	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 45.9%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.8

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	30	20	450	660	20
Future Vol, veh/h	5	30	20	450	660	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	64	77	71	90	75	55
Heavy Vehicles, %	0	0	1	0	1	0
Mvmt Flow	8	39	28	500	880	36

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1454	898	916	0	-	0
Stage 1	898	-	-	-	-	-
Stage 2	556	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.11	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.209	-	-	-
Pot Cap-1 Maneuver	145	341	749	-	-	-
Stage 1	401	-	-	-	-	-
Stage 2	578	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	140	341	749	-	-	-
Mov Cap-2 Maneuver	140	-	-	-	-	-
Stage 1	386	-	-	-	-	-
Stage 2	578	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	20.8	0.5	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	749	-	275	-	-
HCM Lane V/C Ratio	0.038	-	0.17	-	-
HCM Control Delay (s)	10	-	20.8	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.6	-	-

APPENDIX Q-3: ALTERNATIVE C INTERSECTION CAPACITY ANALYSES – SYNCHRO PRINTSOUTS – AM PEAK HOUR

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↰	↱↱
Traffic Volume (vph)	0	1345	715	0	115	1010
Future Volume (vph)	0	1345	715	0	115	1010
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	16	12
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	0.88
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	3471	3406	0	1930	2682
Flt Permitted					0.950	
Satd. Flow (perm)	0	3471	3406	0	1930	2682
Right Turn on Red				Yes		No
Satd. Flow (RTOR)						
Link Speed (mph)		30	30		25	
Link Distance (ft)		712	388		212	
Travel Time (s)		16.2	8.8		5.8	
Peak Hour Factor	0.93	0.93	0.88	0.88	0.89	0.89
Heavy Vehicles (%)	4%	4%	6%	6%	6%	6%
Adj. Flow (vph)	0	1446	813	0	129	1135
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1446	813	0	129	1135
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		24	24		16	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	0.85	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors		3	3		3	3
Detector Template		Thru	Thru		Left	
Leading Detector (ft)		256	256		256	256
Trailing Detector (ft)		-5	-5		-5	-5
Detector 1 Position(ft)		-5	-5		-5	-5
Detector 1 Size(ft)		50	50		50	50
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0
Detector 2 Position(ft)		125	125		125	125
Detector 2 Size(ft)		6	6		6	6
Detector 2 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0		0.0	0.0
Detector 3 Position(ft)		250	250		250	250
Detector 3 Size(ft)		6	6		6	6
Detector 3 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 3 Channel						

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector 3 Extend (s)		0.0	0.0		0.0	0.0
Turn Type		NA	NA		Prot	Prot
Protected Phases		2	6		4	4
Permitted Phases						
Detector Phase		2	6		4	4
Switch Phase						
Minimum Initial (s)		8.0	8.0		5.0	5.0
Minimum Split (s)		14.0	21.0		27.0	27.0
Total Split (s)		38.0	38.0		37.0	37.0
Total Split (%)		50.7%	50.7%		49.3%	49.3%
Maximum Green (s)		32.0	32.0		31.0	31.0
Yellow Time (s)		2.0	2.0		2.0	2.0
All-Red Time (s)		4.0	4.0		4.0	4.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0
Total Lost Time (s)		6.0	6.0		6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Recall Mode		C-Min	C-Min		None	None
Walk Time (s)			7.0		7.0	7.0
Flash Dont Walk (s)			8.0		14.0	14.0
Pedestrian Calls (#/hr)			0		0	0
Act Effct Green (s)		32.0	32.0		31.0	31.0
Actuated g/C Ratio		0.43	0.43		0.41	0.41
v/c Ratio		0.98	0.56		0.16	1.02
Control Delay		33.0	20.1		14.6	57.4
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		33.0	20.1		14.6	57.4
LOS		C	C		B	E
Approach Delay		33.0	20.1		53.1	
Approach LOS		C	C		D	
Queue Length 50th (ft)		334	385		37	~307
Queue Length 95th (ft)		m#453	m376		69	#447
Internal Link Dist (ft)		632	308		132	
Turn Bay Length (ft)						
Base Capacity (vph)		1480	1453		797	1108
Starvation Cap Reductn		0	0		0	0
Spillback Cap Reductn		0	0		0	0
Storage Cap Reductn		0	0		0	0
Reduced v/c Ratio		0.98	0.56		0.16	1.02

Intersection Summary

Area Type: Other
Cycle Length: 75
Actuated Cycle Length: 75
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow, Master Intersection
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.02

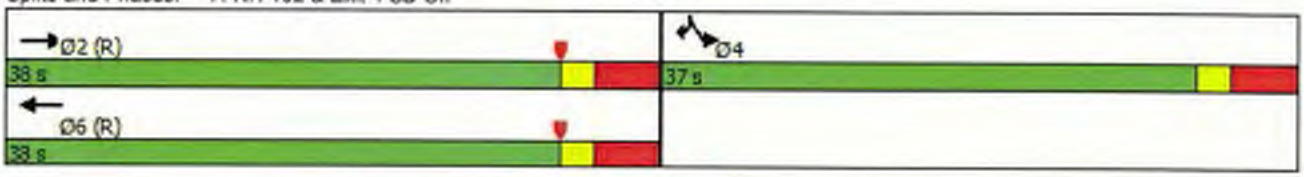
Intersection Signal Delay: 37.2 Intersection LOS: D
Intersection Capacity Utilization 67.1% ICU Level of Service C
Analysis Period (min) 15

~ 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.

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

Splits and Phases: 7: NH 102 & Exit 4 SB Off



Lane Group	NBL2	NBL	NBR	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Traffic Volume (vph)	455	0	300	0	0	1350	110	0	0	990	375
Future Volume (vph)	455	0	300	0	0	1350	110	0	0	990	375
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	0	0	0	550		0	0		0
Storage Lanes		2	2	0	0	2		0	0		1
Taper Length (ft)		25		25		25			25		
Lane Util. Factor	0.97	1.00	0.88	1.00	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Frt			0.850								0.850
Flt Protected	0.950					0.950					
Satd. Flow (prot)	3242	0	2632	0	0	3335	3438	0	0	3505	1568
Flt Permitted	0.950					0.950					
Satd. Flow (perm)	3242	0	2632	0	0	3335	3438	0	0	3505	1568
Right Turn on Red			No					Yes			Yes
Satd. Flow (RTOR)											190
Link Speed (mph)		25		30			30			30	
Link Distance (ft)		856		390			760			857	
Travel Time (s)		23.3		8.9			17.3			19.5	
Peak Hour Factor	0.88	0.88	0.88	0.92	0.92	0.94	0.94	0.94	0.92	0.92	0.92
Heavy Vehicles (%)	8%	8%	8%	2%	2%	5%	5%	5%	3%	3%	3%
Adj. Flow (vph)	517	0	341	0	0	1436	117	0	0	1076	408
Shared Lane Traffic (%)											
Lane Group Flow (vph)	517	0	341	0	0	1436	117	0	0	1076	408
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Right	Left	Left	Right	Left	Right	Right
Median Width(ft)		24		0			24			24	
Link Offset(ft)		12		0			0			0	
Crosswalk Width(ft)		16		16			16			16	
Two way Left Turn Lane											
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	15	25	15	9	15		9	15		25
Number of Detectors	3		3			3	3			3	0
Detector Template											
Leading Detector (ft)	256		256			256	256			256	0
Trailing Detector (ft)	-5		-5			-5	-5			-5	0
Detector 1 Position(ft)	-5		-5			-5	-5			-5	-5
Detector 1 Size(ft)	55		55			55	55			55	50
Detector 1 Type	Cl+Ex		Cl+Ex			Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel											
Detector 1 Extend (s)	0.0		0.0			0.0	0.0			0.0	0.0
Detector 1 Queue (s)	0.0		0.0			0.0	0.0			0.0	0.0
Detector 1 Delay (s)	0.0		0.0			0.0	0.0			0.0	0.0
Detector 2 Position(ft)	125		125			125	125			125	
Detector 2 Size(ft)	6		6			6	6			6	
Detector 2 Type	Cl+Ex		Cl+Ex			Cl+Ex	Cl+Ex			Cl+Ex	
Detector 2 Channel											
Detector 2 Extend (s)	0.0		0.0			0.0	0.0			0.0	
Detector 3 Position(ft)	250		250			250	250			250	
Detector 3 Size(ft)	6		6			6	6			6	

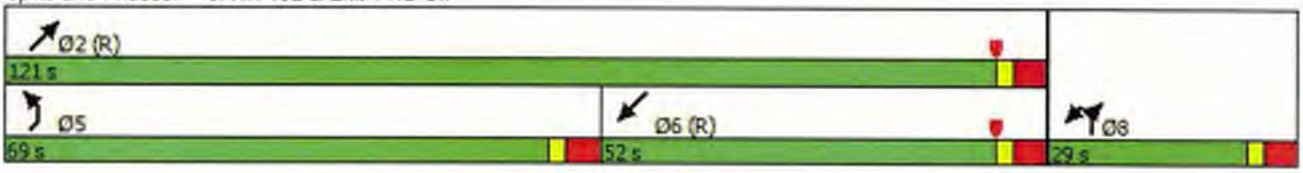
Lane Group	NBL2	NBL	NBR	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Detector 3 Type	CI+Ex		CI+Ex			CI+Ex	CI+Ex			CI+Ex	
Detector 3 Channel											
Detector 3 Extend (s)	0.0		0.0			0.0	0.0			0.0	
Turn Type	Prot		Prot			Prot	NA			NA	Free
Protected Phases	8		8			5	2			6	
Permitted Phases											Free
Detector Phase	8		2			5	2			6	
Switch Phase											
Minimum Initial (s)	10.0		10.0			5.0	8.0			8.0	
Minimum Split (s)	16.0		16.0			11.0	42.0			31.0	
Total Split (s)	29.0		29.0			69.0	121.0			52.0	
Total Split (%)	19.3%		19.3%			46.0%	80.7%			34.7%	
Maximum Green (s)	23.0		23.0			63.0	115.0			46.0	
Yellow Time (s)	2.0		2.0			2.0	2.0			2.0	
All-Red Time (s)	4.0		4.0			4.0	4.0			4.0	
Lost Time Adjust (s)	0.0		0.0			0.0	0.0			0.0	
Total Lost Time (s)	6.0		6.0			6.0	6.0			6.0	
Lead/Lag						Lead				Lag	
Lead-Lag Optimize?											
Vehicle Extension (s)	3.0		3.0			3.0	3.0			3.0	
Recall Mode	None		None			None	C-Min			C-Min	
Walk Time (s)							7.0			7.0	
Flash Dont Walk (s)							29.0			17.0	
Pedestrian Calls (#/hr)							0			0	
Act Effct Green (s)	23.0		23.0			63.0	115.0			46.0	150.0
Actuated g/C Ratio	0.15		0.15			0.42	0.77			0.31	1.00
v/c Ratio	1.04		0.85			1.03	0.04			1.00	0.26
Control Delay	111.4		81.0			49.1	8.1			79.3	0.4
Queue Delay	0.0		0.0			0.0	0.0			0.0	0.0
Total Delay	111.4		81.0			49.1	8.1			79.3	0.4
LOS	F		F			D	A			E	A
Approach Delay		99.3					46.0			57.6	
Approach LOS		F					D			E	
Queue Length 50th (ft)	~280		186			~434	21			~557	0
Queue Length 95th (ft)	#384		#264			m#791	m23			#713	0
Internal Link Dist (ft)		776		310			680			777	
Turn Bay Length (ft)						550					
Base Capacity (vph)	497		403			1400	2635			1074	1568
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	1.04		0.85			1.03	0.04			1.00	0.26

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 3 (2%), Referenced to phase 2:NET and 6:SWT, Start of Yellow
Natural Cycle: 140

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.04
Intersection Signal Delay: 62.1 Intersection LOS: E
Intersection Capacity Utilization 94.9% 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 8: NH 102 & Exit 4 NB Off



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱	↰	↑↑					↰↰		↱
Traffic Volume (vph)	0	575	470	280	730	0	0	0	0	105	0	360
Future Volume (vph)	0	575	470	280	730	0	0	0	0	105	0	360
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		350	0		0	0		0	0		0
Storage Lanes	0		1	1		0	0		0	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850									0.850
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	3167	1417	1687	3374	0	0	0	0	3303	0	1524
Flt Permitted				0.950						0.950		
Satd. Flow (perm)	0	3167	1417	1687	3374	0	0	0	0	3303	0	1524
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			511									112
Link Speed (mph)		30			30			30			35	
Link Distance (ft)		851			693			486			581	
Travel Time (s)		19.3			15.8			11.0			11.3	
Peak Hour Factor	0.92	0.92	0.92	0.73	0.73	0.73	0.92	0.92	0.92	0.74	0.74	0.74
Heavy Vehicles (%)	14%	14%	14%	7%	7%	7%	2%	2%	2%	6%	6%	6%
Adj. Flow (vph)	0	625	511	384	1000	0	0	0	0	142	0	486
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	625	511	384	1000	0	0	0	0	142	0	486
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Right	Right	Left	Left	Right	Left	Left	Right	R NA	Left	Right
Median Width(ft)		36			36			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		25	15		9	15		9	15		9
Number of Detectors		3	2	3	3					3		2
Detector Template		Thru	Right	Left	Thru					Left		
Leading Detector (ft)		256	131	256	256					256		206
Trailing Detector (ft)		-5	-5	-5	-5					-5		-5
Detector 1 Position(ft)		-5	-5	-5	-5					-5		-5
Detector 1 Size(ft)		50	50	50	50					50		50
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0					0.0		0.0
Detector 1 Queue (s)		0.0	0.0	0.0	0.0					0.0		0.0
Detector 1 Delay (s)		0.0	0.0	0.0	0.0					0.0		0.0
Detector 2 Position(ft)		125	125	125	125					125		200
Detector 2 Size(ft)		6	6	6	6					6		6
Detector 2 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex		Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0	0.0	0.0	0.0					0.0		0.0
Detector 3 Position(ft)		250		250	250					250		
Detector 3 Size(ft)		6		6	6					6		

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 3 Type		Cl+Ex		Cl+Ex	Cl+Ex					Cl+Ex		
Detector 3 Channel												
Detector 3 Extend (s)		0.0		0.0	0.0					0.0		
Turn Type		NA	Free	Prot	NA					Prot		Prot
Protected Phases		2		1	6					4		4
Permitted Phases			Free									
Detector Phase		2		1	6					4		4
Switch Phase												
Minimum Initial (s)		9.0		4.0	9.0					4.0		4.0
Minimum Split (s)		21.0		10.0	21.0					10.0		10.0
Total Split (s)		34.0		36.0	70.0					40.0		40.0
Total Split (%)		30.9%		32.7%	63.6%					36.4%		36.4%
Maximum Green (s)		28.0		30.0	64.0					34.0		34.0
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
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		0.0
Total Lost Time (s)		6.0		6.0	6.0					6.0		6.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)		5.0		3.0	5.0					3.0		3.0
Recall Mode		C-Min		None	C-Min					None		None
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		8.0			8.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)		31.7	110.0	28.1	65.7					32.3		32.3
Actuated g/C Ratio		0.29	1.00	0.26	0.60					0.29		0.29
v/c Ratio		0.69	0.36	0.89	0.50					0.15		0.92
Control Delay		40.6	0.7	35.2	1.8					28.5		53.7
Queue Delay		0.0	0.0	0.0	0.0					0.0		0.0
Total Delay		40.6	0.7	35.2	1.8					28.5		53.7
LOS		D	A	D	A					C		D
Approach Delay		22.7			11.0						48.0	
Approach LOS		C			B						D	
Queue Length 50th (ft)		216	0	47	16					37		260
Queue Length 95th (ft)		284	0	m40	13					50		287
Internal Link Dist (ft)		771			613			406			501	
Turn Bay Length (ft)			350									
Base Capacity (vph)		912	1417	460	2016					1020		548
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		0.69	0.36	0.83	0.50					0.14		0.89

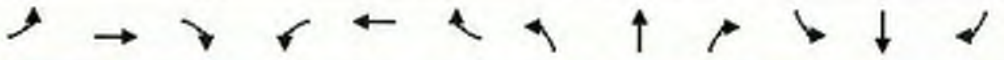
Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 58 (53%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle: 70

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 22.6 Intersection LOS: C
Intersection Capacity Utilization 71.3% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Exit 5 SB On/Exit 5 SB Off & NH 28

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	480	200	0	0	595	340	415	0	160	0	0	0
Future Volume (vph)	480	200	0	0	595	340	415	0	160	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850			0.850			
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1641	3282	0	0	3438	1538	1656	0	1482	0	0	0
Flt Permitted	0.950						0.950					
Satd. Flow (perm)	1641	3282	0	0	3438	1538	1656	0	1482	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						378			201			
Link Speed (mph)		30			30			35			30	
Link Distance (ft)		693			542			867			392	
Travel Time (s)		15.8			12.3			16.9			8.9	
Peak Hour Factor	0.87	0.87	0.87	0.90	0.90	0.90	0.78	0.78	0.78	0.92	0.92	0.92
Heavy Vehicles (%)	10%	10%	10%	5%	5%	5%	9%	9%	9%	2%	2%	2%
Adj. Flow (vph)	552	230	0	0	661	378	532	0	205	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	552	230	0	0	661	378	532	0	205	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Right	Right	Right	Left	Right	Left	Left	Right
Median Width(ft)		36			42			12			12	
Link Offset(ft)		0			0			0			36	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		25	15		9	15		9
Number of Detectors	3	3			3	2	3		0			
Detector Template	Left	Thru			Thru	Right	Left					
Leading Detector (ft)	256	256			256	131	256		0			
Trailing Detector (ft)	-5	-5			-5	-5	-5		0			
Detector 1 Position(ft)	-5	-5			-5	-5	-5		-5			
Detector 1 Size(ft)	50	50			50	50	50		50			
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Detector 1 Queue (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Detector 1 Delay (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Detector 2 Position(ft)	125	125			125	125	125					
Detector 2 Size(ft)	6	6			6	6	6					
Detector 2 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex					
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0			0.0	0.0	0.0					
Detector 3 Position(ft)	250	250			250		250					
Detector 3 Size(ft)	6	6			6		6					
Detector 3 Type	Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex					
Detector 3 Channel												
Detector 3 Extend (s)	0.0	0.0			0.0		0.0					



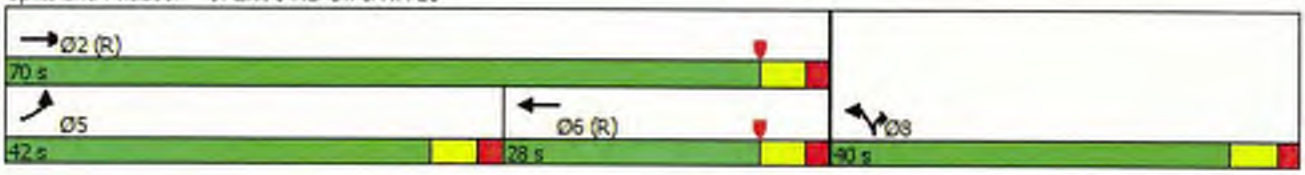
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA			NA	Free	Prot		Prot			
Protected Phases	5	2			6		8		8			
Permitted Phases		2			6	Free						
Detector Phase	5	2			6		8		8			
Switch Phase												
Minimum Initial (s)	4.0	16.0			16.0		4.0		4.0			
Minimum Split (s)	10.0	23.0			23.0		10.0		10.0			
Total Split (s)	42.0	70.0			28.0		40.0		40.0			
Total Split (%)	38.2%	63.6%			25.5%		36.4%		36.4%			
Maximum Green (s)	36.0	64.0			22.0		34.0		34.0			
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			
Lost Time Adjust (s)	0.0	0.0			0.0		0.0		0.0			
Total Lost Time (s)	6.0	6.0			6.0		6.0		6.0			
Lead/Lag	Lead				Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0			5.0		3.0		3.0			
Recall Mode	None	C-Min			C-Min		None		None			
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		10.0			10.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)	36.0	64.0			22.0	110.0	34.0		34.0			
Actuated g/C Ratio	0.33	0.58			0.20	1.00	0.31		0.31			
v/c Ratio	1.03	0.12			0.96	0.25	1.04		0.34			
Control Delay	54.7	1.6			70.4	0.4	88.9		6.0			
Queue Delay	0.0	0.0			0.0	0.0	0.0		0.0			
Total Delay	54.7	1.6			70.4	0.4	88.9		6.0			
LOS	D	A			E	A	F		A			
Approach Delay		39.1			44.9			65.9				
Approach LOS		D			D			E				
Queue Length 50th (ft)	~412	2			245	0	~407		2			
Queue Length 95th (ft)	#569	3			#363	0	#483		33			
Internal Link Dist (ft)		613			462			787			312	
Turn Bay Length (ft)												
Base Capacity (vph)	537	1909			687	1538	511		596			
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	1.03	0.12			0.96	0.25	1.04		0.34			

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow, Master Intersection
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.04
Intersection Signal Delay: 49.2 Intersection LOS: D

Intersection Capacity Utilization 71.3% ICU Level of Service C
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: Exit 5 NB Off & NH 28



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	10	0	170	0	0	0	100	450	5	5	1010	40
Future Volume (vph)	10	0	170	0	0	0	100	450	5	5	1010	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		225	0		0	350		0	100		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850					0.998			0.994	
Flt Protected		0.950					0.950			0.950		
Satd. Flow (prot)	0	1770	1583	0	1900	0	1770	3532	0	1770	3518	0
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	1863	1583	0	1900	0	1770	3532	0	1770	3518	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			185					2			5	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		593			447			750			330	
Travel Time (s)		13.5			10.2			17.0			7.5	
Peak Hour Factor	0.92	0.92	0.92	0.25	0.25	0.25	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	11	0	185	0	0	0	109	489	5	5	1098	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	11	185	0	0	0	109	494	0	5	1141	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	3	3	1	3	1		3	3		3	3	
Detector Template	Left	Thru	Right	Left			Left	Thru		Left	Thru	
Leading Detector (ft)	256	256	45	256	45		256	256		256	256	
Trailing Detector (ft)	-5	-5	-5	-5	-5		-5	-5		-5	-5	
Detector 1 Position(ft)	-5	-5	-5	-5	-5		-5	-5		-5	-5	
Detector 1 Size(ft)	50	50	50	50	50		50	50		50	50	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)	125	125		125			125	125		125	125	
Detector 2 Size(ft)	6	6		6			6	6		6	6	
Detector 2 Type	Cl+Ex	Cl+Ex		Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0		0.0			0.0	0.0		0.0	0.0	
Detector 3 Position(ft)	250	250		250			250	250		250	250	
Detector 3 Size(ft)	6	6		6			6	6		6	6	

