APPENDIX N-4: 2040 NO-BUILD INTERSECTION CAPACITY ANALYSES – SYNCHRO PRINTOUTS – PM PEAK HOUR

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↰	↱↱
Traffic Volume (vph)	0	1260	1320	0	925	1175
Future Volume (vph)	0	1260	1320	0	925	1175
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	1355	1500	0	1039	1320
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1355	1500	0	1039	1320
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)		27.0	27.0		33.0	33.0
Total Split (%)		45.0%	45.0%		55.0%	55.0%
Maximum Green (s)		21.0	21.0		27.0	27.0
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)		21.0	21.0		27.0	27.0
Actuated g/C Ratio		0.35	0.35		0.45	0.45
v/c Ratio		1.12	1.26		1.20	1.09
Control Delay		87.7	146.0		120.4	75.5
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		87.7	146.0		120.4	75.5
LOS		F	F		F	E

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Approach Delay		87.7	146.0		95.3	
Approach LOS		F	F		F	
Queue Length 50th (ft)		~403	~828		~471	~317
Queue Length 95th (ft)		m#656	m#654		#667	#435
Internal Link Dist (ft)		632	308		132	
Turn Bay Length (ft)						
Base Capacity (vph)		1214	1192		868	1206
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		1.12	1.26		1.20	1.09

Intersection Summary

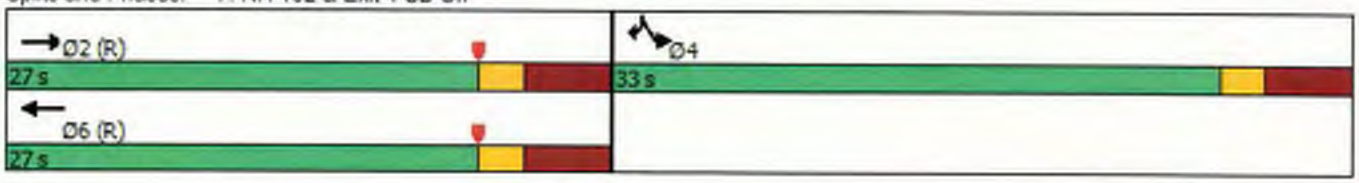
Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 60
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow, Master Intersection
Natural Cycle: 140
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.26
Intersection Signal Delay: 107.9 Intersection LOS: F
Intersection Capacity Utilization 99.7% ICU Level of Service F
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

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)	1265	0	1070	0	0	1000	1185	0	0	540	780
Future Volume (vph)	1265	0	1070	0	0	1000	1185	0	0	540	780
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)											750
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)	1438	0	1216	0	0	1064	1261	0	0	587	848
Shared Lane Traffic (%)											
Lane Group Flow (vph)	1438	0	1216	0	0	1064	1261	0	0	587	848
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)	50.0		50.0			38.0	70.0			32.0	
Total Split (%)	41.7%		41.7%			31.7%	58.3%			26.7%	
Maximum Green (s)	44.0		44.0			32.0	64.0			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)	44.0		44.0			32.0	64.0			26.0	120.0
Actuated g/C Ratio	0.37		0.37			0.27	0.53			0.22	1.00
v/c Ratio	1.21		1.26			1.20	0.69			0.77	0.54
Control Delay	137.3		159.2			124.5	21.6			52.2	1.3
Queue Delay	0.0		0.0			0.0	0.0			0.0	0.0

Lane Group	NBL2	NBL	NBR	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Total Delay	137.3		159.2			124.5	21.6			52.2	1.3
LOS	F		F			F	C			D	A
Approach Delay		147.3					68.7			22.1	
Approach LOS		F					E			C	
Queue Length 50th (ft)	~701		~671			~508	378			226	0
Queue Length 95th (ft)	#807		#790			m#393	m277			294	0
Internal Link Dist (ft)		776		310			680			777	
Turn Bay Length (ft)						550					
Base Capacity (vph)	1188		965			889	1833			759	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	1.21		1.26			1.20	0.69			0.77	0.54