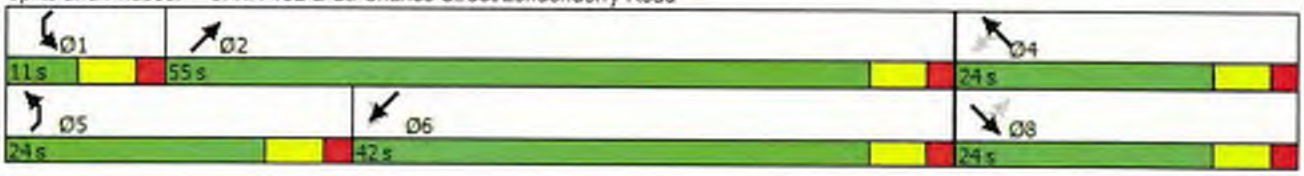
Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector 3 Type	Cl+Ex	Cl+Ex		Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 3 Channel												
Detector 3 Extend (s)	0.0	0.0		0.0			0.0	0.0		0.0	0.0	
Turn Type	Perm	NA	custom				Prot	NA		Prot	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8		6	4								
Detector Phase	8	8	6	4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	8.0	5.0	5.0		5.0	8.0		5.0	8.0	
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0		24.0	24.0		11.0	24.0	
Total Split (s)	24.0	24.0	42.0	24.0	24.0		24.0	55.0		11.0	42.0	
Total Split (%)	26.7%	26.7%	46.7%	26.7%	26.7%		26.7%	61.1%		12.2%	46.7%	
Maximum Green (s)	18.0	18.0	36.0	18.0	18.0		18.0	49.0		5.0	36.0	
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	
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.0	6.0		6.0		6.0	6.0		6.0	6.0	
Lead/Lag			Lag				Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	Min	None	None		None	Min		None	Min	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0			0	
Act Effct Green (s)		6.3	41.9				9.4	55.9		5.2	41.9	
Actuated g/C Ratio		0.10	0.69				0.15	0.92		0.09	0.69	
v/c Ratio		0.06	0.16				0.40	0.15		0.03	0.47	
Control Delay		27.8	2.1				29.5	2.3		29.6	8.4	
Queue Delay		0.0	0.0				0.0	0.0		0.0	0.0	
Total Delay		27.8	2.1				29.5	2.3		29.6	8.4	
LOS		C	A				C	A		C	A	
Approach Delay		3.5						7.2			8.5	
Approach LOS		A						A			A	
Queue Length 50th (ft)		3	0				34	0		2	91	
Queue Length 95th (ft)		19	30				89	74		13	270	
Internal Link Dist (ft)		513			367			670			250	
Turn Bay Length (ft)			225				350			100		
Base Capacity (vph)		568	1147				540	3288		150	2424	
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	0.16				0.20	0.15		0.03	0.47	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 60.9
Natural Cycle: 80
Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.47
Intersection Signal Delay: 7.6 Intersection LOS: A
Intersection Capacity Utilization 57.7% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 9: NH 102 & St. Charles Street/Londonderry Road



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	10	10	10	360	0	40	0	380	110	15	525	0
Future Volume (vph)	10	10	10	360	0	40	0	380	110	15	525	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.955			0.986			0.970				
Flt Protected		0.984			0.957						0.999	
Satd. Flow (prot)	0	1750	0	0	1741	0	0	1706	0	0	1808	0
Flt Permitted		0.844			0.711						0.980	
Satd. Flow (perm)	0	1501	0	0	1293	0	0	1706	0	0	1773	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17			36			22				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		356			493			1124			603	
Travel Time (s)		8.1			11.2			25.5			13.7	
Peak Hour Factor	0.60	0.60	0.60	0.96	0.96	0.96	0.89	0.89	0.89	0.86	0.86	0.86
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	8%	8%	8%	5%	5%	5%
Adj. Flow (vph)	17	17	17	375	0	42	0	427	124	17	610	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	51	0	0	417	0	0	551	0	0	627	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		-22			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	3	1		3	2			2		3	2	
Detector Template	Left			Left						Left		
Leading Detector (ft)	256	45		256	131			131		256	131	
Trailing Detector (ft)	-5	-5		-5	-5			-5		-5	-5	
Detector 1 Position(ft)	-5	-5		-5	-5			-5		-5	-5	
Detector 1 Size(ft)	50	50		50	50			50		50	50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Detector 2 Position(ft)	125			125	125			125		125	125	
Detector 2 Size(ft)	6			6	6			6		6	6	
Detector 2 Type	Cl+Ex			Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)	0.0			0.0	0.0			0.0		0.0	0.0	
Detector 3 Position(ft)	250			250						250		
Detector 3 Size(ft)	6			6						6		
Detector 3 Type	Cl+Ex			Cl+Ex						Cl+Ex		
Detector 3 Channel												
Detector 3 Extend (s)	0.0			0.0						0.0		

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Turn Type	Perm	NA		Perm	NA			NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4						2		
Detector Phase	4	4		4	4			2		2	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0			5.0		5.0	5.0	
Minimum Split (s)	24.0	24.0		24.0	24.0			24.0		24.0	24.0	
Total Split (s)	42.0	42.0		42.0	42.0			48.0		48.0	48.0	
Total Split (%)	46.7%	46.7%		46.7%	46.7%			53.3%		53.3%	53.3%	
Maximum Green (s)	36.0	36.0		36.0	36.0			42.0		42.0	42.0	
Yellow Time (s)	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	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		6.0			6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Recall Mode	None	None		None	None			Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0			0		0	0	
Act Effct Green (s)		27.9			27.9			34.8			34.8	
Actuated g/C Ratio		0.37			0.37			0.46			0.46	
v/c Ratio		0.09			0.83			0.69			0.77	
Control Delay		12.8			37.0			21.7			25.4	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		12.8			37.0			21.7			25.4	
LOS		B			D			C			C	
Approach Delay		12.8			37.0			21.7			25.4	
Approach LOS		B			D			C			C	
Queue Length 50th (ft)		11			182			207			258	
Queue Length 95th (ft)		20			#342			341			392	
Internal Link Dist (ft)		276			413			1044			523	
Turn Bay Length (ft)												
Base Capacity (vph)		771			675			1021			1052	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.07			0.62			0.54			0.60	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 75.5			
Natural Cycle: 55			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.83			
Intersection Signal Delay: 26.7		Intersection LOS: C	
Intersection Capacity Utilization 80.1%		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.

Splits and Phases: 10: NH 102 & Fordway/Madden Hill Road

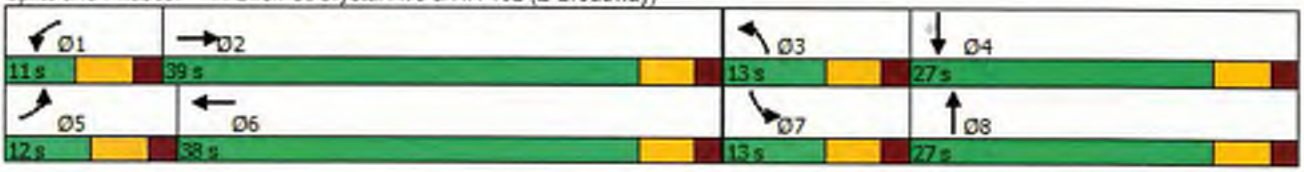
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	210	50	20	400	50	70	270	20	70	270	40
Future Volume (vph)	60	210	50	20	400	50	70	270	20	70	270	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	390		0	110		0	70		0	245		245
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.971			0.983			0.989				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1656	1693	0	1703	1762	0	1719	1790	0	1703	1792	1524
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1656	1693	0	1703	1762	0	1719	1790	0	1703	1792	1524
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		15			8			4				182
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		505			530			361			411	
Travel Time (s)		11.5			12.0			8.2			9.3	
Peak Hour Factor	0.96	0.96	0.96	0.94	0.94	0.94	0.85	0.85	0.85	0.91	0.91	0.91
Heavy Vehicles (%)	9%	9%	9%	6%	6%	6%	5%	5%	5%	6%	6%	6%
Parking (#/hr)			0									
Adj. Flow (vph)	63	219	52	21	426	53	82	318	24	77	297	44
Shared Lane Traffic (%)												
Lane Group Flow (vph)	63	271	0	21	479	0	82	342	0	77	297	44
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												4
Detector Phase	5	2		1	6		3	8		7	4	4
Switch Phase												
Minimum Initial (s)	4.0	5.0		4.0	10.0		4.0	10.0		4.0	9.0	9.0
Minimum Split (s)	10.0	30.0		10.0	30.0		10.0	25.0		10.0	25.0	25.0
Total Split (s)	12.0	39.0		11.0	38.0		13.0	27.0		13.0	27.0	27.0
Total Split (%)	13.3%	43.3%		12.2%	42.2%		14.4%	30.0%		14.4%	30.0%	30.0%
Maximum Green (s)	6.0	33.0		5.0	32.0		7.0	21.0		7.0	21.0	21.0
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
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	Lag
Lead-Lag Optimize?	Yes	Yes		Yes	Yes		Yes	Yes		Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Min		None	Min		Min	None		Min	None	None
Walk Time (s)		7.0			7.0			7.0			7.0	7.0
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	11.0
Pedestrian Calls (#/hr)		10			10			0			10	10
Act Effct Green (s)	6.2	30.7		5.3	25.7		7.0	18.5		7.0	18.5	18.5
Actuated g/C Ratio	0.08	0.39		0.07	0.33		0.09	0.23		0.09	0.23	0.23
v/c Ratio	0.48	0.41		0.19	0.83		0.54	0.81		0.51	0.71	0.09
Control Delay	53.8	19.7		44.2	38.6		53.6	46.9		52.3	40.4	0.3

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	53.8	19.7		44.2	38.6		53.6	46.9		52.3	40.4	0.3
LOS	D	B		D	D		D	D		D	D	A
Approach Delay		26.2			38.9			46.2			38.4	
Approach LOS		C			D			D			D	
Queue Length 50th (ft)	34	84		11	233		44	174		41	149	0
Queue Length 95th (ft)	#91	177		35	#359		#99	#290		#101	#254	0
Internal Link Dist (ft)		425			450			281			331	
Turn Bay Length (ft)	390			110			70			245		245
Base Capacity (vph)	132	792		113	755		160	503		158	501	557
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	0.48	0.34		0.19	0.63		0.51	0.68		0.49	0.59	0.08

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 79
Natural Cycle: 75
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 38.6 Intersection LOS: D
Intersection Capacity Utilization 66.7% 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.

Splits and Phases: 7: Birch St/Crystal Ave & NH 102 (E Broadway)



Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	20	220	115	345	270	0	190	280	20	40	370	530
Future Volume (vph)	20	220	115	345	270	0	190	280	20	40	370	530
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	110		90	360		0	190		180	0		210
Storage Lanes	1		1	2		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850						0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1736	3471	1553	3335	3438	0	1752	1845	1568	1752	1845	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1736	3471	1553	3335	3438	0	1752	1845	1568	1752	1845	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			327						400			182
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		639			476			532			387	
Travel Time (s)		14.5			10.8			12.1			8.8	
Peak Hour Factor	0.84	0.84	0.84	0.79	0.79	0.79	0.86	0.86	0.86	0.99	0.99	0.99
Heavy Vehicles (%)	4%	4%	4%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Adj. Flow (vph)	24	262	137	437	342	0	221	326	23	40	374	535
Shared Lane Traffic (%)												
Lane Group Flow (vph)	24	262	137	437	342	0	221	326	23	40	374	535
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Free	Prot	NA	pt+ov
Protected Phases	5	2		1	6		7	4		3	8	8 1
Permitted Phases		2	2		6			4	Free		8	
Detector Phase	5	2	2	1	6		7	4		3	8	8 1
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0		6.0	8.0		7.0	8.0	
Minimum Split (s)	14.0	21.0	21.0	14.0	21.0		12.0	21.0		13.0	21.0	
Total Split (s)	14.0	23.0	23.0	21.0	30.0		20.0	33.0		13.0	26.0	
Total Split (%)	15.6%	25.6%	25.6%	23.3%	33.3%		22.2%	36.7%		14.4%	28.9%	
Maximum Green (s)	8.0	17.0	17.0	15.0	24.0		14.0	27.0		7.0	20.0	
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	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	Max	C-Max	C-Max	None	Max		None	None		None	None	
Walk Time (s)		5.0	5.0		5.0			5.0			5.0	
Flash Dont Walk (s)		10.0	10.0		10.0			10.0			10.0	
Pedestrian Calls (#/hr)		0	0		0			0			0	
Act Effct Green (s)	8.6	18.1	18.1	14.6	24.0		13.5	31.6	90.0	7.0	19.9	40.4
Actuated g/C Ratio	0.10	0.20	0.20	0.16	0.27		0.15	0.35	1.00	0.08	0.22	0.45
v/c Ratio	0.14	0.38	0.24	0.81	0.37		0.84	0.50	0.01	0.29	0.92	0.67
Control Delay	40.2	33.5	1.0	45.9	20.2		65.1	27.9	0.0	45.2	64.3	17.0
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Total Delay	40.2	33.5	1.0	45.9	20.2		65.1	27.9	0.0	45.2	64.3	17.0
LOS	D	C	A	D	C		E	C	A	D	E	B
Approach Delay		23.3			34.6			41.2			36.8	
Approach LOS		C			C			D			D	
Queue Length 50th (ft)	13	69	0	91	85		123	157	0	22	208	149
Queue Length 95th (ft)	35	98	0	131	61		#223	230	0	54	#374	265
Internal Link Dist (ft)		559			396			452			307	
Turn Bay Length (ft)	110		90	360			190		180			210
Base Capacity (vph)	166	696	572	555	916		272	647	1568	136	410	795
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.38	0.24	0.79	0.37		0.81	0.50	0.01	0.29	0.91	0.67

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 30 (33%), Referenced to phase 2:NBT, Start of Yellow
Natural Cycle: 80
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 35.0 Intersection LOS: D
Intersection Capacity Utilization 66.5% 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.

Splits and Phases: 11: Folsom Rd/Tsienneto Rd & Crystal Av/NH 28

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	30	825	0	0	830	40	5	0	5	10	0	40
Future Volume (vph)	30	825	0	0	830	40	5	0	5	10	0	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	110		0	115		150	0		0	0		0
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	50			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.993				0.850			0.850
Flt Protected	0.950							0.950			0.950	
Satd. Flow (prot)	1687	3374	0	1863	3514	0	0	1805	1615	0	1787	1599
Flt Permitted	0.950							0.976			0.976	
Satd. Flow (perm)	1687	3374	0	1863	3514	0	0	1854	1615	0	1836	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					6				109			109
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		277			671			218			433	
Travel Time (s)		6.3			15.3			5.0			9.8	
Peak Hour Factor	0.83	0.83	0.83	0.92	0.92	0.92	0.50	0.50	0.50	0.90	0.90	0.90
Heavy Vehicles (%)	7%	7%	7%	2%	2%	2%	0%	0%	0%	1%	1%	1%
Adj. Flow (vph)	36	994	0	0	902	43	10	0	10	11	0	44
Shared Lane Traffic (%)												
Lane Group Flow (vph)	36	994	0	0	945	0	0	10	10	0	11	44
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases					6		8	8	8	4		4
Detector Phase	5	2		1	6		8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	8.0	8.0		5.0	8.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	14.0	46.0		11.0	43.0		33.0	33.0	33.0	33.0	33.0	33.0
Total Split (s)	14.0	46.0		11.0	43.0		33.0	33.0	33.0	33.0	33.0	33.0
Total Split (%)	15.6%	51.1%		12.2%	47.8%		36.7%	36.7%	36.7%	36.7%	36.7%	36.7%
Maximum Green (s)	8.0	40.0		5.0	37.0		27.0	27.0	27.0	27.0	27.0	27.0
Yellow Time (s)	4.0	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	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0		6.0	6.0			6.0	6.0		6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max		None	None		None	None	None	None	None	None
Act Effct Green (s)	8.4	78.7			69.8			6.3	6.3		6.3	6.3
Actuated g/C Ratio	0.09	0.87			0.78			0.07	0.07		0.07	0.07
v/c Ratio	0.23	0.34			0.35			0.08	0.05		0.09	0.21
Control Delay	47.1	1.4			5.2			39.8	0.4		40.0	2.2
Queue Delay	0.0	0.0			0.0			0.0	0.0		0.0	0.0
Total Delay	47.1	1.4			5.2			39.8	0.4		40.0	2.2
LOS	D	A			A			D	A		D	A
Approach Delay		3.0			5.2			20.1			9.7	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Approach LOS		A			A			C			A	
Queue Length 50th (ft)	22	33			118			6	0		6	0
Queue Length 95th (ft)	m47	42			179			12	0		22	0
Internal Link Dist (ft)		197			591			138			353	
Turn Bay Length (ft)	110											
Base Capacity (vph)	157	2949			2728			556	560		550	556
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	0.34			0.35			0.02	0.02		0.02	0.08

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 13 (14%), Referenced to phase 2:EBT, Start of Yellow	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.35	
Intersection Signal Delay: 4.4	Intersection LOS: A
Intersection Capacity Utilization 47.5%	ICU Level of Service A
Analysis Period (min) 15	

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

Splits and Phases: 13: Applebees/Linlew Dr & NH 28

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	420	830	5	5	875	60	10	5	5	60	5	400
Future Volume (vph)	420	830	5	5	875	60	10	5	5	60	5	400
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	205		150	0		0	0		220
Storage Lanes	2		0	1		0	1		0	0		1
Taper Length (ft)	200			25			25			25		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.990			0.925				0.850
Flt Protected	0.950			0.950			0.950				0.956	
Satd. Flow (prot)	3303	3402	0	1736	3436	0	1805	1758	0	0	1763	1568
Flt Permitted	0.950			0.950			0.709				0.733	
Satd. Flow (perm)	3303	3402	0	1736	3436	0	1347	1758	0	0	1352	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			10			7				68
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		412			486			151			446	
Travel Time (s)		9.4			11.0			3.4			10.1	
Peak Hour Factor	0.83	0.83	0.83	0.97	0.97	0.97	0.67	0.67	0.67	0.90	0.90	0.90
Heavy Vehicles (%)	6%	6%	6%	4%	4%	4%	0%	0%	0%	3%	3%	3%
Adj. Flow (vph)	506	1000	6	5	902	62	15	7	7	67	6	444
Shared Lane Traffic (%)												
Lane Group Flow (vph)	506	1006	0	5	964	0	15	14	0	0	73	444
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	pt+ov
Protected Phases	5	2		1	6			8			4	4 5
Permitted Phases							8	8		4		
Detector Phase	5	2		1	6		8	8		4	4	4 5
Switch Phase												
Minimum Initial (s)	5.0	8.0		5.0	8.0		5.0	5.0		8.0	8.0	
Minimum Split (s)	14.0	53.0		11.0	22.0		22.0	22.0		22.0	22.0	
Total Split (s)	23.0	57.0		11.0	45.0		22.0	22.0		22.0	22.0	
Total Split (%)	25.6%	63.3%		12.2%	50.0%		24.4%	24.4%		24.4%	24.4%	
Maximum Green (s)	17.0	51.0		5.0	39.0		16.0	16.0		16.0	16.0	
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	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0			6.0	
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	C-Min		None	Min		None	None		None	None	
Walk Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)		11.0			11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	16.7	58.0		5.2	37.5		17.8	17.8			17.8	40.5
Actuated g/C Ratio	0.19	0.64		0.06	0.42		0.20	0.20			0.20	0.45
v/c Ratio	0.83	0.46		0.05	0.67		0.06	0.04			0.27	0.60
Control Delay	48.2	9.5		33.2	23.0		30.2	22.0			33.6	19.4
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	48.2	9.5		33.2	23.0		30.2	22.0			33.6	19.4
LOS	D	A		C	C		C	C			C	B
Approach Delay		22.5			23.0			26.2			21.4	
Approach LOS		C			C			C			C	
Queue Length 50th (ft)	143	144		0	184		7	3			33	139
Queue Length 95th (ft)	180	198		m8	177		18	14			77	262
Internal Link Dist (ft)		332			406			71			366	
Turn Bay Length (ft)	200			205								220
Base Capacity (vph)	631	2192		100	1529		271	360			272	737
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	0.46		0.05	0.63		0.06	0.04			0.27	0.60

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 0 (0%), Referenced to phase 2:EBT, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.83
Intersection Signal Delay: 22.5 Intersection LOS: C
Intersection Capacity Utilization 70.0% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 22: VIP Dr/Connector Rd & NH 28

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	55	1775	1590	220	90	95
Future Volume (vph)	55	1775	1590	220	90	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200			150	360	0
Storage Lanes	1			1	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3539	1583	1770	1583
Flt Permitted	0.077				0.950	
Satd. Flow (perm)	143	3539	3539	1583	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				239		24
Link Speed (mph)		30	30		30	
Link Distance (ft)		463	580		704	
Travel Time (s)		10.5	13.2		16.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	60	1929	1728	239	98	103
Shared Lane Traffic (%)						
Lane Group Flow (vph)	60	1929	1728	239	98	103
Turn Type	pm+pt	NA	NA	pm+ov	Prot	pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases	2			6		4
Detector Phase	5	2	6	4	4	5
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	20.0	20.0	11.0	11.0	11.0
Total Split (s)	11.0	66.0	55.0	14.0	14.0	11.0
Total Split (%)	13.8%	82.5%	68.8%	17.5%	17.5%	13.8%
Maximum Green (s)	5.0	60.0	49.0	8.0	8.0	5.0
Yellow Time (s)	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
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None
Act Effct Green (s)	54.0	54.0	45.8	61.3	7.6	18.9
Actuated g/C Ratio	0.73	0.73	0.62	0.83	0.10	0.26
v/c Ratio	0.28	0.75	0.79	0.18	0.54	0.24
Control Delay	5.8	7.9	14.5	0.6	46.1	21.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.8	7.9	14.5	0.6	46.1	21.6
LOS	A	A	B	A	D	C
Approach Delay		7.9	12.8		33.5	
Approach LOS		A	B		C	

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Queue Length 50th (ft)	6	217	308	0	48	32
Queue Length 95th (ft)	14	269	405	11	#103	73
Internal Link Dist (ft)		383	500		624	
Turn Bay Length (ft)	200			150	360	
Base Capacity (vph)	217	2848	2409	1332	197	423
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	0.28	0.68	0.72	0.18	0.50	0.24

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 74
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.79
Intersection Signal Delay: 11.4 — Intersection LOS: B
Intersection Capacity Utilization 64.1% — 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.

Splits and Phases: 25: NH 28 & Rockingham Road

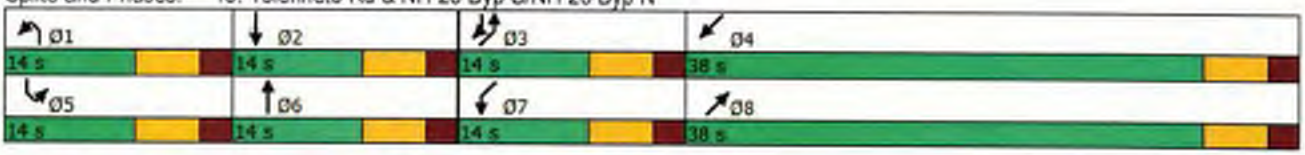
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	30	50	20	10	40	90	20	230	90	70	280	40
Future Volume (vph)	30	50	20	10	40	90	20	230	90	70	280	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		150	190		190	135		0	120		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.958				0.850		0.958			0.981	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1767	0	1736	1827	1553	1770	1785	0	1787	1845	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1752	1767	0	1736	1827	1553	1770	1785	0	1787	1845	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		20				123		29			11	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		481			347			479			371	
Travel Time (s)		10.9			7.9			10.9			8.4	
Peak Hour Factor	0.82	0.82	0.82	0.81	0.81	0.81	0.68	0.68	0.68	0.78	0.78	0.78
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	2%	2%	2%	1%	1%	1%
Adj. Flow (vph)	37	61	24	12	49	111	29	338	132	90	359	51
Shared Lane Traffic (%)												
Lane Group Flow (vph)	37	85	0	12	49	111	29	470	0	90	410	0
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA		Prot	NA	
Protected Phases	1	6		5	2	3	3	8		7	4	
Permitted Phases						2						
Detector Phase	1	6		5	2	3	3	8		7	4	
Switch Phase												
Minimum Initial (s)	8.0	8.0		8.0	8.0	8.0	8.0	8.0		8.0	8.0	
Minimum Split (s)	14.0	14.0		14.0	14.0	14.0	14.0	20.0		14.0	20.0	
Total Split (s)	14.0	14.0		14.0	14.0	14.0	14.0	38.0		14.0	38.0	
Total Split (%)	17.5%	17.5%		17.5%	17.5%	17.5%	17.5%	47.5%		17.5%	47.5%	
Maximum Green (s)	8.0	8.0		8.0	8.0	8.0	8.0	32.0		8.0	32.0	
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	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	Max	None	None	None		None	None	
Act Effct Green (s)	9.1	11.3		9.1	9.1	25.0	9.1	20.9		9.1	20.9	
Actuated g/C Ratio	0.16	0.19		0.16	0.16	0.43	0.16	0.36		0.16	0.36	
v/c Ratio	0.14	0.24		0.04	0.17	0.15	0.11	0.71		0.32	0.61	
Control Delay	31.0	23.2		30.9	31.1	4.7	30.9	23.1		33.1	20.6	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	31.0	23.2		30.9	31.1	4.7	30.9	23.1		33.1	20.6	
LOS	C	C		C	C	A	C	C		C	C	
Approach Delay		25.6			14.1			23.6			22.9	

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Approach LOS		C			B			C			C	
Queue Length 50th (ft)	11	20		4	15	0	9	115		29	99	
Queue Length 95th (ft)	41	66		19	50	23	29	179		76	192	
Internal Link Dist (ft)		401			267			399			291	
Turn Bay Length (ft)	200			190		190	135			120		
Base Capacity (vph)	274	357		271	285	737	276	1094		279	1124	
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	0.14	0.24		0.04	0.17	0.15	0.11	0.43		0.32	0.36	

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 58.2
Natural Cycle: 65
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.71
Intersection Signal Delay: 22.2 — Intersection LOS: C
Intersection Capacity Utilization 47.6% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 18: Tsienneto Rd & NH 28 Byp S/NH 28 Byp N



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	350	5	10	380	10	5	50	10	10	50	50
Future Volume (vph)	50	350	5	10	380	10	5	50	10	10	50	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	275		0	75		100	75		0	210		210
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.998			0.996			0.975				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1859	0	1770	1855	0	1770	1816	0	1770	1863	1583
Flt Permitted	0.297			0.476			0.722			0.715		
Satd. Flow (perm)	553	1859	0	887	1855	0	1345	1816	0	1332	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			2			11				54
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		314			303			290			341	
Travel Time (s)		7.1			6.9			6.6			7.8	
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
Adj. Flow (vph)	54	380	5	11	413	11	5	54	11	11	54	54
Shared Lane Traffic (%)												
Lane Group Flow (vph)	54	385	0	11	424	0	5	65	0	11	54	54
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4		3	8			2			6	7
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		3	8		2	2		6	6	7
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	11.0	28.0		11.0	28.0		28.0	28.0		28.0	28.0	11.0
Total Split (s)	11.0	31.0		11.0	31.0		28.0	28.0		28.0	28.0	11.0
Total Split (%)	15.7%	44.3%		15.7%	44.3%		40.0%	40.0%		40.0%	40.0%	15.7%
Maximum Green (s)	5.0	25.0		5.0	25.0		22.0	22.0		22.0	22.0	5.0
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
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	None		None	None		Max	Max		Max	Max	None
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		15.0			15.0		15.0	15.0		15.0	15.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	25.9	25.0		22.5	18.7		22.6	22.6		22.6	22.6	33.9
Actuated g/C Ratio	0.42	0.40		0.36	0.30		0.37	0.37		0.37	0.37	0.55
v/c Ratio	0.16	0.51		0.03	0.75		0.01	0.10		0.02	0.08	0.06
Control Delay	10.2	16.8		8.9	29.1		16.4	14.6		16.4	16.5	3.5
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	10.2	16.8		8.9	29.1		16.4	14.6		16.4	16.5	3.5

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	B	B		A	C		B	B		B	B	A
Approach Delay		16.0			28.6			14.7			10.6	
Approach LOS		B			C			B			B	
Queue Length 50th (ft)	11	94		2	148		1	14		3	14	0
Queue Length 95th (ft)	27	213		9	239		8	42		14	40	17
Internal Link Dist (ft)		234			223			210			261	
Turn Bay Length (ft)	275			75			75			210		210
Base Capacity (vph)	332	871		395	770		490	669		486	680	891
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	0.16	0.44		0.03	0.55		0.01	0.10		0.02	0.08	0.06

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 61.9
Natural Cycle: 70
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.75
Intersection Signal Delay: 20.4 — Intersection LOS: C
Intersection Capacity Utilization 47.0% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 23: NH 28 Byp N & Connector Road

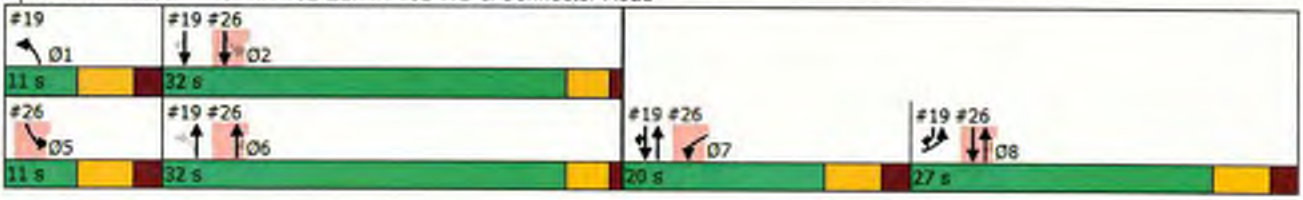
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2	Ø5	Ø6	Ø7
Lane Configurations										
Traffic Volume (vph)	450	0	20	60	170	580				
Future Volume (vph)	450	0	20	60	170	580				
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900				
Storage Length (ft)	0	0	120			90				
Storage Lanes	1	0	1			1				
Taper Length (ft)	25		25							
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00				
Frt						0.850				
Flt Protected	0.950		0.950							
Satd. Flow (prot)	1770	0	1626	1712	1863	1583				
Flt Permitted	0.950		0.580							
Satd. Flow (perm)	1770	0	993	1712	1863	1583				
Right Turn on Red		Yes				Yes				
Satd. Flow (RTOR)						707				
Link Speed (mph)	30			30	30					
Link Distance (ft)	472			739	258					
Travel Time (s)	10.7			16.8	5.9					
Peak Hour Factor	0.94	0.94	0.91	0.91	0.82	0.82				
Heavy Vehicles (%)	2%	2%	11%	11%	2%	2%				
Adj. Flow (vph)	479	0	22	66	207	707				
Shared Lane Traffic (%)										
Lane Group Flow (vph)	479	0	22	66	207	707				
Turn Type	Prot		pm+pt	NA	NA	custom				
Protected Phases	8		1	6 7	2 7	7 8	2	5	6	7
Permitted Phases			6 7			2				
Detector Phase	8		1	6 7	2 7	7 8				
Switch Phase										
Minimum Initial (s)	5.0		5.0				5.0	5.0	5.0	5.0
Minimum Split (s)	26.5		11.0				9.0	11.0	9.0	11.0
Total Split (s)	27.0		11.0				32.0	11.0	32.0	20.0
Total Split (%)	30.0%		12.2%				36%	12%	36%	22%
Maximum Green (s)	21.0		5.0				28.0	5.0	28.0	14.0
Yellow Time (s)	4.0		4.0				3.0	4.0	3.0	4.0
All-Red Time (s)	2.0		2.0				1.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0		0.0							
Total Lost Time (s)	6.0		6.0							
Lead/Lag	Lag		Lead				Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes		Yes				Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0		3.0				3.0	3.0	3.0	3.0
Recall Mode	None		None				Min	None	Min	None
Act Effct Green (s)	22.0		34.0	35.3	33.5	63.9				
Actuated g/C Ratio	0.32		0.49	0.51	0.48	0.92				
v/c Ratio	0.86		0.04	0.08	0.23	0.47				
Control Delay	44.3		7.2	8.7	11.8	1.3				
Queue Delay	0.0		0.0	0.0	0.7	0.1				
Total Delay	44.3		7.2	8.7	12.5	1.4				
LOS	D		A	A	B	A				
Approach Delay	44.3			8.3	3.9					

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2	Ø5	Ø6	Ø7
Approach LOS	D			A	A					
Queue Length 50th (ft)	167		4	12	54	0				
Queue Length 95th (ft)	#513		13	37	87	17				
Internal Link Dist (ft)	392			659	178					
Turn Bay Length (ft)			120			90				
Base Capacity (vph)	560		533	946	980	1493				
Starvation Cap Reductn	0		0	0	509	120				
Spillback Cap Reductn	0		0	0	0	0				
Storage Cap Reductn	0		0	0	0	0				
Reduced v/c Ratio	0.86		0.04	0.07	0.44	0.51				

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 69.4
Natural Cycle: 65
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 17.2 — Intersection LOS: B
Intersection Capacity Utilization 49.7% — ICU Level of Service A
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 19: NH 102 EB/NH 102 WB & Connector Road



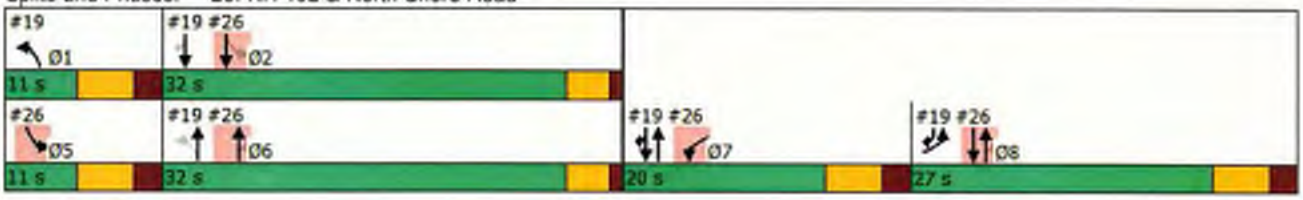
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø1	Ø2	Ø6	Ø8
Lane Configurations										
Traffic Volume (vph)	70	10	460	50	10	680				
Future Volume (vph)	70	10	460	50	10	680				
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900				
Storage Length (ft)	0	0		90	100					
Storage Lanes	1	0		1	1					
Taper Length (ft)	25				25					
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00				
Frt	0.979			0.850						
Flt Protected	0.960				0.950					
Satd. Flow (prot)	1771	0	1900	1615	1805	1900				
Flt Permitted	0.960				0.257					
Satd. Flow (perm)	1771	0	1900	1615	488	1900				
Right Turn on Red		Yes		Yes						
Satd. Flow (RTOR)	9			53						
Link Speed (mph)	30		30			30				
Link Distance (ft)	524		258			288				
Travel Time (s)	11.9		5.9			6.5				
Peak Hour Factor	0.87	0.67	0.95	0.84	0.73	0.96				
Heavy Vehicles (%)	1%	0%	0%	0%	0%	0%				
Adj. Flow (vph)	80	15	484	60	14	708				
Shared Lane Traffic (%)										
Lane Group Flow (vph)	95	0	484	60	14	708				
Turn Type	Prot		NA	Perm	custom	NA				
Protected Phases	7		6 8		5	2 8	1	2	6	8
Permitted Phases				6 8	2					
Detector Phase	7		6 8	6 8	5	2 8				
Switch Phase										
Minimum Initial (s)	5.0				5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	11.0				11.0		11.0	9.0	9.0	26.5
Total Split (s)	20.0				11.0		11.0	32.0	32.0	27.0
Total Split (%)	22.2%				12.2%		12%	36%	36%	30%
Maximum Green (s)	14.0				5.0		5.0	28.0	28.0	21.0
Yellow Time (s)	4.0				4.0		4.0	3.0	3.0	4.0
All-Red Time (s)	2.0				2.0		2.0	1.0	1.0	2.0
Lost Time Adjust (s)	0.0				0.0					
Total Lost Time (s)	6.0				6.0					
Lead/Lag	Lead				Lead		Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes				Yes		Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0				3.0		3.0	3.0	3.0	3.0
Recall Mode	None				None		None	Min	Min	None
Act Effct Green (s)	11.6		45.1	45.1	15.1	42.6				
Actuated g/C Ratio	0.17		0.65	0.65	0.22	0.61				
v/c Ratio	0.31		0.39	0.06	0.07	0.61				
Control Delay	29.8		3.4	0.7	18.1	9.3				
Queue Delay	0.0		0.2	0.0	0.0	0.0				
Total Delay	29.8		3.5	0.7	18.1	9.3				
LOS	C		A	A	B	A				
Approach Delay	29.8		3.2			9.5				

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø1	Ø2	Ø6	Ø8
Approach LOS	C		A			A				
Queue Length 50th (ft)	28		7	0	5	135				
Queue Length 95th (ft)	87		m79	m0	13	209				
Internal Link Dist (ft)	444		178			208				
Turn Bay Length (ft)				90	100					
Base Capacity (vph)	380		1552	1329	205	1515				
Starvation Cap Reductn	0		403	0	0	0				
Spillback Cap Reductn	0		0	0	0	0				
Storage Cap Reductn	0		0	0	0	0				
Reduced v/c Ratio	0.25		0.42	0.05	0.07	0.47				

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 69.4
Natural Cycle: 65
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 8.4 Intersection LOS: A
Intersection Capacity Utilization 48.6% ICU Level of Service A
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 26: NH 102 & North Shore Road



APPENDIX Q-4: ALTERNATIVE C INTERSECTION CAPACITY ANALYSES – SYNCHRO PRINTSOUTS – PM PEAK HOUR

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↰	↱↱
Traffic Volume (vph)	0	1255	1330	0	125	1325
Future Volume (vph)	0	1255	1330	0	125	1325
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	16	12
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	0.88
Frt						0.850
Flt Protected					0.950	
Satd. Flow (prot)	0	3471	3406	0	1930	2682
Flt Permitted					0.950	
Satd. Flow (perm)	0	3471	3406	0	1930	2682
Right Turn on Red				Yes		No
Satd. Flow (RTOR)						
Link Speed (mph)		30	30		25	
Link Distance (ft)		712	388		212	
Travel Time (s)		16.2	8.8		5.8	
Peak Hour Factor	0.93	0.93	0.88	0.88	0.89	0.89
Heavy Vehicles (%)	4%	4%	6%	6%	6%	6%
Adj. Flow (vph)	0	1349	1511	0	140	1489
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1349	1511	0	140	1489
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(ft)		24	24		16	
Link Offset(ft)		0	0		0	
Crosswalk Width(ft)		16	16		16	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	0.85	1.00
Turning Speed (mph)	15			9	15	9
Number of Detectors		3	3		3	3
Detector Template		Thru	Thru		Left	
Leading Detector (ft)		256	256		256	256
Trailing Detector (ft)		-5	-5		-5	-5
Detector 1 Position(ft)		-5	-5		-5	-5
Detector 1 Size(ft)		50	50		50	50
Detector 1 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)		0.0	0.0		0.0	0.0
Detector 1 Queue (s)		0.0	0.0		0.0	0.0
Detector 1 Delay (s)		0.0	0.0		0.0	0.0
Detector 2 Position(ft)		125	125		125	125
Detector 2 Size(ft)		6	6		6	6
Detector 2 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0		0.0	0.0
Detector 3 Position(ft)		250	250		250	250
Detector 3 Size(ft)		6	6		6	6
Detector 3 Type		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex
Detector 3 Channel						

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Detector 3 Extend (s)		0.0	0.0		0.0	0.0
Turn Type		NA	NA		Prot	Prot
Protected Phases		2	6		4	4
Permitted Phases						
Detector Phase		2	6		4	4
Switch Phase						
Minimum Initial (s)		8.0	8.0		5.0	5.0
Minimum Split (s)		14.0	21.0		27.0	27.0
Total Split (s)		63.0	63.0		77.0	77.0
Total Split (%)		45.0%	45.0%		55.0%	55.0%
Maximum Green (s)		57.0	57.0		71.0	71.0
Yellow Time (s)		2.0	2.0		2.0	2.0
All-Red Time (s)		4.0	4.0		4.0	4.0
Lost Time Adjust (s)		0.0	0.0		0.0	0.0
Total Lost Time (s)		6.0	6.0		6.0	6.0
Lead/Lag						
Lead-Lag Optimize?						
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Recall Mode		C-Min	C-Min		None	None
Walk Time (s)			7.0		7.0	7.0
Flash Dont Walk (s)			8.0		14.0	14.0
Pedestrian Calls (#/hr)			0		0	0
Act Effct Green (s)		57.0	57.0		71.0	71.0
Actuated g/C Ratio		0.41	0.41		0.51	0.51
v/c Ratio		0.95	1.09		0.14	1.09
Control Delay		40.2	50.4		18.8	88.1
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		40.2	50.4		18.8	88.1
LOS		D	D		B	F
Approach Delay		40.2	50.4		82.1	
Approach LOS		D	D		F	
Queue Length 50th (ft)		494	~818		66	~868
Queue Length 95th (ft)		m#739	m#55		105	#1000
Internal Link Dist (ft)		632	308		132	
Turn Bay Length (ft)						
Base Capacity (vph)		1413	1386		978	1360
Starvation Cap Reductn		0	0		0	0
Spillback Cap Reductn		0	0		0	0
Storage Cap Reductn		0	0		0	0
Reduced v/c Ratio		0.95	1.09		0.14	1.09

Intersection Summary	
Area Type:	Other
Cycle Length: 140	
Actuated Cycle Length: 140	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow, Master Intersection	
Natural Cycle: 140	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.09	

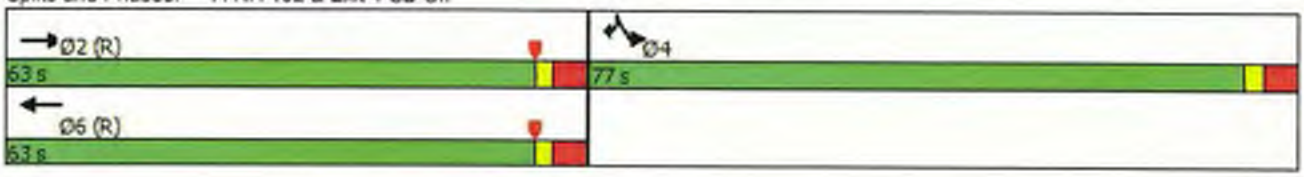
Intersection Signal Delay: 58.9 Intersection LOS: E
Intersection Capacity Utilization 95.1% ICU Level of Service F
Analysis Period (min) 15

~ 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.