Intersection Summary

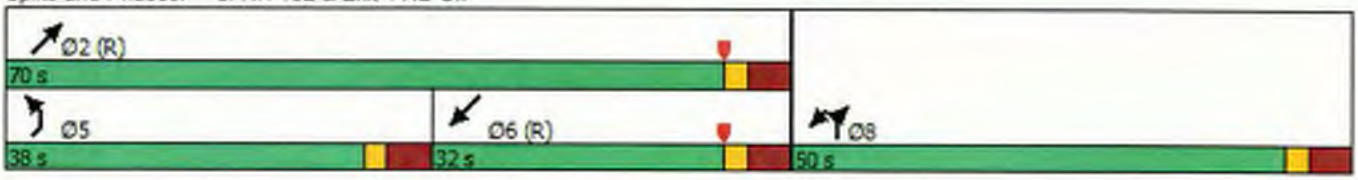
Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 118 (98%), Referenced to phase 2:NET and 6:SWT, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.26
Intersection Signal Delay: 90.8 Intersection LOS: F
Intersection Capacity Utilization 95.5% 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	935	390	240	550	0	0	0	0	820	0	535
Future Volume (vph)	0	935	390	240	550	0	0	0	0	820	0	535
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)			427									266
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	1075	448	279	640	0	0	0	0	901	0	588
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	1075	448	279	640	0	0	0	0	901	0	588
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)		41.0		24.0	65.0					35.0		35.0
Total Split (%)		41.0%		24.0%	65.0%					35.0%		35.0%
Maximum Green (s)		35.0		18.0	59.0					29.0		29.0
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)		35.3	100.0	17.7	59.0					29.0		29.0
Actuated g/C Ratio		0.35	1.00	0.18	0.59					0.29		0.29
v/c Ratio		0.88	0.29	0.91	0.32					0.92		0.92
Control Delay		40.2	0.5	27.1	0.2					50.5		40.5
Queue Delay		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		40.2	0.5	27.1	0.2					50.5		40.5
LOS		D	A	C	A					D		D
Approach Delay		28.5			8.3						46.6	
Approach LOS		C			A						D	
Queue Length 50th (ft)		336	0	5	0					286		216
Queue Length 95th (ft)		#405	0	m16	m0					#404		#438
Internal Link Dist (ft)		771			613			406			501	
Turn Bay Length (ft)			350									
Base Capacity (vph)		1223	1553	309	2028					976		639
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		0.88	0.29	0.90	0.32					0.92		0.92

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 56 (56%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.92
Intersection Signal Delay: 30.6 Intersection LOS: C
Intersection Capacity Utilization 78.5% 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.
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)	605	1150	0	0	495	545	295	0	375	0	0	0
Future Volume (vph)	605	1150	0	0	495	545	295	0	375	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)						599			98			
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)	658	1250	0	0	544	599	440	0	560	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	658	1250	0	0	544	599	440	0	560	0	0	0
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)	41.0	64.0			23.0		36.0		36.0			
Total Split (%)	41.0%	64.0%			23.0%		36.0%		36.0%			
Maximum Green (s)	35.0	58.0			17.0		30.0		30.0			
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)	35.0	58.0			17.0	100.0	30.0		30.0			
Actuated g/C Ratio	0.35	0.58			0.17	1.00	0.30		0.30			
v/c Ratio	1.07	0.62			0.91	0.38	0.86		1.07			
Control Delay	59.0	6.2			62.6	0.7	51.6		87.7			
Queue Delay	0.0	0.0			0.0	0.0	0.0		0.0			
Total Delay	59.0	6.2			62.6	0.7	51.6		87.7			
LOS	E	A			E	A	D		F			
Approach Delay		24.4			30.1			71.8				

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach LOS		C			C			E				
Queue Length 50th (ft)	~483	77			181	0	264		~350			
Queue Length 95th (ft)	m#602	m119			#280	0	258		#297			
Internal Link Dist (ft)		613			462			787			312	
Turn Bay Length (ft)												
Base Capacity (vph)	613	2032			595	1568	510		525			
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	1.07	0.62			0.91	0.38	0.86		1.07			

Intersection Summary

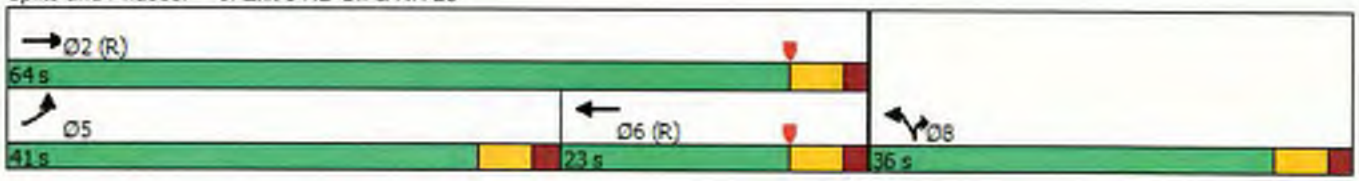
Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow, Master Intersection
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.07
Intersection Signal Delay: 37.7 Intersection LOS: D
Intersection Capacity Utilization 78.5% 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.