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

Splits and Phases: 7: NH 102 & Exit 4 SB Off



Lane Group	NBL2	NBL	NBR	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Traffic Volume (vph)	1250	0	910	0	0	1085	295	0	0	420	240
Future Volume (vph)	1250	0	910	0	0	1085	295	0	0	420	240
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	0	0	0	550		0	0		0
Storage Lanes		2	2	0	0	2		0	0		1
Taper Length (ft)		25		25		25			25		
Lane Util. Factor	0.97	1.00	0.88	1.00	1.00	0.97	0.95	1.00	1.00	0.95	1.00
Frt			0.850								0.850
Flt Protected	0.950					0.950					
Satd. Flow (prot)	3242	0	2632	0	0	3335	3438	0	0	3505	1568
Flt Permitted	0.950					0.950					
Satd. Flow (perm)	3242	0	2632	0	0	3335	3438	0	0	3505	1568
Right Turn on Red			No					Yes			Yes
Satd. Flow (RTOR)											261
Link Speed (mph)		25		30			30			30	
Link Distance (ft)		856		390			760			857	
Travel Time (s)		23.3		8.9			17.3			19.5	
Peak Hour Factor	0.88	0.88	0.88	0.92	0.92	0.94	0.94	0.94	0.92	0.92	0.92
Heavy Vehicles (%)	8%	8%	8%	2%	2%	5%	5%	5%	3%	3%	3%
Adj. Flow (vph)	1420	0	1034	0	0	1154	314	0	0	457	261
Shared Lane Traffic (%)											
Lane Group Flow (vph)	1420	0	1034	0	0	1154	314	0	0	457	261
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Right	Left	Left	Right	Left	Right	Right
Median Width(ft)		24		0			24			24	
Link Offset(ft)		12		0			0			0	
Crosswalk Width(ft)		16		16			16			16	
Two way Left Turn Lane											
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15	15	25	15	9	15		9	15		25
Number of Detectors	3		3			3	3			3	0
Detector Template											
Leading Detector (ft)	256		256			256	256			256	0
Trailing Detector (ft)	-5		-5			-5	-5			-5	0
Detector 1 Position(ft)	-5		-5			-5	-5			-5	-5
Detector 1 Size(ft)	55		55			55	55			55	50
Detector 1 Type	Cl+Ex		Cl+Ex			Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex
Detector 1 Channel											
Detector 1 Extend (s)	0.0		0.0			0.0	0.0			0.0	0.0
Detector 1 Queue (s)	0.0		0.0			0.0	0.0			0.0	0.0
Detector 1 Delay (s)	0.0		0.0			0.0	0.0			0.0	0.0
Detector 2 Position(ft)	125		125			125	125			125	
Detector 2 Size(ft)	6		6			6	6			6	
Detector 2 Type	Cl+Ex		Cl+Ex			Cl+Ex	Cl+Ex			Cl+Ex	
Detector 2 Channel											
Detector 2 Extend (s)	0.0		0.0			0.0	0.0			0.0	
Detector 3 Position(ft)	250		250			250	250			250	
Detector 3 Size(ft)	6		6			6	6			6	

Lane Group	NBL2	NBL	NBR	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Detector 3 Type	CI+Ex		CI+Ex			CI+Ex	CI+Ex			CI+Ex	
Detector 3 Channel											
Detector 3 Extend (s)	0.0		0.0			0.0	0.0			0.0	
Turn Type	Prot		Prot			Prot	NA			NA	Free
Protected Phases	8		8			5	2			6	
Permitted Phases											Free
Detector Phase	8		2			5	2			6	
Switch Phase											
Minimum Initial (s)	10.0		10.0			5.0	8.0			8.0	
Minimum Split (s)	16.0		16.0			11.0	42.0			31.0	
Total Split (s)	60.0		60.0			48.0	80.0			32.0	
Total Split (%)	42.9%		42.9%			34.3%	57.1%			22.9%	
Maximum Green (s)	54.0		54.0			42.0	74.0			26.0	
Yellow Time (s)	2.0		2.0			2.0	2.0			2.0	
All-Red Time (s)	4.0		4.0			4.0	4.0			4.0	
Lost Time Adjust (s)	0.0		0.0			0.0	0.0			0.0	
Total Lost Time (s)	6.0		6.0			6.0	6.0			6.0	
Lead/Lag						Lead				Lag	
Lead-Lag Optimize?											
Vehicle Extension (s)	3.0		3.0			3.0	3.0			3.0	
Recall Mode	None		None			None	C-Min			C-Min	
Walk Time (s)							7.0			7.0	
Flash Dont Walk (s)							29.0			17.0	
Pedestrian Calls (#/hr)							0			0	
Act Effct Green (s)	54.0		54.0			42.0	74.0			26.0	140.0
Actuated g/C Ratio	0.39		0.39			0.30	0.53			0.19	1.00
v/c Ratio	1.14		1.02			1.15	0.17			0.70	0.17
Control Delay	111.0		75.3			98.3	2.8			60.0	0.2
Queue Delay	0.0		0.0			0.0	0.0			0.0	0.0
Total Delay	111.0		75.3			98.3	2.8			60.0	0.2
LOS	F		E			F	A			E	A
Approach Delay		96.0					77.9			38.3	
Approach LOS		F					E			D	
Queue Length 50th (ft)	~774		~565			~625	20			207	0
Queue Length 95th (ft)	#877		#685			m#680	m21			270	0
Internal Link Dist (ft)		776		310			680			777	
Turn Bay Length (ft)						550					
Base Capacity (vph)	1250		1015			1000	1817			650	1568
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	1.14		1.02			1.15	0.17			0.70	0.17

Intersection Summary

Area Type: Other
Cycle Length: 140
Actuated Cycle Length: 140
Offset: 53 (38%), Referenced to phase 2:NET and 6:SWT, Start of Yellow
Natural Cycle: 150

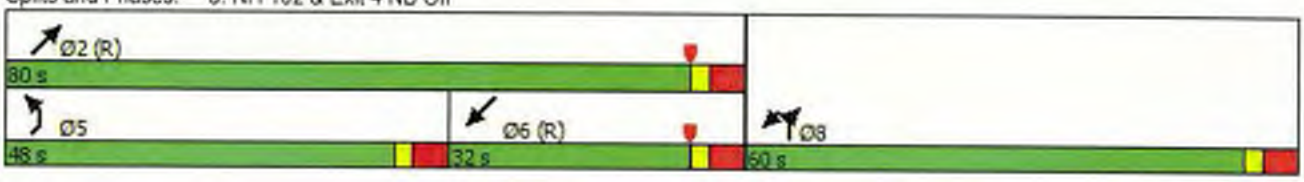
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.15
Intersection Signal Delay: 81.3 Intersection LOS: F
Intersection Capacity Utilization 94.2% ICU Level of Service F
Analysis Period (min) 15

~ 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.

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

Splits and Phases: 8: NH 102 & Exit 4 NB Off



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	640	470	160	615	0	0	0	0	180	0	390
Future Volume (vph)	0	640	470	160	615	0	0	0	0	180	0	390
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		350	0		0	0		0	0		0
Storage Lanes	0		1	1		0	0		0	2		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	0.97	1.00	1.00
Frt			0.850									0.850
Flt Protected				0.950						0.950		
Satd. Flow (prot)	0	3471	1553	1719	3438	0	0	0	0	3367	0	1553
Flt Permitted				0.950						0.950		
Satd. Flow (perm)	0	3471	1553	1719	3438	0	0	0	0	3367	0	1553
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			540									203
Link Speed (mph)		30			30			30			35	
Link Distance (ft)		851			693			486			581	
Travel Time (s)		19.3			15.8			11.0			11.3	
Peak Hour Factor	0.87	0.87	0.87	0.86	0.86	0.86	0.92	0.92	0.92	0.91	0.91	0.91
Heavy Vehicles (%)	4%	4%	4%	5%	5%	5%	2%	2%	2%	4%	4%	4%
Adj. Flow (vph)	0	736	540	186	715	0	0	0	0	198	0	429
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	736	540	186	715	0	0	0	0	198	0	429
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Right	Left	Right
Median Width(ft)		36			36			24			24	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		25	15		9	15		9	15		25
Number of Detectors		3	3	3	3					3		3
Detector Template		Thru	Right	Left	Thru					Left		Right
Leading Detector (ft)		256	256	256	256					256		256
Trailing Detector (ft)		-5	-5	-5	-5					-5		-5
Detector 1 Position(ft)		-5	-5	-5	-5					-5		-5
Detector 1 Size(ft)		50	50	50	50					50		50
Detector 1 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex		Cl+Ex
Detector 1 Channel												
Detector 1 Extend (s)		0.0	0.0	0.0	0.0					0.0		0.0
Detector 1 Queue (s)		0.0	0.0	0.0	0.0					0.0		0.0
Detector 1 Delay (s)		0.0	0.0	0.0	0.0					0.0		0.0
Detector 2 Position(ft)		125	125	125	125					125		125
Detector 2 Size(ft)		6	6	6	6					6		6
Detector 2 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex		Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0	0.0	0.0	0.0					0.0		0.0
Detector 3 Position(ft)		250	250	250	250					250		250
Detector 3 Size(ft)		6	6	6	6					6		6

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Detector 3 Type		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex					Cl+Ex		Cl+Ex
Detector 3 Channel												
Detector 3 Extend (s)		0.0	0.0	0.0	0.0					0.0		0.0
Turn Type		NA	Free	Prot	NA					Prot		Prot
Protected Phases		2		1	6					4		4
Permitted Phases			Free									
Detector Phase		2		1	6					4		4
Switch Phase												
Minimum Initial (s)		9.0		4.0	9.0					4.0		4.0
Minimum Split (s)		21.0		10.0	21.0					10.0		10.0
Total Split (s)		33.0		23.0	56.0					34.0		34.0
Total Split (%)		36.7%		25.6%	62.2%					37.8%		37.8%
Maximum Green (s)		27.0		17.0	50.0					28.0		28.0
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
Lost Time Adjust (s)		0.0		0.0	0.0					0.0		0.0
Total Lost Time (s)		6.0		6.0	6.0					6.0		6.0
Lead/Lag		Lag		Lead								
Lead-Lag Optimize?												
Vehicle Extension (s)		5.0		3.0	5.0					3.0		3.0
Recall Mode		C-Min		None	C-Min					None		None
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		8.0			8.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)		36.1	90.0	14.2	56.3					21.7		21.7
Actuated g/C Ratio		0.40	1.00	0.16	0.63					0.24		0.24
v/c Ratio		0.53	0.35	0.69	0.33					0.24		0.81
Control Delay		24.5	0.6	21.4	0.4					26.6		28.6
Queue Delay		0.0	0.0	0.0	0.0					0.0		0.0
Total Delay		24.5	0.6	21.4	0.4					26.6		28.6
LOS		C	A	C	A					C		C
Approach Delay		14.4			4.7						28.0	
Approach LOS		B			A						C	
Queue Length 50th (ft)		172	0	5	0					45		120
Queue Length 95th (ft)		247	0	m0	m0					68		221
Internal Link Dist (ft)		771			613			406			501	
Turn Bay Length (ft)			350									
Base Capacity (vph)		1392	1553	324	2151					1047		623
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		0.53	0.35	0.57	0.33					0.19		0.69

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 51 (57%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle: 60

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 14.3 Intersection LOS: B
Intersection Capacity Utilization 70.4% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Exit 5 SB On/Exit 5 SB Off & NH 28

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	440	380	0	0	455	230	320	0	370	0	0	0
Future Volume (vph)	440	380	0	0	455	230	320	0	370	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt						0.850			0.850			
Flt Protected	0.950						0.950					
Satd. Flow (prot)	1752	3505	0	0	3505	1568	1703	0	1524	0	0	0
Flt Permitted	0.950						0.950					
Satd. Flow (perm)	1752	3505	0	0	3505	1568	1703	0	1524	0	0	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)						253			418			
Link Speed (mph)		30			30			35			30	
Link Distance (ft)		693			542			867			392	
Travel Time (s)		15.8			12.3			16.9			8.9	
Peak Hour Factor	0.92	0.92	0.92	0.91	0.91	0.91	0.67	0.67	0.67	0.92	0.92	0.92
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	6%	6%	6%	2%	2%	2%
Adj. Flow (vph)	478	413	0	0	500	253	478	0	552	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	478	413	0	0	500	253	478	0	552	0	0	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Right	Left	Right	Left	Left	Right
Median Width(ft)		36			42			12			12	
Link Offset(ft)		0			0			0			36	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		25	15		25	15		9
Number of Detectors	3	3			3	3	3		0			
Detector Template	Left					Right	Left					
Leading Detector (ft)	256	256			256	256	256		0			
Trailing Detector (ft)	-5	-5			-5	-5	-5		0			
Detector 1 Position(ft)	-5	-5			-5	-5	-5		-5			
Detector 1 Size(ft)	50	50			50	50	50		50			
Detector 1 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex			
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Detector 1 Queue (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Detector 1 Delay (s)	0.0	0.0			0.0	0.0	0.0		0.0			
Detector 2 Position(ft)	125	125			125	125	125					
Detector 2 Size(ft)	6	6			6	6	6					
Detector 2 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex					
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0			0.0	0.0	0.0					
Detector 3 Position(ft)	250	250			250	250	250					
Detector 3 Size(ft)	6	6			6	6	6					
Detector 3 Type	Cl+Ex	Cl+Ex			Cl+Ex	Cl+Ex	Cl+Ex					
Detector 3 Channel												
Detector 3 Extend (s)	0.0	0.0			0.0	0.0	0.0					

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Turn Type	Prot	NA			NA	Free	Prot		Prot			
Protected Phases	5	2			6		8		8			
Permitted Phases		2			6	Free						
Detector Phase	5	2			6		8		8			
Switch Phase												
Minimum Initial (s)	4.0	16.0			16.0		4.0		4.0			
Minimum Split (s)	10.0	23.0			23.0		11.0		11.0			
Total Split (s)	33.0	56.0			23.0		34.0		34.0			
Total Split (%)	36.7%	62.2%			25.6%		37.8%		37.8%			
Maximum Green (s)	27.0	50.0			17.0		28.0		28.0			
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			
Lost Time Adjust (s)	0.0	0.0			0.0		0.0		0.0			
Total Lost Time (s)	6.0	6.0			6.0		6.0		6.0			
Lead/Lag	Lead				Lag							
Lead-Lag Optimize?												
Vehicle Extension (s)	5.0	5.0			5.0		3.0		3.0			
Recall Mode	None	C-Min			C-Min		None		None			
Walk Time (s)		7.0			7.0							
Flash Dont Walk (s)		10.0			10.0							
Pedestrian Calls (#/hr)		0			0							
Act Effct Green (s)	26.9	50.1			17.1	90.0	27.9		27.9			
Actuated g/C Ratio	0.30	0.56			0.19	1.00	0.31		0.31			
v/c Ratio	0.91	0.21			0.75	0.16	0.91		0.73			
Control Delay	31.8	3.6			42.5	0.2	53.0		13.2			
Queue Delay	0.0	0.0			0.0	0.0	0.0		0.0			
Total Delay	31.8	3.6			42.5	0.2	53.0		13.2			
LOS	C	A			D	A	D		B			
Approach Delay		18.8			28.3			31.7				
Approach LOS		B			C			C				
Queue Length 50th (ft)	261	10			142	0	258		57			
Queue Length 95th (ft)	#440	9			198	0	254		48			
Internal Link Dist (ft)		613			462			787			312	
Turn Bay Length (ft)												
Base Capacity (vph)	525	1949			667	1568	529		762			
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	0.91	0.21			0.75	0.16	0.90		0.72			

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 90	
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow, Master Intersection	
Natural Cycle: 90	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 0.91	
Intersection Signal Delay: 26.4	Intersection LOS: C

Intersection Capacity Utilization 70.4% 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.

Splits and Phases: 3: Exit 5 NB Off & NH 28

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	10	5	210	10	0	10	270	820	120	5	590	130
Future Volume (vph)	10	5	210	10	0	10	270	820	120	5	590	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		225	0		0	350		0	100		0
Storage Lanes	0		1	0		0	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt			0.850		0.932			0.981			0.973	
Flt Protected		0.967			0.976		0.950			0.950		
Satd. Flow (prot)	0	1801	1583	0	1728	0	1770	3472	0	1770	3444	0
Flt Permitted		0.871			0.834		0.950			0.950		
Satd. Flow (perm)	0	1622	1583	0	1477	0	1770	3472	0	1770	3444	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			228		182			28			31	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		593			447			750			330	
Travel Time (s)		13.5			10.2			17.0			7.5	
Peak Hour Factor	0.92	0.92	0.92	0.25	0.25	0.25	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	2%	2%	2%	2%	2%	2%
Adj. Flow (vph)	11	5	228	40	0	40	293	891	130	5	641	141
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	16	228	0	80	0	293	1021	0	5	782	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			12			12	
Link Offset(ft)		0			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	3	3	1	3	1		3	3		3	3	
Detector Template	Left	Thru	Right	Left			Left	Thru		Left	Thru	
Leading Detector (ft)	256	256	45	256	45		256	256		256	256	
Trailing Detector (ft)	-5	-5	-5	-5	-5		-5	-5		-5	-5	
Detector 1 Position(ft)	-5	-5	-5	-5	-5		-5	-5		-5	-5	
Detector 1 Size(ft)	50	50	50	50	50		50	50		50	50	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(ft)	125	125		125			125	125		125	125	
Detector 2 Size(ft)	6	6		6			6	6		6	6	
Detector 2 Type	Cl+Ex	Cl+Ex		Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)	0.0	0.0		0.0			0.0	0.0		0.0	0.0	
Detector 3 Position(ft)	250	250		250			250	250		250	250	
Detector 3 Size(ft)	6	6		6			6	6		6	6	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Detector 3 Type	Cl+Ex	Cl+Ex		Cl+Ex			Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 3 Channel												
Detector 3 Extend (s)	0.0	0.0		0.0			0.0	0.0		0.0	0.0	
Turn Type	Perm	NA	custom	Perm	NA		Prot	NA		Prot	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8		6	4								
Detector Phase	8	8	6	4	4		5	2		1	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0	8.0	5.0	5.0		5.0	8.0		5.0	8.0	
Minimum Split (s)	24.0	24.0	24.0	24.0	24.0		24.0	24.0		11.0	24.0	
Total Split (s)	24.0	24.0	36.0	24.0	24.0		30.0	55.0		11.0	36.0	
Total Split (%)	26.7%	26.7%	40.0%	26.7%	26.7%		33.3%	61.1%		12.2%	40.0%	
Maximum Green (s)	18.0	18.0	30.0	18.0	18.0		24.0	49.0		5.0	30.0	
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	
Lost Time Adjust (s)		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)		6.0	6.0		6.0		6.0	6.0		6.0	6.0	
Lead/Lag			Lag				Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None	Min	None	None		None	Min		None	Min	
Walk Time (s)	7.0	7.0	7.0	7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)	11.0	11.0	11.0	11.0	11.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0	0	0	0		0	0			0	
Act Effct Green (s)		6.8	27.1		6.8		16.9	50.8		5.4	27.1	
Actuated g/C Ratio		0.10	0.41		0.10		0.26	0.77		0.08	0.41	
v/c Ratio		0.10	0.29		0.25		0.65	0.38		0.03	0.55	
Control Delay		33.5	3.7		1.9		31.0	4.8		34.8	17.5	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		33.5	3.7		1.9		31.0	4.8		34.8	17.5	
LOS		C	A		A		C	A		C	B	
Approach Delay		5.7			1.9			10.7			17.6	
Approach LOS		A			A			B			B	
Queue Length 50th (ft)		7	0		0		118	63		2	127	
Queue Length 95th (ft)		26	43		0		199	170		13	212	
Internal Link Dist (ft)		513			367			670			250	
Turn Bay Length (ft)			225				350			100		
Base Capacity (vph)		475	890		561		692	2683		144	1700	
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		0.03	0.26		0.14		0.42	0.38		0.03	0.46	

Intersection Summary	
Area Type:	Other
Cycle Length: 90	
Actuated Cycle Length: 66.2	
Natural Cycle: 75	
Control Type: Actuated-Uncoordinated	

Maximum v/c Ratio: 0.65
Intersection Signal Delay: 12.1 Intersection LOS: B
Intersection Capacity Utilization 62.0% ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 9: NH 102 & St. Charles Street/Londonderry Road

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	20	20	5	270	0	50	0	730	130	10	380	0
Future Volume (vph)	20	20	5	270	0	50	0	730	130	10	380	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.985			0.979			0.980				
Flt Protected		0.978			0.960						0.999	
Satd. Flow (prot)	0	1794	0	0	1734	0	0	1724	0	0	1808	0
Flt Permitted		0.834			0.708						0.890	
Satd. Flow (perm)	0	1530	0	0	1279	0	0	1724	0	0	1610	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		7			36			18				
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		356			493			1124			603	
Travel Time (s)		8.1			11.2			25.5			13.7	
Peak Hour Factor	0.60	0.60	0.60	0.96	0.96	0.96	0.89	0.89	0.89	0.86	0.86	0.86
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	8%	8%	8%	5%	5%	5%
Adj. Flow (vph)	33	33	8	281	0	52	0	820	146	12	442	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	74	0	0	333	0	0	966	0	0	454	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(ft)		0			0			0			0	
Link Offset(ft)		-22			0			0			0	
Crosswalk Width(ft)		16			16			16			16	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (mph)	15		9	15		9	15		9	15		9
Number of Detectors	3	1		3	2			2		3	2	
Detector Template	Left			Left						Left		
Leading Detector (ft)	256	45		256	131			131		256	131	
Trailing Detector (ft)	-5	-5		-5	-5			-5		-5	-5	
Detector 1 Position(ft)	-5	-5		-5	-5			-5		-5	-5	
Detector 1 Size(ft)	50	50		50	50			50		50	50	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0			0.0		0.0	0.0	
Detector 2 Position(ft)	125			125	125			125		125	125	
Detector 2 Size(ft)	6			6	6			6		6	6	
Detector 2 Type	Cl+Ex			Cl+Ex	Cl+Ex			Cl+Ex		Cl+Ex	Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)	0.0			0.0	0.0			0.0		0.0	0.0	
Detector 3 Position(ft)	250			250						250		
Detector 3 Size(ft)	6			6						6		
Detector 3 Type	Cl+Ex			Cl+Ex						Cl+Ex		
Detector 3 Channel												
Detector 3 Extend (s)	0.0			0.0						0.0		

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Turn Type	Perm	NA		Perm	NA			NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4						2		
Detector Phase	4	4		4	4			2		2	2	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0			5.0		5.0	5.0	
Minimum Split (s)	24.0	24.0		24.0	24.0			24.0		24.0	24.0	
Total Split (s)	29.0	29.0		29.0	29.0			61.0		61.0	61.0	
Total Split (%)	32.2%	32.2%		32.2%	32.2%			67.8%		67.8%	67.8%	
Maximum Green (s)	23.0	23.0		23.0	23.0			55.0		55.0	55.0	
Yellow Time (s)	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	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		6.0			6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0			3.0		3.0	3.0	
Recall Mode	None	None		None	None			Min		Min	Min	
Walk Time (s)	7.0	7.0		7.0	7.0			7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0			11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0			0		0	0	
Act Effct Green (s)		22.3			22.3			52.1			52.1	
Actuated g/C Ratio		0.26			0.26			0.60			0.60	
v/c Ratio		0.18			0.94			0.92			0.47	
Control Delay		25.7			64.8			31.3			11.5	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		25.7			64.8			31.3			11.5	
LOS		C			E			C			B	
Approach Delay		25.7			64.8			31.3			11.5	
Approach LOS		C			E			C			B	
Queue Length 50th (ft)		30			168			433			128	
Queue Length 95th (ft)		41			#338			#735			183	
Internal Link Dist (ft)		276			413			1044			523	
Turn Bay Length (ft)												
Base Capacity (vph)		415			368			1111			1031	
Starvation Cap Reductn		0			0			0			0	
Spillback Cap Reductn		0			0			0			0	
Storage Cap Reductn		0			0			0			0	
Reduced v/c Ratio		0.18			0.90			0.87			0.44	

Intersection Summary			
Area Type:	Other		
Cycle Length: 90			
Actuated Cycle Length: 86.5			
Natural Cycle: 90			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.94			
Intersection Signal Delay: 32.3		Intersection LOS: C	
Intersection Capacity Utilization 84.3%		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.

Splits and Phases: 10: NH 102 & Fordway/Madden Hill Road

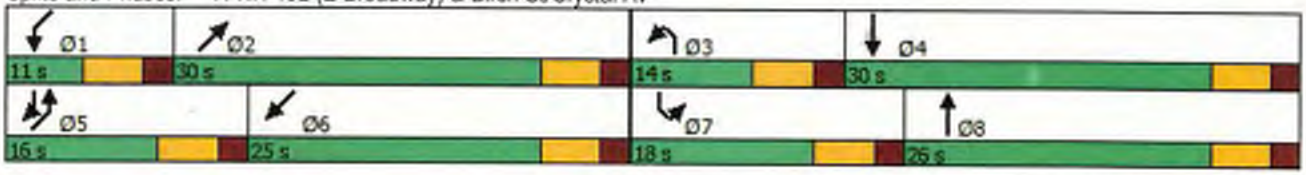
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	70	310	20	130	400	60	80	390	30	50	270	60
Future Volume (vph)	70	310	20	130	400	60	80	390	30	50	270	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	70		0	245		245	390		0	110		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.991				0.850		0.989			0.973	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1828	0	1752	1845	1568	1787	1860	0	1787	1830	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1752	1828	0	1752	1845	1568	1787	1860	0	1787	1830	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				116		5			12	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		361			411			477			530	
Travel Time (s)		8.2			9.3			10.8			12.0	
Peak Hour Factor	0.91	0.91	0.91	0.93	0.93	0.93	0.95	0.95	0.95	0.94	0.94	0.94
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	1%	1%	1%	1%	1%	1%
Adj. Flow (vph)	77	341	22	140	430	65	84	411	32	53	287	64
Shared Lane Traffic (%)												
Lane Group Flow (vph)	77	363	0	140	430	65	84	443	0	53	351	0
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA		Prot	NA	
Protected Phases	3	8		7	4	5	5	2		1	6	
Permitted Phases						4						
Detector Phase	3	8		7	4	5	5	2		1	6	
Switch Phase												
Minimum Initial (s)	4.0	5.0		4.0	10.0	4.0	4.0	10.0		4.0	9.0	
Minimum Split (s)	10.0	24.0		11.0	24.0	16.0	16.0	24.0		11.0	24.0	
Total Split (s)	14.0	26.0		18.0	30.0	16.0	16.0	30.0		11.0	25.0	
Total Split (%)	16.5%	30.6%		21.2%	35.3%	18.8%	18.8%	35.3%		12.9%	29.4%	
Maximum Green (s)	8.0	20.0		12.0	24.0	10.0	10.0	24.0		5.0	19.0	
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	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag	Lead	Lead	Lag		Lead	Lag	
Lead-Lag Optimize?	Yes	Yes		Yes	Yes	Yes	Yes	Yes		Yes	Yes	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None	None	None	Max		None	None	
Act Effct Green (s)	7.5	18.7		10.6	21.3	36.1	8.6	26.7		5.2	21.5	
Actuated g/C Ratio	0.10	0.24		0.14	0.28	0.47	0.11	0.35		0.07	0.28	
v/c Ratio	0.45	0.81		0.58	0.84	0.08	0.42	0.68		0.43	0.68	
Control Delay	45.3	45.4		44.4	44.1	0.8	41.9	32.2		50.7	36.7	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	45.3	45.4		44.4	44.1	0.8	41.9	32.2		50.7	36.7	
LOS	D	D		D	D	A	D	C		D	D	
Approach Delay		45.3			39.8			33.7			38.5	

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Approach LOS		D			D			C			D	
Queue Length 50th (ft)	40	183		71	214	0	43	219		28	172	
Queue Length 95th (ft)	83	#331		129	#368	5	87	#379		#74	#321	
Internal Link Dist (ft)		281			331			397			450	
Turn Bay Length (ft)	70			245		245	390			110		
Base Capacity (vph)	190	501		286	603	836	243	650		122	523	
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	0.41	0.72		0.49	0.71	0.08	0.35	0.68		0.43	0.67	

Intersection Summary

Area Type: Other
Cycle Length: 85
Actuated Cycle Length: 76.7
Natural Cycle: 75
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.84
Intersection Signal Delay: 39.2 — Intersection LOS: D
Intersection Capacity Utilization 87.2% — 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.

Splits and Phases: 7: NH 102 (E Broadway) & Birch St/Crystal Av



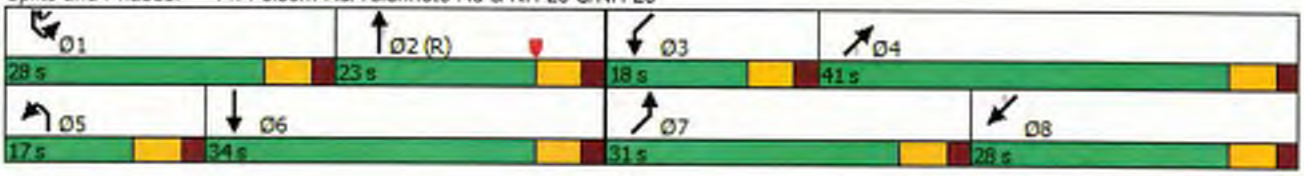
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	80	330	140	560	530	0	320	500	120	50	290	590
Future Volume (vph)	80	330	140	560	530	0	320	500	120	50	290	590
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	110		90	360		0	190		180	0		210
Storage Lanes	1		1	2		0	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850						0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	3539	1583	3433	3539	0	1770	1863	1583	1787	1881	1599
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	3539	1583	3433	3539	0	1770	1863	1583	1787	1881	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			268						208			149
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		639			495			532			387	
Travel Time (s)		14.5			11.3			12.1			8.8	
Peak Hour Factor	0.92	0.92	0.92	0.94	0.94	0.94	0.96	0.96	0.96	0.95	0.95	0.95
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	1%	1%	1%
Adj. Flow (vph)	87	359	152	596	564	0	333	521	125	53	305	621
Shared Lane Traffic (%)												
Lane Group Flow (vph)	87	359	152	596	564	0	333	521	125	53	305	621
Turn Type	Prot	NA	Perm	Prot	NA		Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		7	4		3	8	1
Permitted Phases			2						4			8
Detector Phase	5	2	2	1	6		7	4	4	3	8	1
Switch Phase												
Minimum Initial (s)	8.0	8.0	8.0	8.0	8.0		8.0	8.0	8.0	8.0	8.0	8.0
Minimum Split (s)	14.0	22.0	22.0	14.0	22.0		14.0	22.0	22.0	14.0	22.0	14.0
Total Split (s)	17.0	23.0	23.0	28.0	34.0		31.0	41.0	41.0	18.0	28.0	28.0
Total Split (%)	15.5%	20.9%	20.9%	25.5%	30.9%		28.2%	37.3%	37.3%	16.4%	25.5%	25.5%
Maximum Green (s)	11.0	17.0	17.0	22.0	28.0		25.0	35.0	35.0	12.0	22.0	22.0
Yellow Time (s)	4.0	4.0	4.0	4.0	4.0		4.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	2.0	2.0	2.0	2.0	2.0		2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max	C-Max	None	None		None	None	None	None	None	None
Walk Time (s)		5.0	5.0		5.0			5.0	5.0		5.0	
Flash Dont Walk (s)		11.0	11.0		11.0			11.0	11.0		11.0	
Pedestrian Calls (#/hr)		0	0		0			0	0		0	
Act Effct Green (s)	9.9	19.9	19.9	22.1	34.8		23.4	37.6	37.6	9.3	20.6	48.7
Actuated g/C Ratio	0.09	0.18	0.18	0.20	0.32		0.21	0.34	0.34	0.08	0.19	0.44
v/c Ratio	0.54	0.56	0.30	0.87	0.50		0.89	0.82	0.18	0.35	0.87	0.79
Control Delay	60.7	46.1	1.5	69.2	34.7		67.2	45.7	0.6	53.8	67.4	27.5
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.0	0.0

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Total Delay	60.7	46.1	1.5	69.2	34.7		67.2	45.7	0.6	53.8	67.4	27.5
LOS	E	D	A	E	C		E	D	A	D	E	C
Approach Delay		36.9			52.4			47.3			41.4	
Approach LOS		D			D			D			D	
Queue Length 50th (ft)	59	126	0	184	121		225	329	0	36	207	280
Queue Length 95th (ft)	112	177	0	#316	200		#374	#536	0	75	#345	438
Internal Link Dist (ft)		559			415			452			307	
Turn Bay Length (ft)	110		90	360			190		180			210
Base Capacity (vph)	177	640	506	700	1120		402	636	677	194	376	795
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0		0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.56	0.30	0.85	0.50		0.83	0.82	0.18	0.27	0.81	0.78

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 16 (15%), Referenced to phase 2:NBT, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.89
Intersection Signal Delay: 45.7 Intersection LOS: D
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.

Splits and Phases: 11: Folsom Rd/Tsienneto Rd & NH 28 S/NH 28



Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	90	1225	5	20	1030	100	15	10	15	10	10	30
Future Volume (vph)	90	1225	5	20	1030	100	15	10	15	10	10	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	100		0	115		0	0		0	0		0
Storage Lanes	1		0	1		0	0		1	0		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.987				0.850			0.850
Flt Protected	0.950			0.950				0.971			0.976	
Satd. Flow (prot)	1787	3571	0	1787	3528	0	0	1845	1615	0	1836	1599
Flt Permitted	0.950			0.950				0.799			0.827	
Satd. Flow (perm)	1787	3571	0	1787	3528	0	0	1518	1615	0	1556	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			13				149			149
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		277			652			230			387	
Travel Time (s)		6.3			14.8			5.2			8.8	
Peak Hour Factor	0.97	0.97	0.97	0.95	0.95	0.95	0.90	0.90	0.90	0.80	0.80	0.80
Heavy Vehicles (%)	1%	1%	1%	1%	1%	1%	0%	0%	0%	1%	1%	1%
Adj. Flow (vph)	93	1263	5	21	1084	105	17	11	17	13	13	38
Shared Lane Traffic (%)												
Lane Group Flow (vph)	93	1268	0	21	1189	0	0	28	17	0	26	38
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases	5	2		1	6			8			4	
Permitted Phases							8		8	4	4	4
Detector Phase	5	2		1	6		8	8	8	4	4	4
Switch Phase												
Minimum Initial (s)	5.0	8.0		5.0	8.0		5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	26.0	63.0		11.0	48.0		21.0	21.0	21.0	21.0	21.0	21.0
Total Split (s)	27.0	78.0		11.0	62.0		21.0	21.0	21.0	21.0	21.0	21.0
Total Split (%)	24.5%	70.9%		10.0%	56.4%		19.1%	19.1%	19.1%	19.1%	19.1%	19.1%
Maximum Green (s)	21.0	72.0		5.0	56.0		15.0	15.0	15.0	15.0	15.0	15.0
Yellow Time (s)	4.0	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	2.0
Lost Time Adjust (s)	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Lost Time (s)	6.0	6.0		6.0	6.0			6.0	6.0		6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag							
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	C-Max		None	Max		None	None	None	None	None	None
Walk Time (s)		7.0			7.0		7.0	7.0	7.0	7.0	7.0	7.0
Flash Dont Walk (s)		11.0			11.0		8.0	8.0	8.0	8.0	8.0	8.0
Pedestrian Calls (#/hr)		0			0		0	0	0	0	0	0
Act Effct Green (s)	11.0	88.4		6.9	79.5			7.5	7.5		7.5	7.5
Actuated g/C Ratio	0.10	0.80		0.06	0.72			0.07	0.07		0.07	0.07
v/c Ratio	0.52	0.44		0.19	0.47			0.27	0.07		0.25	0.15
Control Delay	54.5	9.2		51.0	10.5			54.6	0.5		53.5	1.3
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Total Delay	54.5	9.2		51.0	10.5			54.6	0.5		53.5	1.3
LOS	D	A		D	B			D	A		D	A
Approach Delay		12.3			11.2			34.1			22.5	
Approach LOS		B			B			C			C	
Queue Length 50th (ft)	63	247		15	221			19	0		18	0
Queue Length 95th (ft)	m96	442		m20	280			48	0		40	0
Internal Link Dist (ft)		197			572			150			307	
Turn Bay Length (ft)	100			115								
Base Capacity (vph)	341	2868		111	2554			207	348		212	346
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	0.27	0.44		0.19	0.47			0.14	0.05		0.12	0.11

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 49 (45%), Referenced to phase 2:SET, Start of Yellow
Natural Cycle: 95
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.52
Intersection Signal Delay: 12.4 Intersection LOS: B
Intersection Capacity Utilization 61.2% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 13: Applebee's/Linlew Dr & NH 28

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	530	1270	5	5	1080	70	40	10	10	80	5	490
Future Volume (vph)	530	1270	5	5	1080	70	40	10	10	80	5	490
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		150	205		150	0		0	0		220
Storage Lanes	2		0	1		0	1		0	0		1
Taper Length (ft)	150			25			25			25		
Lane Util. Factor	0.97	0.95	0.95	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.991			0.925				0.850
Flt Protected	0.950			0.950			0.950				0.955	
Satd. Flow (prot)	3467	3571	0	1770	3507	0	1805	1758	0	0	1814	1615
Flt Permitted	0.950			0.950			0.693				0.720	
Satd. Flow (perm)	3467	3571	0	1770	3507	0	1317	1758	0	0	1368	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			7			13				30
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		877			314			151			476	
Travel Time (s)		19.9			7.1			3.4			10.8	
Peak Hour Factor	0.84	0.84	0.84	0.90	0.90	0.90	0.78	0.78	0.78	0.86	0.86	0.86
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	631	1512	6	6	1200	78	51	13	13	93	6	570
Shared Lane Traffic (%)												
Lane Group Flow (vph)	631	1518	0	6	1278	0	51	26	0	0	99	570
Turn Type	Prot	NA		Prot	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	5	2		1	6			8			4	5
Permitted Phases							8	8		4		4
Detector Phase	5	2		1	6		8	8		4	4	5
Switch Phase												
Minimum Initial (s)	5.0	8.0		5.0	8.0		5.0	5.0		8.0	8.0	5.0
Minimum Split (s)	11.0	53.0		11.0	50.0		22.0	22.0		22.0	22.0	11.0
Total Split (s)	34.0	72.0		11.0	49.0		27.0	27.0		27.0	27.0	34.0
Total Split (%)	30.9%	65.5%		10.0%	44.5%		24.5%	24.5%		24.5%	24.5%	30.9%
Maximum Green (s)	28.0	66.0		5.0	43.0		21.0	21.0		21.0	21.0	28.0
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
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0			6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	C-Max		None	None		None	None		None	None	None
Walk Time (s)		5.0			5.0		5.0	5.0		5.0	5.0	
Flash Dont Walk (s)		11.0			11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	29.0	82.1		6.0	49.7		13.3	13.3			13.3	48.3
Actuated g/C Ratio	0.26	0.75		0.05	0.45		0.12	0.12			0.12	0.44
v/c Ratio	0.69	0.57		0.06	0.80		0.32	0.12			0.60	0.79
Control Delay	40.5	8.6		41.2	47.6		47.9	26.9			59.8	32.6
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0			0.0	0.0

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Total Delay	40.5	8.6		41.2	47.6		47.9	26.9			59.8	32.6
LOS	D	A		D	D		D	C			E	C
Approach Delay		18.0			47.5			40.8			36.7	
Approach LOS		B			D			D			D	
Queue Length 50th (ft)	198	185		4	498		33	8			67	304
Queue Length 95th (ft)	243	393		m9	#610		58	27			112	384
Internal Link Dist (ft)		797			234			71			396	
Turn Bay Length (ft)	200			205								220
Base Capacity (vph)	961	2664		96	1588		251	346			261	748
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	0.66	0.57		0.06	0.80		0.20	0.08			0.38	0.76

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 0 (0%), Referenced to phase 2:EBT, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 30.5 Intersection LOS: C
Intersection Capacity Utilization 81.6% 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 22: VIP Dr/Connector Rd & NH 28

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	125	1510	1425	290	120	75
Future Volume (vph)	125	1510	1425	290	120	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200			150	360	0
Storage Lanes	1			1	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1770	3539	3539	1583	1770	1583
Flt Permitted	0.094				0.950	
Satd. Flow (perm)	175	3539	3539	1583	1770	1583
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				263		17
Link Speed (mph)		30	30		30	
Link Distance (ft)		463	580		704	
Travel Time (s)		10.5	13.2		16.0	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	136	1641	1549	315	130	82
Shared Lane Traffic (%)						
Lane Group Flow (vph)	136	1641	1549	315	130	82
Turn Type	pm+pt	NA	NA	pm+ov	Prot	pm+ov
Protected Phases	5	2	6	4	4	5
Permitted Phases	2			6		4
Detector Phase	5	2	6	4	4	5
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	11.0	20.0	20.0	20.0	20.0	11.0
Total Split (s)	11.0	55.0	44.0	20.0	20.0	11.0
Total Split (%)	14.7%	73.3%	58.7%	26.7%	26.7%	14.7%
Maximum Green (s)	5.0	49.0	38.0	14.0	14.0	5.0
Yellow Time (s)	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
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0	6.0	6.0	6.0	6.0
Lead/Lag	Lead		Lag			Lead
Lead-Lag Optimize?	Yes		Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	None	None
Act Effct Green (s)	44.9	44.9	36.7	54.8	10.3	21.6
Actuated g/C Ratio	0.67	0.67	0.54	0.81	0.15	0.32
v/c Ratio	0.57	0.70	0.81	0.24	0.49	0.16
Control Delay	18.0	9.2	18.2	1.0	34.3	15.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.0	9.2	18.2	1.0	34.3	15.9
LOS	B	A	B	A	C	B
Approach Delay		9.8	15.3		27.2	
Approach LOS		A	B		C	

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Queue Length 50th (ft)	17	185	277	4	54	21
Queue Length 95th (ft)	#77	298	#417	18	103	51
Internal Link Dist (ft)		383	500		624	
Turn Bay Length (ft)	200			150	360	
Base Capacity (vph)	237	2626	2046	1373	377	517
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	0.57	0.62	0.76	0.23	0.34	0.16

Intersection Summary

Area Type: Other
Cycle Length: 75
Actuated Cycle Length: 67.5
Natural Cycle: 70
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.81
Intersection Signal Delay: 13.4 — Intersection LOS: B
Intersection Capacity Utilization 68.0% — 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.

Splits and Phases: 25: NH 28 & Rockingham Road

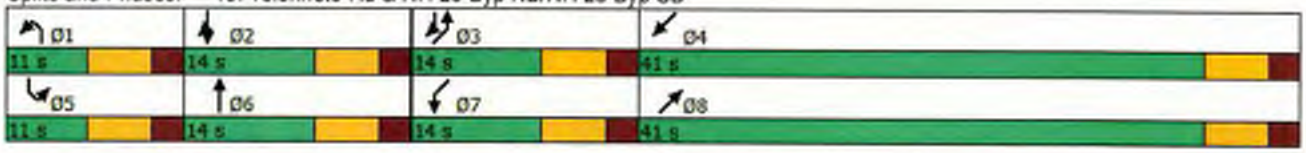
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	30	70	30	30	30	50	40	660	70	20	180	30
Future Volume (vph)	30	70	30	30	30	50	40	660	70	20	180	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	190		190	135		0	120		0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.955				0.850		0.986			0.979	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1779	0	1787	1881	1599	1805	1873	0	1805	1860	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1779	0	1787	1881	1599	1805	1873	0	1805	1860	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		21				123		9			13	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		481			347			479			371	
Travel Time (s)		10.9			7.9			10.9			8.4	
Peak Hour Factor	0.99	0.99	0.99	0.95	0.95	0.95	0.89	0.89	0.89	0.93	0.93	0.93
Heavy Vehicles (%)	2%	2%	2%	1%	1%	1%	0%	0%	0%	0%	0%	0%
Adj. Flow (vph)	30	71	30	32	32	53	45	742	79	22	194	32
Shared Lane Traffic (%)												
Lane Group Flow (vph)	30	101	0	32	32	53	45	821	0	22	226	0
Turn Type	Prot	NA		Prot	NA	pt+ov	Prot	NA		Prot	NA	
Protected Phases	1	6		5	2	2 3	3	8		7	4	
Permitted Phases		6			2							
Detector Phase	1	6		5	2	2 3	3	8		7	4	
Switch Phase												
Minimum Initial (s)	5.0	8.0		5.0	8.0		8.0	8.0		5.0	8.0	
Minimum Split (s)	11.0	14.0		11.0	14.0		14.0	28.0		11.0	14.0	
Total Split (s)	11.0	14.0		11.0	14.0		14.0	41.0		14.0	41.0	
Total Split (%)	13.8%	17.5%		13.8%	17.5%		17.5%	51.3%		17.5%	51.3%	
Maximum Green (s)	5.0	8.0		5.0	8.0		8.0	35.0		8.0	35.0	
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	
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Lead/Lag	Lead	Lag		Lead	Lag		Lead	Lag		Lead	Lag	
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	Max		None	None		None	None	
Walk Time (s)								7.0				
Flash Dont Walk (s)								15.0				
Pedestrian Calls (#/hr)								0				
Act Effct Green (s)	5.2	8.3		5.2	8.3	22.9	8.3	34.8		6.5	31.4	
Actuated g/C Ratio	0.08	0.13		0.08	0.13	0.36	0.13	0.55		0.10	0.49	
v/c Ratio	0.21	0.40		0.22	0.13	0.08	0.19	0.80		0.12	0.24	
Control Delay	36.5	30.2		36.6	31.4	0.2	32.0	23.4		32.5	12.3	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Total Delay	36.5	30.2		36.6	31.4	0.2	32.0	23.4		32.5	12.3	
LOS	D	C		D	C	A	C	C		C	B	
Approach Delay		31.6			18.7			23.9			14.1	
Approach LOS		C			B			C			B	
Queue Length 50th (ft)	9	24		10	9	0	13	140		7	47	
Queue Length 95th (ft)	41	86		43	41	0	52	#636		32	113	
Internal Link Dist (ft)		401			267			399			291	
Turn Bay Length (ft)	200			190		190	135			120		
Base Capacity (vph)	145	251		146	247	655	236	1079		236	1074	
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	0.21	0.40		0.22	0.13	0.08	0.19	0.76		0.09	0.21	

Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 63.5
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 22.4 — Intersection LOS: C
Intersection Capacity Utilization 57.3% — ICU Level of Service B
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 18: Tsienneto Rd & NH 28 Byp NB/NH 28 Byp SB



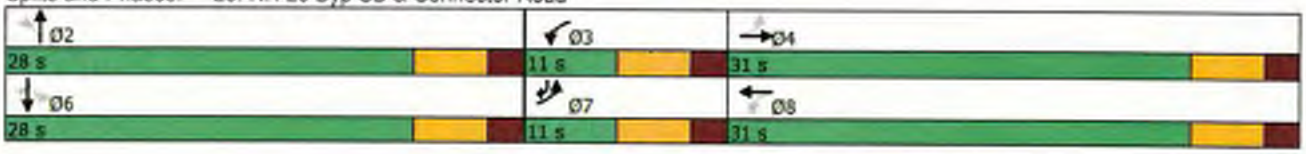
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	460	5	10	490	10	5	60	10	10	60	70
Future Volume (vph)	60	460	5	10	490	10	5	60	10	10	60	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	275		0	75		100	75		0	210		210
Storage Lanes	1		0	1		0	1		0	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.999			0.997			0.978				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1861	0	1770	1857	0	1770	1822	0	1770	1863	1583
Flt Permitted	0.223			0.356			0.715			0.708		
Satd. Flow (perm)	415	1861	0	663	1857	0	1332	1822	0	1319	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			2			11				76
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		310			410			481			432	
Travel Time (s)		7.0			9.3			10.9			9.8	
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
Adj. Flow (vph)	65	500	5	11	533	11	5	65	11	11	65	76
Shared Lane Traffic (%)												
Lane Group Flow (vph)	65	505	0	11	544	0	5	76	0	11	65	76
Turn Type	pm+pt	NA		pm+pt	NA		Perm	NA		Perm	NA	pm+ov
Protected Phases	7	4		3	8			2			6	7
Permitted Phases	4			8			2			6		6
Detector Phase	7	4		3	8		2	2		6	6	7
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	5.0
Minimum Split (s)	11.0	28.0		11.0	28.0		28.0	28.0		28.0	28.0	11.0
Total Split (s)	11.0	31.0		11.0	31.0		28.0	28.0		28.0	28.0	11.0
Total Split (%)	15.7%	44.3%		15.7%	44.3%		40.0%	40.0%		40.0%	40.0%	15.7%
Maximum Green (s)	5.0	25.0		5.0	25.0		22.0	22.0		22.0	22.0	5.0
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
Lost Time Adjust (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Lost Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	6.0
Lead/Lag	Lead	Lag		Lead	Lag							Lead
Lead-Lag Optimize?	Yes	Yes		Yes	Yes							Yes
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Recall Mode	None	Max		None	None		Max	Max		None	None	None
Walk Time (s)		7.0			7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)		15.0			15.0		15.0	15.0		15.0	15.0	
Pedestrian Calls (#/hr)		0			0		0	0		0	0	
Act Effct Green (s)	31.9	30.9		28.4	24.5		22.1	22.1		22.1	22.1	33.1
Actuated g/C Ratio	0.47	0.46		0.42	0.36		0.33	0.33		0.33	0.33	0.49
v/c Ratio	0.22	0.59		0.03	0.80		0.01	0.13		0.03	0.11	0.09
Control Delay	10.6	18.3		8.8	31.2		16.8	15.8		17.0	17.6	3.2
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	10.6	18.3		8.8	31.2		16.8	15.8		17.0	17.6	3.2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
LOS	B	B		A	C		B	B		B	B	A
Approach Delay		17.4			30.8			15.8			10.4	
Approach LOS		B			C			B			B	
Queue Length 50th (ft)	13	135		2	208		2	20		3	20	0
Queue Length 95th (ft)	31	#331		9	#373		8	48		14	46	19
Internal Link Dist (ft)		230			330			401			352	
Turn Bay Length (ft)	275			75			75			210		210
Base Capacity (vph)	298	857		362	695		437	606		433	612	819
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	0.22	0.59		0.03	0.78		0.01	0.13		0.03	0.11	0.09

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 67.2
Natural Cycle: 70
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.80
Intersection Signal Delay: 22.0 — Intersection LOS: C
Intersection Capacity Utilization 52.8% — ICU Level of Service A
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 23: NH 28 Byp SB & Connector Road



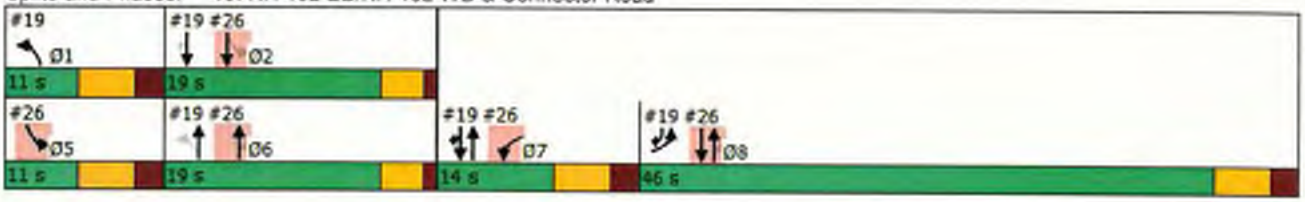
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2	Ø5	Ø6	Ø7
Lane Configurations										
Traffic Volume (vph)	700	10	40	130	130	650				
Future Volume (vph)	700	10	40	130	130	650				
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900				
Storage Length (ft)	0	0	120			90				
Storage Lanes	1	0	1			1				
Taper Length (ft)	25		25							
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00				
Frt	0.998					0.850				
Flt Protected	0.953		0.950							
Satd. Flow (prot)	1772	0	1626	1712	1863	1583				
Flt Permitted	0.953		0.596							
Satd. Flow (perm)	1772	0	1020	1712	1863	1583				
Right Turn on Red		Yes				Yes				
Satd. Flow (RTOR)	1					793				
Link Speed (mph)	30			30	30					
Link Distance (ft)	475			739	258					
Travel Time (s)	10.8			16.8	5.9					
Peak Hour Factor	0.94	0.94	0.91	0.91	0.82	0.82				
Heavy Vehicles (%)	2%	2%	11%	11%	2%	2%				
Adj. Flow (vph)	745	11	44	143	159	793				
Shared Lane Traffic (%)										
Lane Group Flow (vph)	756	0	44	143	159	793				
Turn Type	Prot		pm+pt	NA	NA	custom				
Protected Phases	8		1	6 7	2 7	7 8	2	5	6	7
Permitted Phases			6 7			2				
Detector Phase	8		1	6 7	2 7	7 8				
Switch Phase										
Minimum Initial (s)	5.0		5.0				5.0	5.0	5.0	5.0
Minimum Split (s)	26.5		11.0				9.0	11.0	9.0	11.0
Total Split (s)	46.0		11.0				19.0	11.0	19.0	14.0
Total Split (%)	51.1%		12.2%				21%	12%	21%	16%
Maximum Green (s)	40.0		5.0				15.0	5.0	15.0	8.0
Yellow Time (s)	4.0		4.0				3.0	4.0	3.0	4.0
All-Red Time (s)	2.0		2.0				1.0	2.0	1.0	2.0
Lost Time Adjust (s)	0.0		0.0							
Total Lost Time (s)	6.0		6.0							
Lead/Lag	Lag		Lead				Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes		Yes				Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0		3.0				3.0	3.0	3.0	3.0
Recall Mode	None		None				Min	None	Min	None
Act Effct Green (s)	40.4		27.7	26.9	26.9	74.0				
Actuated g/C Ratio	0.48		0.33	0.32	0.32	0.89				
v/c Ratio	0.88		0.12	0.26	0.27	0.53				
Control Delay	35.7		16.8	23.4	24.4	1.5				
Queue Delay	0.0		0.0	0.0	1.3	0.4				
Total Delay	35.7		16.8	23.4	25.7	1.9				
LOS	D		B	C	C	A				
Approach Delay	35.7			21.8	5.9					

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2	Ø5	Ø6	Ø7
Approach LOS	D			C	A					
Queue Length 50th (ft)	403		14	60	62	5				
Queue Length 95th (ft)	#654		35	107	98	0				
Internal Link Dist (ft)	395			659	178					
Turn Bay Length (ft)			120			90				
Base Capacity (vph)	857		374	548	597	1480				
Starvation Cap Reductn	0		0	0	276	260				
Spillback Cap Reductn	0		0	0	0	0				
Storage Cap Reductn	0		0	0	0	0				
Reduced v/c Ratio	0.88		0.12	0.26	0.50	0.65				

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 83.5
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 19.4 — Intersection LOS: B
Intersection Capacity Utilization 63.7% — ICU Level of Service B
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Splits and Phases: 19: NH 102 EB/NH 102 WB & Connector Road



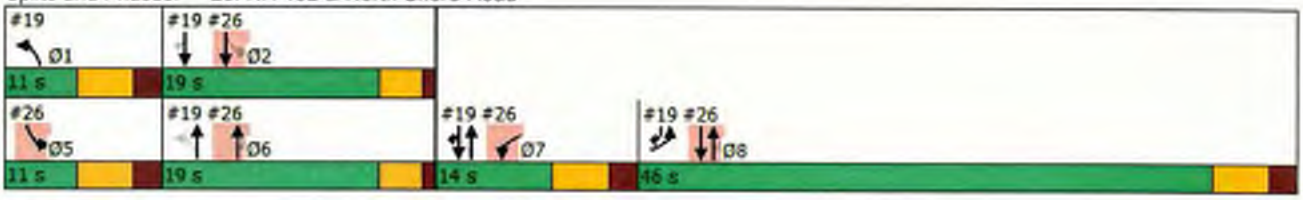
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø1	Ø2	Ø6	Ø8
Lane Configurations										
Traffic Volume (vph)	70	10	680	150	30	710				
Future Volume (vph)	70	10	680	150	30	710				
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900				
Storage Length (ft)	0	0		90	100					
Storage Lanes	1	0		1	1					
Taper Length (ft)	25				25					
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00				
Frt	0.979			0.850						
Flt Protected	0.960				0.950					
Satd. Flow (prot)	1771	0	1900	1615	1805	1900				
Flt Permitted	0.960				0.312					
Satd. Flow (perm)	1771	0	1900	1615	593	1900				
Right Turn on Red		Yes		Yes						
Satd. Flow (RTOR)	8			125						
Link Speed (mph)	30		30			30				
Link Distance (ft)	524		258			288				
Travel Time (s)	11.9		5.9			6.5				
Peak Hour Factor	0.87	0.67	0.95	0.84	0.73	0.96				
Heavy Vehicles (%)	1%	0%	0%	0%	0%	0%				
Adj. Flow (vph)	80	15	716	179	41	740				
Shared Lane Traffic (%)										
Lane Group Flow (vph)	95	0	716	179	41	740				
Turn Type	Prot		NA	Perm	custom	NA				
Protected Phases	7		6 8		5	2 8	1	2	6	8
Permitted Phases				6 8	2					
Detector Phase	7		6 8	6 8	5	2 8				
Switch Phase										
Minimum Initial (s)	5.0				5.0		5.0	5.0	5.0	5.0
Minimum Split (s)	11.0				11.0		11.0	9.0	9.0	26.5
Total Split (s)	14.0				11.0		11.0	19.0	19.0	46.0
Total Split (%)	15.6%				12.2%		12%	21%	21%	51%
Maximum Green (s)	8.0				5.0		5.0	15.0	15.0	40.0
Yellow Time (s)	4.0				4.0		4.0	3.0	3.0	4.0
All-Red Time (s)	2.0				2.0		2.0	1.0	1.0	2.0
Lost Time Adjust (s)	0.0				0.0					
Total Lost Time (s)	6.0				6.0					
Lead/Lag	Lead				Lead		Lead	Lag	Lag	Lag
Lead-Lag Optimize?	Yes				Yes		Yes	Yes	Yes	Yes
Vehicle Extension (s)	3.0				3.0		3.0	3.0	3.0	3.0
Recall Mode	None				None		None	Min	Min	None
Act Effct Green (s)	8.1		57.0	57.0	13.6	57.0				
Actuated g/C Ratio	0.10		0.68	0.68	0.16	0.68				
v/c Ratio	0.54		0.55	0.16	0.24	0.57				
Control Delay	47.4		2.1	0.5	29.1	6.7				
Queue Delay	0.0		0.3	0.1	0.0	0.0				
Total Delay	47.4		2.4	0.6	29.1	6.7				
LOS	D		A	A	C	A				
Approach Delay	47.4		2.1			7.9				

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø1	Ø2	Ø6	Ø8
Approach LOS	D		A			A				
Queue Length 50th (ft)	48		22	0	18	101				
Queue Length 95th (ft)	#102		m42	m1	34	149				
Internal Link Dist (ft)	444		178			208				
Turn Bay Length (ft)				90	100					
Base Capacity (vph)	178		1350	1184	169	1350				
Starvation Cap Reductn	0		180	377	0	0				
Spillback Cap Reductn	0		0	0	0	0				
Storage Cap Reductn	0		0	0	0	0				
Reduced v/c Ratio	0.53		0.61	0.22	0.24	0.55				

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 83.5
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.88
Intersection Signal Delay: 7.0 Intersection LOS: A
Intersection Capacity Utilization 50.2% ICU Level of Service A
Analysis Period (min) 15
\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 26: NH 102 & North Shore Road



APPENDIX R-1: ALTERNATIVE D INTERSECTION CAPACITY ANALYSES – HCS PRINTOUTS – AM PEAK HOUR

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↰	↱↱
Traffic Volume (vph)	0	1365	805	0	115	985
Future Volume (vph)	0	1365	805	0	115	985
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	16	12
Total Lost time (s)		6.0	6.0		6.0	6.0
Lane Util. Factor		0.95	0.95		1.00	0.88
Frt		1.00	1.00		1.00	0.85
Flt Protected		1.00	1.00		0.95	1.00
Satd. Flow (prot)		3471	3406		1930	2682
Flt Permitted		1.00	1.00		0.95	1.00
Satd. Flow (perm)		3471	3406		1930	2682
Peak-hour factor, PHF	0.93	0.93	0.88	0.88	0.89	0.89
Adj. Flow (vph)	0	1468	915	0	129	1107
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	1468	915	0	129	1107
Heavy Vehicles (%)	4%	4%	6%	6%	6%	6%
Turn Type		NA	NA		Prot	Prot
Protected Phases		2	6		4	4
Permitted Phases						
Actuated Green, G (s)		32.0	32.0		31.0	31.0
Effective Green, g (s)		32.0	32.0		31.0	31.0
Actuated g/C Ratio		0.43	0.43		0.41	0.41
Clearance Time (s)		6.0	6.0		6.0	6.0
Vehicle Extension (s)		3.0	3.0		3.0	3.0
Lane Grp Cap (vph)		1480	1453		797	1108
v/s Ratio Prot		c0.42	0.27		0.07	c0.41
v/s Ratio Perm						
v/c Ratio		0.99	0.63		0.16	1.00
Uniform Delay, d1		21.4	16.9		13.8	22.0
Progression Factor		0.99	1.32		1.00	1.00
Incremental Delay, d2		13.3	0.2		0.1	26.6
Delay (s)		34.6	22.4		13.9	48.6
Level of Service		C	C		B	D
Approach Delay (s)		34.6	22.4		45.0	
Approach LOS		C	C		D	

Intersection Summary			
HCM 2000 Control Delay	35.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	68.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	NBL2	NBL	NBR	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Traffic Volume (vph)	455	0	330	0	0	1310	170	0	0	1080	360
Future Volume (vph)	455	0	330	0	0	1310	170	0	0	1080	360
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0			6.0	6.0			6.0	4.0
Lane Util. Factor	0.97		0.88			0.97	0.95			0.95	1.00
Frt	1.00		0.85			1.00	1.00			1.00	0.85
Flt Protected	0.95		1.00			0.95	1.00			1.00	1.00
Satd. Flow (prot)	3242		2632			3335	3438			3505	1568
Flt Permitted	0.95		1.00			0.95	1.00			1.00	1.00
Satd. Flow (perm)	3242		2632			3335	3438			3505	1568
Peak-hour factor, PHF	0.88	0.88	0.88	0.92	0.92	0.94	0.94	0.94	0.92	0.92	0.92
Adj. Flow (vph)	517	0	375	0	0	1394	181	0	0	1174	391
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	517	0	375	0	0	1394	181	0	0	1174	391
Heavy Vehicles (%)	8%	8%	8%	2%	2%	5%	5%	5%	3%	3%	3%
Turn Type	Prot		Prot			Prot	NA			NA	Free
Protected Phases	8		8			5	2			6	
Permitted Phases											Free
Actuated Green, G (s)	23.0		23.0			60.0	115.0			49.0	150.0
Effective Green, g (s)	23.0		23.0			60.0	115.0			49.0	150.0
Actuated g/C Ratio	0.15		0.15			0.40	0.77			0.33	1.00
Clearance Time (s)	6.0		6.0			6.0	6.0			6.0	
Vehicle Extension (s)	3.0		3.0			3.0	3.0			3.0	
Lane Grp Cap (vph)	497		403			1334	2635			1144	1568
v/s Ratio Prot	c0.16		0.14			c0.42	0.05			c0.33	
v/s Ratio Perm											0.25
v/c Ratio	1.04		0.93			1.04	0.07			1.03	0.25
Uniform Delay, d1	63.5		62.7			45.0	4.3			50.5	0.0
Progression Factor	1.00		1.00			0.61	1.73			1.00	1.00
Incremental Delay, d2	51.2		28.0			28.7	0.0			33.5	0.4
Delay (s)	114.7		90.7			56.0	7.5			84.0	0.4
Level of Service	F		F			E	A			F	A
Approach Delay (s)		104.6		0.0			50.5			63.1	
Approach LOS		F		A			D			E	

Intersection Summary			
HCM 2000 Control Delay	67.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	96.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑↑	↱	↰	↑↑					↰↰		↱
Traffic Volume (vph)	0	585	460	285	685	0	0	0	0	110	0	360
Future Volume (vph)	0	585	460	285	685	0	0	0	0	110	0	360
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	4.0	6.0	6.0					6.0		6.0
Lane Util. Factor		0.95	1.00	1.00	0.95					0.97		1.00
Frt		1.00	0.85	1.00	1.00					1.00		0.85
Flt Protected		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (prot)		3167	1417	1687	3374					3303		1524
Flt Permitted		1.00	1.00	0.95	1.00					0.95		1.00
Satd. Flow (perm)		3167	1417	1687	3374					3303		1524
Peak-hour factor, PHF	0.92	0.92	0.92	0.73	0.73	0.73	0.92	0.92	0.92	0.74	0.74	0.74
Adj. Flow (vph)	0	636	500	390	938	0	0	0	0	149	0	486
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	96
Lane Group Flow (vph)	0	636	500	390	938	0	0	0	0	149	0	390
Heavy Vehicles (%)	14%	14%	14%	7%	7%	7%	2%	2%	2%	6%	6%	6%
Turn Type		NA	Free	Prot	NA					Prot		Prot
Protected Phases		2		1	6					4		4
Permitted Phases			Free									
Actuated Green, G (s)		32.1	110.0	28.8	66.9					31.1		31.1
Effective Green, g (s)		32.1	110.0	28.8	66.9					31.1		31.1
Actuated g/C Ratio		0.29	1.00	0.26	0.61					0.28		0.28
Clearance Time (s)		6.0		6.0	6.0					6.0		6.0
Vehicle Extension (s)		5.0		3.0	5.0					3.0		3.0
Lane Grp Cap (vph)		924	1417	441	2052					933		430
v/s Ratio Prot		c0.20		c0.23	0.28					0.05		c0.26
v/s Ratio Perm			0.35									
v/c Ratio		0.69	0.35	0.88	0.46					0.16		0.91
Uniform Delay, d1		34.5	0.0	39.0	11.7					29.6		38.1
Progression Factor		1.00	1.00	0.40	0.08					1.00		1.00
Incremental Delay, d2		4.2	0.7	16.0	0.4					0.1		22.3
Delay (s)		38.7	0.7	31.4	1.3					29.7		60.4
Level of Service		D	A	C	A					C		E
Approach Delay (s)		22.0			10.1			0.0			53.2	
Approach LOS		C			B			A			D	

Intersection Summary			
HCM 2000 Control Delay	23.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	71.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	485	210	0	0	520	350	450	0	160	0	0	0
Future Volume (vph)	485	210	0	0	520	350	450	0	160	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0	4.0	6.0		6.0			
Lane Util. Factor	1.00	0.95			0.95	1.00	1.00		1.00			
Frt	1.00	1.00			1.00	0.85	1.00		0.85			
Flt Protected	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (prot)	1641	3282			3438	1538	1656		1482			
Flt Permitted	0.95	1.00			1.00	1.00	0.95		1.00			
Satd. Flow (perm)	1641	3282			3438	1538	1656		1482			
Peak-hour factor, PHF	0.87	0.87	0.87	0.90	0.90	0.90	0.78	0.78	0.78	0.92	0.92	0.92
Adj. Flow (vph)	557	241	0	0	578	389	577	0	205	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	128	0	0	0
Lane Group Flow (vph)	557	241	0	0	578	389	577	0	77	0	0	0
Heavy Vehicles (%)	10%	10%	10%	5%	5%	5%	9%	9%	9%	2%	2%	2%
Turn Type	Prot	NA			NA	Free	Prot		Prot			
Protected Phases	5	2			6		8		8			
Permitted Phases		2			6	Free						
Actuated Green, G (s)	36.0	61.0			19.0	110.0	37.0		37.0			
Effective Green, g (s)	36.0	61.0			19.0	110.0	37.0		37.0			
Actuated g/C Ratio	0.33	0.55			0.17	1.00	0.34		0.34			
Clearance Time (s)	6.0	6.0			6.0		6.0		6.0			
Vehicle Extension (s)	5.0	5.0			5.0		3.0		3.0			
Lane Grp Cap (vph)	537	1820			593	1538	557		498			
v/s Ratio Prot	c0.34	0.07			c0.17		c0.35		0.05			
v/s Ratio Perm						0.25						
v/c Ratio	1.04	0.13			0.97	0.25	1.04		0.15			
Uniform Delay, d1	37.0	11.8			45.3	0.0	36.5		25.6			
Progression Factor	0.27	0.17			1.00	1.00	1.00		1.00			
Incremental Delay, d2	43.7	0.1			31.2	0.4	47.7		0.1			
Delay (s)	53.5	2.1			76.5	0.4	84.2		25.7			
Level of Service	D	A			E	A	F		C			
Approach Delay (s)		38.0			45.9			68.9			0.0	
Approach LOS		D			D			E			A	

Intersection Summary			
HCM 2000 Control Delay	50.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	71.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	10	0	160	0	0	1	100	500	5	5	1110	30
Future Volume (vph)	10	0	160	0	0	1	100	500	5	5	1110	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0	6.0		6.0		6.0	6.0		6.0	6.0	
Lane Util. Factor		1.00	1.00		1.00		1.00	0.95		1.00	0.95	
Frt		1.00	0.85		0.86		1.00	1.00		1.00	1.00	
Flt Protected		0.95	1.00		1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1770	1583		1644		1770	3534		1770	3525	
Flt Permitted		1.00	1.00		1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1863	1583		1644		1770	3534		1770	3525	
Peak-hour factor, PHF	0.92	0.92	0.92	0.25	0.25	0.25	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	11	0	174	0	0	4	109	543	5	5	1207	33
RTOR Reduction (vph)	0	0	65	0	4	0	0	1	0	0	2	0
Lane Group Flow (vph)	0	11	109	0	0	0	109	547	0	5	1238	0
Heavy Vehicles (%)	2%	2%	2%	0%	0%	0%	2%	2%	2%	2%	2%	2%
Turn Type	Perm	NA	custom		NA		Prot	NA		Prot	NA	
Protected Phases		8			4		5	2		1	6	
Permitted Phases	8		6	4								
Actuated Green, G (s)		1.2	44.8		1.2		7.8	51.8		0.8	44.8	
Effective Green, g (s)		1.2	44.8		1.2		7.8	51.8		0.8	44.8	
Actuated g/C Ratio		0.02	0.62		0.02		0.11	0.72		0.01	0.62	
Clearance Time (s)		6.0	6.0		6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)		3.0	3.0		3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)		31	987		27		192	2549		19	2199	
v/s Ratio Prot					0.00		c0.06	0.15		0.00	c0.35	
v/s Ratio Perm		c0.01	0.07									
v/c Ratio		0.35	0.11		0.00		0.57	0.21		0.26	0.56	
Uniform Delay, d1		34.9	5.5		34.7		30.4	3.3		35.2	7.8	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		6.9	0.0		0.0		3.8	0.0		7.3	0.3	
Delay (s)		41.8	5.5		34.7		34.2	3.3		42.5	8.2	
Level of Service		D	A		C		C	A		D	A	
Approach Delay (s)		7.7			34.7			8.5			8.3	
Approach LOS		A			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	8.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	71.8	Sum of lost time (s)	18.0
Intersection Capacity Utilization	64.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	10	20	10	350	0	30	0	420	110	15	585	0
Future Volume (vph)	10	20	10	350	0	30	0	420	110	15	585	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			6.0			6.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		0.97			0.99			0.97			1.00	
Flt Protected		0.99			0.96			1.00			1.00	
Satd. Flow (prot)		1776			1745			1710			1807	
Flt Permitted		0.87			0.69			1.00			0.98	
Satd. Flow (perm)		1573			1268			1710			1776	
Peak-hour factor, PHF	0.60	0.60	0.60	0.96	0.96	0.96	0.89	0.89	0.89	0.86	0.86	0.86
Adj. Flow (vph)	17	33	17	365	0	31	0	472	124	17	680	0
RTOR Reduction (vph)	0	11	0	0	23	0	0	11	0	0	0	0
Lane Group Flow (vph)	0	56	0	0	373	0	0	585	0	0	697	0
Heavy Vehicles (%)	2%	2%	2%	3%	3%	3%	8%	8%	8%	5%	5%	5%
Turn Type	Perm	NA		Perm	NA			NA		Perm	NA	
Protected Phases		4			4			2			2	
Permitted Phases	4			4						2		
Actuated Green, G (s)		27.3			27.3			38.4			38.4	
Effective Green, g (s)		27.3			27.3			38.4			38.4	
Actuated g/C Ratio		0.35			0.35			0.49			0.49	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		552			445			845			877	
v/s Ratio Prot								0.34				
v/s Ratio Perm		0.04			c0.29						c0.39	
v/c Ratio		0.10			0.84			0.69			0.79	
Uniform Delay, d1		16.9			23.2			15.1			16.4	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.1			12.9			2.5			5.0	
Delay (s)		17.0			36.1			17.6			21.4	
Level of Service		B			D			B			C	
Approach Delay (s)		17.0			36.1			17.6			21.4	
Approach LOS		B			D			B			C	

Intersection Summary			
HCM 2000 Control Delay	23.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	77.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	82.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	200	90	20	520	60	60	290	30	70	240	30
Future Volume (vph)	80	200	90	20	520	60	60	290	30	70	240	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Frt	1.00	0.95		1.00	0.98		1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1656	1662		1703	1765		1719	1784		1703	1792	1524
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	1656	1662		1703	1765		1719	1784		1703	1792	1524
Peak-hour factor, PHF	0.96	0.96	0.96	0.94	0.94	0.94	0.85	0.85	0.85	0.91	0.91	0.91
Adj. Flow (vph)	83	208	94	21	553	64	71	341	35	77	264	33
RTOR Reduction (vph)	0	17	0	0	4	0	0	4	0	0	0	26
Lane Group Flow (vph)	83	285	0	21	613	0	71	372	0	77	264	7
Heavy Vehicles (%)	9%	9%	9%	6%	6%	6%	5%	5%	5%	6%	6%	6%
Parking (#/hr)			0									
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases												4
Actuated Green, G (s)	4.6	36.0		2.3	33.7		7.4	19.2		7.5	19.3	19.3
Effective Green, g (s)	4.6	36.0		2.3	33.7		7.4	19.2		7.5	19.3	19.3
Actuated g/C Ratio	0.05	0.40		0.03	0.38		0.08	0.22		0.08	0.22	0.22
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	85	672		44	668		142	384		143	388	330
v/s Ratio Prot	c0.05	0.17		0.01	c0.35		0.04	c0.21		c0.05	0.15	
v/s Ratio Perm												0.00
v/c Ratio	0.98	0.42		0.48	0.92		0.50	0.97		0.54	0.68	0.02
Uniform Delay, d1	42.1	19.0		42.8	26.3		39.0	34.6		39.1	32.0	27.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	89.0	0.4		7.9	17.4		2.8	37.3		3.9	4.9	0.0
Delay (s)	131.1	19.5		50.7	43.7		41.8	71.9		43.0	36.9	27.4
Level of Service	F	B		D	D		D	E		D	D	C
Approach Delay (s)		43.5			44.0			67.1			37.3	
Approach LOS		D			D			E			D	

Intersection Summary			
HCM 2000 Control Delay	48.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	89.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	76.4%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	370	20	5	100	80	270
Future Volume (vph)	370	20	5	100	80	270
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	120	0			220
Storage Lanes	1	1	0			1
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.850				0.850
Flt Protected	0.950			0.998		
Satd. Flow (prot)	1719	1538	0	1823	1863	1583
Flt Permitted	0.950			0.998		
Satd. Flow (perm)	1719	1538	0	1823	1863	1583
Link Speed (mph)	30			30	30	
Link Distance (ft)	322			309	292	
Travel Time (s)	7.3			7.0	6.6	
Peak Hour Factor	0.89	0.89	0.91	0.91	0.93	0.93
Heavy Vehicles (%)	5%	5%	4%	4%	2%	2%
Adj. Flow (vph)	416	22	5	110	86	290
Shared Lane Traffic (%)						
Lane Group Flow (vph)	416	22	0	115	86	290
Sign Control	Stop			Stop	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 36.5%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Intersection Delay, s/veh	17.9
Intersection LOS	C

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	370	20	5	100	80	270
Future Vol, veh/h	370	20	5	100	80	270
Peak Hour Factor	0.89	0.89	0.91	0.91	0.93	0.93
Heavy Vehicles, %	5	5	4	4	2	2
Mvmt Flow	416	22	5	110	86	290
Number of Lanes	1	1	0	1	1	1

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	2	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	2	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	2
HCM Control Delay	24.8	11.2	12
HCM LOS	C	B	B

Lane	NBLn1	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	5%	100%	0%	0%	0%
Vol Thru, %	95%	0%	0%	100%	0%
Vol Right, %	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	105	370	20	80	270
LT Vol	5	370	0	0	0
Through Vol	100	0	0	80	0
RT Vol	0	0	20	0	270
Lane Flow Rate	115	416	22	86	290
Geometry Grp	4	7	7	7	7
Degree of Util (X)	0.206	0.745	0.033	0.148	0.443
Departure Headway (Hd)	6.428	6.453	5.242	6.209	5.499
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	557	561	683	577	653
Service Time	4.479	4.182	2.97	3.953	3.242
HCM Lane V/C Ratio	0.206	0.742	0.032	0.149	0.444
HCM Control Delay	11.2	25.7	8.1	10	12.6
HCM Lane LOS	B	D	A	A	B
HCM 95th-tile Q	0.8	6.4	0.1	0.5	2.3

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	10	0	0	470	350	20
Future Volume (vph)	10	0	0	470	350	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt					0.993	
Flt Protected	0.950					
Satd. Flow (prot)	1008	0	0	1827	1780	0
Flt Permitted	0.950					
Satd. Flow (perm)	1008	0	0	1827	1780	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	160			224	319	
Travel Time (s)	3.6			5.1	7.3	
Peak Hour Factor	0.44	0.44	0.95	0.95	0.96	0.96
Heavy Vehicles (%)	79%	79%	4%	4%	6%	6%
Adj. Flow (vph)	23	0	0	495	365	21
Shared Lane Traffic (%)						
Lane Group Flow (vph)	23	0	0	495	386	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 34.7%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.5

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	0	0	470	350	20
Future Vol, veh/h	10	0	0	470	350	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	-	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	44	44	95	95	96	96
Heavy Vehicles, %	79	79	4	4	6	6
Mvmt Flow	23	0	0	495	365	21

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	871	376	386	0	-	0
Stage 1	376	-	-	-	-	-
Stage 2	495	-	-	-	-	-
Critical Hdwy	7.19	6.99	4.14	-	-	-
Critical Hdwy Stg 1	6.19	-	-	-	-	-
Critical Hdwy Stg 2	6.19	-	-	-	-	-
Follow-up Hdwy	4.211	4.011	2.236	-	-	-
Pot Cap-1 Maneuver	239	529	1162	-	-	-
Stage 1	554	-	-	-	-	-
Stage 2	481	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	239	529	1162	-	-	-
Mov Cap-2 Maneuver	239	-	-	-	-	-
Stage 1	554	-	-	-	-	-
Stage 2	481	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	21.6	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1162	-	239	-	-
HCM Lane V/C Ratio	-	-	0.095	-	-
HCM Control Delay (s)	0	-	21.6	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0	-	0.3	-	-

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		✣			✣			✣			✣	
Traffic Volume (vph)	50	410	10	30	280	10	20	10	80	10	0	30
Future Volume (vph)	50	410	10	30	280	10	20	10	80	10	0	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	150		150	0		0	150		150
Storage Lanes	0		0	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.997			0.996			0.902			0.899	
Flt Protected		0.995			0.995			0.991			0.988	
Satd. Flow (prot)	0	1762	0	0	1793	0	0	1665	0	0	1688	0
Flt Permitted		0.995			0.995			0.991			0.988	
Satd. Flow (perm)	0	1762	0	0	1793	0	0	1665	0	0	1688	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		327			240			246			251	
Travel Time (s)		7.4			5.5			5.6			5.7	
Peak Hour Factor	0.89	0.89	0.89	0.96	0.96	0.96	0.65	0.65	0.65	0.67	0.67	0.67
Heavy Vehicles (%)	7%	7%	7%	5%	5%	5%	2%	2%	2%	0%	0%	0%
Adj. Flow (vph)	56	461	11	31	292	10	31	15	123	15	0	45
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	528	0	0	333	0	0	169	0	0	60	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 48.8%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	3.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	50	410	10	30	280	10	20	10	80	10	0	30
Future Vol, veh/h	50	410	10	30	280	10	20	10	80	10	0	30
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Free	Free	Stop	Stop	Stop	Stop	Stop	Stop
RT Channelized	-	-	None	-	-	None	-	-	Yield	-	-	None
Storage Length	-	-	-	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	89	89	89	96	96	96	65	65	65	67	67	67
Heavy Vehicles, %	7	7	7	5	5	5	2	2	2	0	0	0
Mvmt Flow	56	461	11	31	292	10	31	15	123	15	0	45

Major/Minor	Major1			Major2			Minor2			Minor1		
Conflicting Flow All	302	0	0	472	0	0	960	943	297	946	943	467
Stage 1	-	-	-	-	-	-	359	359	-	579	579	-
Stage 2	-	-	-	-	-	-	601	584	-	367	364	-
Critical Hdwy	4.17	-	-	4.15	-	-	7.12	6.52	6.22	7.1	6.5	6.2
Critical Hdwy Stg 1	-	-	-	-	-	-	6.12	5.52	-	6.1	5.5	-
Critical Hdwy Stg 2	-	-	-	-	-	-	6.12	5.52	-	6.1	5.5	-
Follow-up Hdwy	2.263	-	-	2.245	-	-	3.518	4.018	3.318	3.5	4	3.3
Pot Cap-1 Maneuver	1231	-	-	1074	-	-	236	263	742	243	265	600
Stage 1	-	-	-	-	-	-	659	627	-	504	504	-
Stage 2	-	-	-	-	-	-	487	498	-	657	627	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1231	-	-	1074	-	-	202	238	742	179	240	600
Mov Cap-2 Maneuver	-	-	-	-	-	-	202	238	-	179	240	-
Stage 1	-	-	-	-	-	-	618	605	-	473	473	-
Stage 2	-	-	-	-	-	-	423	467	-	515	605	-

Approach	EB	WB	SE	NW
HCM Control Delay, s	0.9	0.8	10.9	16.3
HCM LOS			B	C

Minor Lane/Major Mvmt	NWLn1	EBL	EBT	EBR	WBL	WBT	WBR	SELn1
Capacity (veh/h)	378	1231	-	-	1074	-	-	780
HCM Lane V/C Ratio	0.158	0.046	-	-	0.029	-	-	0.217
HCM Control Delay (s)	16.3	8.1	0	-	8.5	0	-	10.9
HCM Lane LOS	C	A	A	-	A	A	-	B
HCM 95th %tile Q(veh)	0.6	0.1	-	-	0.1	-	-	0.8

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	20	200	140	590	190	0	160	220	30	30	310	770
Future Volume (vph)	20	200	140	590	190	0	160	220	30	30	310	770
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0	4.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95		0.97	1.00	1.00	1.00	1.00	0.88
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	1736	3471	1553	3335	3438		3400	1845	1568	1752	1845	2760
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	1736	3471	1553	3335	3438		3400	1845	1568	1752	1845	2760
Peak-hour factor, PHF	0.84	0.84	0.84	0.79	0.79	0.79	0.86	0.86	0.86	0.99	0.99	0.99
Adj. Flow (vph)	24	238	167	747	241	0	186	256	35	30	313	778
RTOR Reduction (vph)	0	0	125	0	0	0	0	0	0	0	0	124
Lane Group Flow (vph)	24	238	42	747	241	0	186	256	35	30	313	654
Heavy Vehicles (%)	4%	4%	4%	5%	5%	5%	3%	3%	3%	3%	3%	3%
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	Free	Prot	NA	pt+ov
Protected Phases	1	6	7	5	2		3	8		7	4	4 5
Permitted Phases		6	6		2			8	Free		4	
Actuated Green, G (s)	12.7	15.1	22.6	22.9	25.3		7.0	20.5	90.0	7.5	21.0	43.9
Effective Green, g (s)	12.7	15.1	22.6	22.9	25.3		7.0	20.5	90.0	7.5	21.0	43.9
Actuated g/C Ratio	0.14	0.17	0.25	0.25	0.28		0.08	0.23	1.00	0.08	0.23	0.49
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	244	582	493	848	966		264	420	1568	146	430	1346
v/s Ratio Prot	0.01	c0.07	0.01	c0.22	0.07		0.05	c0.14		0.02	c0.17	0.24
v/s Ratio Perm			0.02						c0.02			
v/c Ratio	0.10	0.41	0.09	0.88	0.25		0.70	0.61	0.02	0.21	0.73	0.49
Uniform Delay, d1	33.7	33.5	25.8	32.2	25.0		40.5	31.2	0.0	38.5	31.9	15.5
Progression Factor	1.00	1.00	1.00	0.90	0.89		1.00	1.00	1.00	0.72	0.64	0.58
Incremental Delay, d2	0.2	0.5	0.1	10.1	0.6		8.3	2.5	0.0	0.5	4.5	0.2
Delay (s)	33.8	33.9	25.9	39.2	22.8		48.8	33.7	0.0	28.4	24.8	9.2
Level of Service	C	C	C	D	C		D	C	A	C	C	A
Approach Delay (s)		30.8			35.2			37.1			14.1	
Approach LOS		C			D			D			B	

Intersection Summary			
HCM 2000 Control Delay	27.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	64.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Volume (vph)	300	70	580	370	60	810
Future Volume (vph)	300	70	580	370	60	810
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	0.85	1.00	1.00
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	1583	3505	1568	1770	3539
Flt Permitted	0.95	1.00	1.00	1.00	0.23	1.00
Satd. Flow (perm)	1770	1583	3505	1568	429	3539
Peak-hour factor, PHF	0.83	0.83	0.86	0.86	0.81	0.81
Adj. Flow (vph)	361	84	674	430	74	1000
RTOR Reduction (vph)	0	10	0	0	0	0
Lane Group Flow (vph)	361	74	674	430	74	1000
Heavy Vehicles (%)	2%	2%	3%	3%	2%	2%
Turn Type	Prot	pm+ov	NA	Free	pm+pt	NA
Protected Phases	1 2 5 6	7	8		7	3 4
Permitted Phases		1 2 5 6		Free	3 4	
Actuated Green, G (s)	40.4	47.9	20.5	90.0	34.0	34.0
Effective Green, g (s)	40.4	47.9	20.5	90.0	34.0	34.0
Actuated g/C Ratio	0.45	0.53	0.23	1.00	0.38	0.38
Clearance Time (s)		6.0	6.0		6.0	
Vehicle Extension (s)		3.0	3.0		3.0	
Lane Grp Cap (vph)	794	948	798	1568	273	1336
v/s Ratio Prot	c0.20	0.01	c0.19		0.02	c0.28
v/s Ratio Perm		0.04		c0.27	0.08	
v/c Ratio	0.45	0.08	0.84	0.27	0.27	0.75
Uniform Delay, d1	17.2	10.3	33.2	0.0	27.8	24.3
Progression Factor	1.00	1.00	0.58	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.0	5.6	0.3	0.5	2.3
Delay (s)	17.6	10.3	24.7	0.3	28.3	26.6
Level of Service	B	B	C	A	C	C
Approach Delay (s)	16.2		15.2			26.7
Approach LOS	B		B			C

Intersection Summary			
HCM 2000 Control Delay	20.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	53.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	160	980	0	0	980	50	5	0	5	20	0	180
Future Volume (vph)	160	980	0	0	980	50	5	0	5	20	0	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0			6.0	6.0		6.0	6.0
Lane Util. Factor	1.00	0.95			0.95			1.00	1.00		1.00	1.00
Frt	1.00	1.00			0.99			1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00			1.00			0.95	1.00		0.95	1.00
Satd. Flow (prot)	1687	3374			3514			1805	1615		1787	1599
Flt Permitted	0.95	1.00			1.00			1.00	1.00		1.00	1.00
Satd. Flow (perm)	1687	3374			3514			1900	1615		1881	1599
Peak-hour factor, PHF	0.83	0.83	0.83	0.92	0.92	0.92	0.50	0.50	0.50	0.90	0.90	0.90
Adj. Flow (vph)	193	1181	0	0	1065	54	10	0	10	22	0	200
RTOR Reduction (vph)	0	0	0	0	3	0	0	0	10	0	0	82
Lane Group Flow (vph)	193	1181	0	0	1116	0	0	10	0	0	22	118
Heavy Vehicles (%)	7%	7%	7%	2%	2%	2%	0%	0%	0%	1%	1%	1%
Turn Type	Prot	NA		Prot	NA		Perm	NA	Perm	Perm	NA	pm+ov
Protected Phases	5	2		1	6			8			4	5
Permitted Phases					6		8	8	8	4		4
Actuated Green, G (s)	18.9	74.6			49.7			3.4	3.4		3.4	22.3
Effective Green, g (s)	18.9	74.6			49.7			3.4	3.4		3.4	22.3
Actuated g/C Ratio	0.21	0.83			0.55			0.04	0.04		0.04	0.25
Clearance Time (s)	6.0	6.0			6.0			6.0	6.0		6.0	6.0
Vehicle Extension (s)	3.0	3.0			3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	354	2796			1940			71	61		71	502
v/s Ratio Prot	c0.11	0.35			c0.32							c0.05
v/s Ratio Perm								0.01	0.00		0.01	0.02
v/c Ratio	0.55	0.42			0.58			0.14	0.01		0.31	0.24
Uniform Delay, d1	31.7	2.0			13.2			41.9	41.7		42.2	27.0
Progression Factor	0.97	1.99			1.46			1.00	1.00		1.00	1.00
Incremental Delay, d2	1.5	0.4			0.4			0.9	0.0		2.5	0.2
Delay (s)	32.2	4.4			19.7			42.8	41.7		44.6	27.3
Level of Service	C	A			B			D	D		D	C
Approach Delay (s)		8.3			19.7			42.3			29.0	
Approach LOS		A			B			D			C	

Intersection Summary			
HCM 2000 Control Delay	14.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	60.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	140	990	20	5	940	340	10	5	5	110	5	180
Future Volume (vph)	140	990	20	5	940	340	10	5	5	110	5	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	0.97	0.95		1.00	0.95	1.00	1.00	1.00		0.95	0.95	1.00
Frt	1.00	1.00		1.00	1.00	0.85	1.00	0.93		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.96	1.00
Satd. Flow (prot)	3303	3396		1736	3471	1553	1805	1758		1665	1676	1568
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	0.00	1.00
Satd. Flow (perm)	3303	3396		1736	3471	1553	1805	1758		1665	0	1568
Peak-hour factor, PHF	0.83	0.83	0.83	0.97	0.97	0.97	0.67	0.67	0.67	0.90	0.90	0.90
Adj. Flow (vph)	169	1193	24	5	969	351	15	7	7	122	6	200
RTOR Reduction (vph)	0	1	0	0	0	133	0	7	0	0	0	135
Lane Group Flow (vph)	169	1216	0	5	969	218	15	7	0	63	65	65
Heavy Vehicles (%)	6%	6%	6%	4%	4%	4%	0%	0%	0%	3%	3%	3%
Turn Type	Prot	NA		Prot	NA	pm+ov	Prot	NA		Prot	NA	pt+ov
Protected Phases	5	2		1	6	7	3	8		7	4	4 5
Permitted Phases						6		8				
Actuated Green, G (s)	9.2	55.4		1.0	47.2	55.8	1.5	1.0		8.6	8.6	23.3
Effective Green, g (s)	9.2	55.4		1.0	47.2	55.8	1.5	1.0		8.6	8.6	23.3
Actuated g/C Ratio	0.10	0.62		0.01	0.52	0.62	0.02	0.01		0.10	0.10	0.26
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	337	2090		19	1820	962	30	19		159	160	405
v/s Ratio Prot	0.05	c0.36		0.00	c0.28	0.02	c0.01	0.00		0.04	c0.04	0.04
v/s Ratio Perm						0.12						
v/c Ratio	0.50	0.58		0.26	0.53	0.23	0.50	0.37		0.40	0.41	0.16
Uniform Delay, d1	38.2	10.4		44.1	14.1	7.6	43.9	44.2		38.3	38.3	25.8
Progression Factor	1.00	1.00		1.08	0.90	7.08	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.2	1.2		6.5	0.3	0.1	12.5	11.9		1.6	1.7	0.2
Delay (s)	39.4	11.6		54.0	12.9	53.6	56.4	56.1		39.9	40.0	26.0
Level of Service	D	B		D	B	D	E	E		D	D	C
Approach Delay (s)		14.9			23.9			56.2			31.4	
Approach LOS		B			C			E			C	

Intersection Summary			
HCM 2000 Control Delay	21.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	57.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	120	1340	1180	10	20	100
Future Volume (vph)	120	1340	1180	10	20	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	300			0	175	0
Storage Lanes	1			0	1	1
Taper Length (ft)	25				25	
Lane Util. Factor	1.00	0.95	0.95	0.95	1.00	1.00
Frt			0.999			0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1687	3374	3468	0	1703	1524
Flt Permitted	0.950				0.950	
Satd. Flow (perm)	1687	3374	3468	0	1703	1524
Link Speed (mph)		30	30		30	
Link Distance (ft)		535	210		522	
Travel Time (s)		12.2	4.8		11.9	
Peak Hour Factor	0.84	0.84	0.89	0.89	0.83	0.83
Heavy Vehicles (%)	7%	7%	4%	4%	6%	6%
Adj. Flow (vph)	143	1595	1326	11	24	120
Shared Lane Traffic (%)						
Lane Group Flow (vph)	143	1595	1337	0	24	120
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 52.9%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	6.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	120	1340	1180	10	20	100
Future Vol, veh/h	120	1340	1180	10	20	100
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	300	-	-	-	175	0
Veh in Median Storage, #	-	0	0	-	0	-
Grade, %	-	0	0	-	0	-
Peak Hour Factor	84	84	89	89	83	83
Heavy Vehicles, %	7	7	4	4	6	6
Mvmt Flow	143	1595	1326	11	24	120

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	1337	0	-	0	2416	669
Stage 1	-	-	-	-	1332	-
Stage 2	-	-	-	-	1084	-
Critical Hdwy	4.24	-	-	-	6.92	7.02
Critical Hdwy Stg 1	-	-	-	-	5.92	-
Critical Hdwy Stg 2	-	-	-	-	5.92	-
Follow-up Hdwy	2.27	-	-	-	3.56	3.36
Pot Cap-1 Maneuver	486	-	-	-	26	391
Stage 1	-	-	-	-	204	-
Stage 2	-	-	-	-	277	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	486	-	-	-	~ 18	391
Mov Cap-2 Maneuver	-	-	-	-	~ 18	-
Stage 1	-	-	-	-	144	-
Stage 2	-	-	-	-	277	-

Approach	EB	WB	SB
HCM Control Delay, s	1.3	0	121.4
HCM LOS			F

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1	SBLn2
Capacity (veh/h)	486	-	-	-	18	391
HCM Lane V/C Ratio	0.294	-	-	-	1.339	0.308
HCM Control Delay (s)	15.5	-	-	-	$ 636.6	18.3
HCM Lane LOS	C	-	-	-	F	C
HCM 95th %tile Q(veh)	1.2	-	-	-	3.4	1.3

Notes			
~: Volume exceeds capacity	$: Delay exceeds 300s	+: Computation Not Defined	*: All major volume in platoon

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	55	1630	1560	210	90	105
Future Volume (vph)	55	1630	1560	210	90	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0		6.0	6.0
Lane Util. Factor	1.00	0.95	0.95		1.00	1.00
Frt	1.00	1.00	0.98		1.00	0.85
Flt Protected	0.95	1.00	1.00		0.95	1.00
Satd. Flow (prot)	1770	3539	3476		1770	1583
Flt Permitted	0.10	1.00	1.00		0.95	1.00
Satd. Flow (perm)	184	3539	3476		1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	60	1772	1696	228	98	114
RTOR Reduction (vph)	0	0	16	0	0	16
Lane Group Flow (vph)	60	1772	1908	0	98	98
Turn Type	pm+pt	NA	NA		Prot	pm+ov
Protected Phases	5	2	6		4	5
Permitted Phases	2					4
Actuated Green, G (s)	41.9	41.9	34.4		4.4	5.9
Effective Green, g (s)	41.9	41.9	34.4		4.4	5.9
Actuated g/C Ratio	0.72	0.72	0.59		0.08	0.10
Clearance Time (s)	6.0	6.0	6.0		6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	173	2543	2051		133	323
v/s Ratio Prot	0.01	c0.50	c0.55		c0.06	0.01
v/s Ratio Perm	0.24					0.05
v/c Ratio	0.35	0.70	0.93		0.74	0.30
Uniform Delay, d1	11.2	4.6	10.9		26.4	24.3
Progression Factor	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	1.2	0.8	8.2		19.0	0.5
Delay (s)	12.4	5.5	19.1		45.4	24.8
Level of Service	B	A	B		D	C
Approach Delay (s)		5.7	19.1		34.3	
Approach LOS		A	B		C	

Intersection Summary			
HCM 2000 Control Delay	13.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	58.3	Sum of lost time (s)	18.0
Intersection Capacity Utilization	66.3%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	NBT	NBR	SBL	SBT	SWL	SWR
Lane Configurations			↰↰		↰↰	
Traffic Volume (vph)	0	0	1550	0	420	0
Future Volume (vph)	0	0	1550	0	420	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)			6.0		6.0	
Lane Util. Factor			0.97		0.97	
Frt			1.00		1.00	
Flt Protected			0.95		0.95	
Satd. Flow (prot)			3433		3433	
Flt Permitted			0.95		0.95	
Satd. Flow (perm)			3433		3433	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	0	1649	0	447	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	1649	0	447	0
Turn Type			Prot		Prot	
Protected Phases			4		2	
Permitted Phases						
Actuated Green, G (s)			58.0		20.0	
Effective Green, g (s)			58.0		20.0	
Actuated g/C Ratio			0.64		0.22	
Clearance Time (s)			6.0		6.0	
Vehicle Extension (s)			3.0		3.0	
Lane Grp Cap (vph)			2212		762	
v/s Ratio Prot			c0.48		c0.13	
v/s Ratio Perm						
v/c Ratio			0.75		0.59	
Uniform Delay, d1			10.9		31.3	
Progression Factor			1.00		1.20	
Incremental Delay, d2			2.3		3.3	
Delay (s)			13.3		40.9	
Level of Service			B		D	
Approach Delay (s)	0.0			13.3	40.9	
Approach LOS	A			B	D	

Intersection Summary			
HCM 2000 Control Delay	19.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	122.3%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	SBL	SBR	NWL	NWR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations										
Traffic Volume (vph)	0	0	0	135	0	1550	0	0	420	1245
Future Volume (vph)	0	0	0	135	0	1550	0	0	420	1245
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			6.0	6.0		6.0			6.0	6.0
Lane Util. Factor			1.00	0.95		0.95			0.95	0.88
Frt			0.85	0.85		1.00			1.00	0.85
Flt Protected			1.00	1.00		1.00			1.00	1.00
Satd. Flow (prot)			1583	1504		3539			3539	2787
Flt Permitted			1.00	1.00		1.00			1.00	1.00
Satd. Flow (perm)			1583	1504		3539			3539	2787
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	0	0	0	144	0	1649	0	0	447	1324
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	201
Lane Group Flow (vph)	0	0	72	72	0	1649	0	0	447	1123
Turn Type			Prot	Prot	Perm	NA			NA	Perm
Protected Phases			4	4		2			2	
Permitted Phases					2					2
Actuated Green, G (s)			10.7	10.7		67.3			67.3	67.3
Effective Green, g (s)			10.7	10.7		67.3			67.3	67.3
Actuated g/C Ratio			0.12	0.12		0.75			0.75	0.75
Clearance Time (s)			6.0	6.0		6.0			6.0	6.0
Vehicle Extension (s)			3.0	3.0		3.0			3.0	3.0
Lane Grp Cap (vph)			188	178		2646			2646	2084
v/s Ratio Prot			0.05	c0.05		c0.47			0.13	
v/s Ratio Perm										0.40
v/c Ratio			0.38	0.40		0.62			0.17	0.54
Uniform Delay, d1			36.6	36.7		5.4			3.3	4.8
Progression Factor			1.00	1.00		0.51			1.00	1.00
Incremental Delay, d2			1.3	1.5		0.7			0.1	1.0
Delay (s)			37.9	38.2		3.4			3.4	5.8
Level of Service			D	D		A			A	A
Approach Delay (s)	0.0		38.1			3.4			5.2	
Approach LOS	A		D			A			A	

Intersection Summary			
HCM 2000 Control Delay	5.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	97.8%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	WBL2	WBL	WBR	WBR2	NBL	NBT	NBR	NBR2	SBL2	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	190	370	20	80	110	40	10	10	50	140	140
Future Volume (vph)	10	190	370	20	80	110	40	10	10	50	140	140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	150		0		150			0		0
Storage Lanes		1	0		0		0			0		0
Taper Length (ft)		25			25					25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.911				0.972					0.945	
Flt Protected		0.983				0.984					0.991	
Satd. Flow (prot)	0	1652	0	0	0	1764	0	0	0	0	1663	0
Flt Permitted		0.983				0.984					0.991	
Satd. Flow (perm)	0	1652	0	0	0	1764	0	0	0	0	1663	0
Link Speed (mph)		30				30					30	
Link Distance (ft)		465				456					371	
Travel Time (s)		10.6				10.4					8.4	
Peak Hour Factor	0.91	0.91	0.91	0.91	0.86	0.86	0.86	0.86	0.80	0.80	0.80	0.80
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	7%	7%	7%	7%
Adj. Flow (vph)	11	209	407	22	93	128	47	12	13	63	175	175
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	649	0	0	0	280	0	0	0	0	426	0
Sign Control		Yield				Yield					Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization 95.8%		ICU Level of Service F	
Analysis Period (min) 15			

Lane Group	NEL	NET	NER	NER2	SWL2	SWL	SWT	SWR
Lane Configurations		✣					✣	
Traffic Volume (vph)	50	90	120	90	5	40	260	10
Future Volume (vph)	50	90	120	90	5	40	260	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		150			150		0
Storage Lanes	0		0			0		0
Taper Length (ft)	25					25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.919					0.996	
Flt Protected		0.993					0.993	
Satd. Flow (prot)	0	1605	0	0	0	0	1756	0
Flt Permitted		0.993					0.993	
Satd. Flow (perm)	0	1605	0	0	0	0	1756	0
Link Speed (mph)		30					30	
Link Distance (ft)		400					528	
Travel Time (s)		9.1					12.0	
Peak Hour Factor	0.60	0.60	0.60	0.60	0.83	0.83	0.83	0.83
Heavy Vehicles (%)	8%	8%	8%	8%	7%	7%	7%	7%
Adj. Flow (vph)	83	150	200	150	6	48	313	12
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	583	0	0	0	0	379	0
Sign Control		Yield					Yield	

Intersection Summary

Intersection	
Intersection Delay, s/veh	21.9
Intersection LOS	C

Approach	WB	NB	SB	NE	SW
Entry Lanes	1	1	1	1	1
Conflicting Circle Lanes	1	1	1	1	1
Adj Approach Flow, veh/h	649	280	426	583	379
Demand Flow Rate, veh/h	668	288	455	630	405
Vehicles Circulating, veh/h	542	555	714	336	963
Vehicles Exiting, veh/h	301	411	654	833	247
Ped Vol Crossing Leg, #/h	0	0	0	0	0
Ped Cap Adj	1.000	1.000	1.000	1.000	1.000
Approach Delay, s/veh	28.3	9.3	20.7	14.1	33.4
Approach LOS	D	A	C	B	D

Lane	Left	Left	Left	Left	Left
Designated Moves	LR	LTR	LTR	LTR	LTR
Assumed Moves	LR	LTR	LTR	LTR	LTR
RT Channelized					
Lane Util	1.000	1.000	1.000	1.000	1.000
Follow-Up Headway, s	2.609	2.609	2.609	2.609	2.609
Critical Headway, s	4.976	4.976	4.976	4.976	4.976
Entry Flow, veh/h	668	288	455	630	405
Cap Entry Lane, veh/h	794	783	666	980	517
Entry HV Adj Factor	0.971	0.973	0.936	0.925	0.935
Flow Entry, veh/h	649	280	426	583	379
Cap Entry, veh/h	771	762	623	906	483
V/C Ratio	0.841	0.368	0.683	0.643	0.784
Control Delay, s/veh	28.3	9.3	20.7	14.1	33.4
LOS	D	A	C	B	D
95th %tile Queue, veh	10	2	5	5	7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	20	230	10	40	50	390	140	10	10	110	20
Future Volume (vph)	10	20	230	10	40	50	390	140	10	10	110	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		50	0		0	0		0	0		0
Storage Lanes	0		1	0		0	0		0	0		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.932			0.998			0.981	
Flt Protected		0.984			0.995			0.965			0.996	
Satd. Flow (prot)	0	1731	1495	0	1678	0	0	1777	0	0	1785	0
Flt Permitted		0.984			0.995			0.965			0.996	
Satd. Flow (perm)	0	1731	1495	0	1678	0	0	1777	0	0	1785	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		144			453			475			436	
Travel Time (s)		3.3			10.3			10.8			9.9	
Peak Hour Factor	0.82	0.82	0.82	0.70	0.70	0.70	0.75	0.75	0.75	0.71	0.71	0.71
Heavy Vehicles (%)	8%	8%	8%	5%	5%	5%	3%	3%	3%	4%	4%	4%
Adj. Flow (vph)	12	24	280	14	57	71	520	187	13	14	155	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	36	280	0	142	0	0	720	0	0	197	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 59.5%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	41.2

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱		↕			↕			↕	
Traffic Vol, veh/h	10	20	230	10	40	50	390	140	10	10	110	20
Future Vol, veh/h	10	20	230	10	40	50	390	140	10	10	110	20
Conflicting Peds, #/hr	0	0	0	0	0	0	0	0	0	0	0	0
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Free	Free	Free	Free	Free	Free
RT Channelized	-	-	None	-	-	None	-	-	None	-	-	None
Storage Length	-	-	50	-	-	-	-	-	-	-	-	-
Veh in Median Storage, #	-	0	-	-	0	-	-	0	-	-	0	-
Grade, %	-	0	-	-	0	-	-	0	-	-	0	-
Peak Hour Factor	82	82	82	70	70	70	75	75	75	71	71	71
Heavy Vehicles, %	8	8	8	5	5	5	3	3	3	4	4	4
Mvmt Flow	12	24	280	14	57	71	520	187	13	14	155	28

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1495	1437	169	1583	1445	194	183	0	0	200	0	0
Stage 1	197	197	-	1234	1234	-	-	-	-	-	-	-
Stage 2	1298	1240	-	349	211	-	-	-	-	-	-	-
Critical Hdwy	7.18	6.58	6.28	7.15	6.55	6.25	4.13	-	-	4.14	-	-
Critical Hdwy Stg 1	6.18	5.58	-	6.15	5.55	-	-	-	-	-	-	-
Critical Hdwy Stg 2	6.18	5.58	-	6.15	5.55	-	-	-	-	-	-	-
Follow-up Hdwy	3.572	4.072	3.372	3.545	4.045	3.345	2.227	-	-	2.236	-	-
Pot Cap-1 Maneuver	98	129	860	86	130	840	1386	-	-	1360	-	-
Stage 1	791	727	-	213	245	-	-	-	-	-	-	-
Stage 2	193	241	-	661	722	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	23	74	860	29	74	840	1386	-	-	1360	-	-
Mov Cap-2 Maneuver	23	74	-	29	74	-	-	-	-	-	-	-
Stage 1	456	719	-	123	141	-	-	-	-	-	-	-
Stage 2	61	139	-	426	714	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	37.3	280.7	6.6	0.5
HCM LOS	E	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1386	-	-	43	860	106	1360	-	-
HCM Lane V/C Ratio	0.375	-	-	0.851	0.326	1.348	0.01	-	-
HCM Control Delay (s)	9.1	0	-	237.3	11.2	280.7	7.7	0	-
HCM Lane LOS	A	A	-	F	B	F	A	A	-
HCM 95th %tile Q(veh)	1.8	-	-	3.3	1.4	10	0	-	-

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	30	50	20	80	40	200	40	310	70	70	570	50
Future Volume (vph)	30	50	20	80	40	200	40	310	70	70	570	50
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00	1.00	0.95		1.00	0.95	
Frt	1.00	0.96		1.00	1.00	0.85	1.00	0.97		1.00	0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	1767		1736	1827	1553	1770	3441		1787	3531	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1752	1767		1736	1827	1553	1770	3441		1787	3531	
Peak-hour factor, PHF	0.82	0.82	0.82	0.81	0.81	0.81	0.68	0.68	0.68	0.78	0.78	0.78
Adj. Flow (vph)	37	61	24	99	49	247	59	456	103	90	731	64
RTOR Reduction (vph)	0	17	0	0	0	121	0	24	0	0	8	0
Lane Group Flow (vph)	37	68	0	99	49	126	59	535	0	90	787	0
Heavy Vehicles (%)	3%	3%	3%	4%	4%	4%	2%	2%	2%	1%	1%	1%
Turn Type	Prot	NA		Prot	NA	pt+ov	Prot	NA		Prot	NA	
Protected Phases	1	6		5	2	2 3	3	8		7	4	
Permitted Phases												
Actuated Green, G (s)	4.4	14.3		6.1	16.0	30.2	8.2	25.6		6.1	23.5	
Effective Green, g (s)	4.4	14.3		6.1	16.0	30.2	8.2	25.6		6.1	23.5	
Actuated g/C Ratio	0.06	0.19		0.08	0.21	0.40	0.11	0.34		0.08	0.31	
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	101	332		139	384	616	190	1157		143	1090	
v/s Ratio Prot	0.02	0.04		c0.06	0.03	c0.08	0.03	0.16		c0.05	c0.22	
v/s Ratio Perm												
v/c Ratio	0.37	0.20		0.71	0.13	0.20	0.31	0.46		0.63	0.72	
Uniform Delay, d1	34.5	26.1		34.1	24.4	15.1	31.3	19.8		33.9	23.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.2	0.3		15.8	0.7	0.2	0.9	0.3		8.4	2.4	
Delay (s)	36.8	26.4		50.0	25.1	15.2	32.3	20.1		42.3	25.8	
Level of Service	D	C		D	C	B	C	C		D	C	
Approach Delay (s)		29.5			25.2			21.3			27.5	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	25.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	76.1	Sum of lost time (s)	24.0
Intersection Capacity Utilization	51.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	240	0	10	120	260	520
Future Volume (vph)	240	0	10	120	260	520
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0	4.0	4.0	6.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frt	1.00		1.00	1.00	1.00	0.85
Flt Protected	0.95		0.95	1.00	1.00	1.00
Satd. Flow (prot)	1787		1770	1863	1845	1568
Flt Permitted	0.95		0.50	1.00	1.00	1.00
Satd. Flow (perm)	1787		928	1863	1845	1568
Peak-hour factor, PHF	0.90	0.90	0.87	0.87	0.89	0.89
Adj. Flow (vph)	267	0	11	138	292	584
RTOR Reduction (vph)	0	0	0	0	0	136
Lane Group Flow (vph)	267	0	11	138	292	448
Heavy Vehicles (%)	1%	1%	2%	2%	3%	3%
Turn Type	Prot		pm+pt	NA	NA	custom
Protected Phases	8		1	6 7	2 7	7 8
Permitted Phases			6 7			2
Actuated Green, G (s)	22.1		32.3	31.5	31.5	55.6
Effective Green, g (s)	22.1		28.3	31.5	31.5	55.6
Actuated g/C Ratio	0.31		0.39	0.44	0.44	0.77
Clearance Time (s)	6.0		6.0			
Vehicle Extension (s)	3.0		3.0			
Lane Grp Cap (vph)	545		372	810	802	1204
v/s Ratio Prot	c0.15		c0.00	0.07	c0.16	c0.20
v/s Ratio Perm			0.01			0.09
v/c Ratio	0.49		0.03	0.17	0.36	0.37
Uniform Delay, d1	20.5		13.6	12.5	13.7	2.7
Progression Factor	1.00		1.00	1.00	1.04	1.33
Incremental Delay, d2	0.7		0.0	0.1	0.3	0.2
Delay (s)	21.2		13.7	12.6	14.5	3.8
Level of Service	C		B	B	B	A
Approach Delay (s)	21.2			12.7	7.4	
Approach LOS	C			B	A	

Intersection Summary			
HCM 2000 Control Delay	10.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	72.4	Sum of lost time (s)	22.0
Intersection Capacity Utilization	46.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	60	10	330	30	10	720
Future Volume (vph)	60	10	330	30	10	720
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		4.0	4.0	6.0	4.0
Lane Util. Factor	1.00		1.00	1.00	1.00	1.00
Frt	0.98		1.00	0.85	1.00	1.00
Flt Protected	0.96		1.00	1.00	0.95	1.00
Satd. Flow (prot)	1767		1900	1615	1805	1900
Flt Permitted	0.96		1.00	1.00	0.43	1.00
Satd. Flow (perm)	1767		1900	1615	820	1900
Peak-hour factor, PHF	0.87	0.67	0.95	0.84	0.73	0.96
Adj. Flow (vph)	69	15	347	36	14	750
RTOR Reduction (vph)	9	0	0	16	0	0
Lane Group Flow (vph)	75	0	347	20	14	750
Heavy Vehicles (%)	1%	0%	0%	0%	0%	0%
Turn Type	Prot		NA	Perm	custom	NA
Protected Phases	7		6 8		5	2 8
Permitted Phases				6 8	2	
Actuated Green, G (s)	10.0		39.6	39.6	18.3	39.6
Effective Green, g (s)	10.0		39.6	39.6	18.3	39.6
Actuated g/C Ratio	0.14		0.55	0.55	0.25	0.55
Clearance Time (s)	6.0				6.0	
Vehicle Extension (s)	3.0				3.0	
Lane Grp Cap (vph)	244		1039	883	218	1039
v/s Ratio Prot	c0.04		0.18		c0.00	c0.39
v/s Ratio Perm				0.01	0.02	
v/c Ratio	0.31		0.33	0.02	0.06	0.72
Uniform Delay, d1	28.1		9.1	7.5	20.5	12.3
Progression Factor	1.00		0.33	0.14	1.00	1.00
Incremental Delay, d2	0.7		0.2	0.0	0.1	2.5
Delay (s)	28.8		3.2	1.1	20.6	14.8
Level of Service	C		A	A	C	B
Approach Delay (s)	28.8		3.0			14.9
Approach LOS	C		A			B

Intersection Summary			
HCM 2000 Control Delay	12.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	72.4	Sum of lost time (s)	22.0
Intersection Capacity Utilization	50.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	5	30	20	320	700	20
Future Volume (vph)	5	30	20	320	700	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0	0	100			0
Storage Lanes	1	0	1			0
Taper Length (ft)	25		25			
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.888				0.995	
Flt Protected	0.992		0.950			
Satd. Flow (prot)	1674	0	1787	1900	1872	0
Flt Permitted	0.992		0.950			
Satd. Flow (perm)	1674	0	1787	1900	1872	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	332			288	365	
Travel Time (s)	7.5			6.5	8.3	
Peak Hour Factor	0.64	0.77	0.71	0.90	0.75	0.55
Heavy Vehicles (%)	0%	0%	1%	0%	1%	0%
Adj. Flow (vph)	8	39	28	356	933	36
Shared Lane Traffic (%)						
Lane Group Flow (vph)	47	0	28	356	969	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 48.1%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.9

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	30	20	320	700	20
Future Vol, veh/h	5	30	20	320	700	20
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Stop	Stop	Free	Free	Free	Free
RT Channelized	-	None	-	None	-	None
Storage Length	0	-	100	-	-	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	0	0	-
Peak Hour Factor	64	77	71	90	75	55
Heavy Vehicles, %	0	0	1	0	1	0
Mvmt Flow	8	39	28	356	933	36

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1363	951	969	0	-	0
Stage 1	951	-	-	-	-	-
Stage 2	412	-	-	-	-	-
Critical Hdwy	6.4	6.2	4.11	-	-	-
Critical Hdwy Stg 1	5.4	-	-	-	-	-
Critical Hdwy Stg 2	5.4	-	-	-	-	-
Follow-up Hdwy	3.5	3.3	2.209	-	-	-
Pot Cap-1 Maneuver	165	318	715	-	-	-
Stage 1	379	-	-	-	-	-
Stage 2	673	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	159	318	715	-	-	-
Mov Cap-2 Maneuver	159	-	-	-	-	-
Stage 1	364	-	-	-	-	-
Stage 2	673	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	21	0.8	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	715	-	272	-	-
HCM Lane V/C Ratio	0.039	-	0.172	-	-
HCM Control Delay (s)	10.2	-	21	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.6	-	-