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

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)	5	0	295	0	0	0	955	1260	0	5	1160	10
Future Volume (vph)	5	0	295	0	0	0	955	1260	0	5	1160	10
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								0.999	
Flt Protected		0.950					0.950			0.950		
Satd. Flow (prot)	0	1770	1583	0	1900	0	1770	3539	0	1770	3536	0
Flt Permitted							0.950			0.950		
Satd. Flow (perm)	0	1863	1583	0	1900	0	1770	3539	0	1770	3536	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			321								1	
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)	5	0	321	0	0	0	1038	1370	0	5	1261	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	5	321	0	0	0	1038	1370	0	5	1272	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	36.0	24.0	24.0		50.0	75.0		11.0	36.0	
Total Split (%)	21.8%	21.8%	32.7%	21.8%	21.8%		45.5%	68.2%		10.0%	32.7%	
Maximum Green (s)	18.0	18.0	30.0	18.0	18.0		44.0	69.0		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)		6.1	30.1				44.1	83.2		5.0	30.1	
Actuated g/C Ratio		0.07	0.34				0.50	0.94		0.06	0.34	
v/c Ratio		0.04	0.43				1.18	0.41		0.05	1.06	
Control Delay		41.2	4.9				115.9	2.4		43.0	73.1	
Queue Delay		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		41.2	4.9				115.9	2.4		43.0	73.1	
LOS		D	A				F	A		D	E	
Approach Delay		5.4						51.4			72.9	
Approach LOS		A						D			E	
Queue Length 50th (ft)		3	0				~667	0		3	~393	
Queue Length 95th (ft)		15	61				#1094	245		15	#649	
Internal Link Dist (ft)		513			367			670			250	
Turn Bay Length (ft)			225				350			100		
Base Capacity (vph)		379	749				881	3324		99	1202	
Starvation Cap Reductn		0	0				0	0		0	0	
Spillback Cap Reductn		0	0				0	0		0	0	
Storage Cap Reductn		0	0				0	0		0	0	
Reduced v/c Ratio		0.01	0.43				1.18	0.41		0.05	1.06	

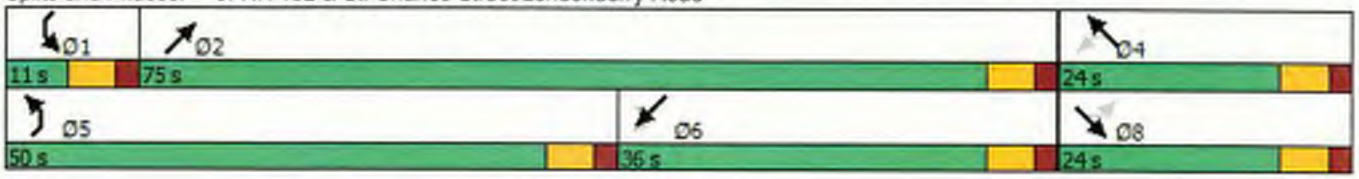
Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 88.6
Natural Cycle: 150
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.18
Intersection Signal Delay: 54.5 Intersection LOS: D
Intersection Capacity Utilization 108.3% ICU Level of Service G
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

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)	5	30	0	230	0	50	0	860	215	5	555	0
Future Volume (vph)	5	30	0	230	0	50	0	860	215	5	555	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					0.976			0.973				
Flt Protected		0.993			0.961							
Satd. Flow (prot)	0	1850	0	0	1730	0	0	1712	0	0	1810	0
Flt Permitted		0.957			0.724						0.754	
Satd. Flow (perm)	0	1783	0	0	1303	0	0	1712	0	0	1364	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					36			30				
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)	8	50	0	240	0	52	0	966	242	6	645	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	58	0	0	292	0	0	1208	0	0	651	0
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)	24.0	24.0		24.0	24.0			66.0		66.0	66.0	
Total Split (%)	26.7%	26.7%		26.7%	26.7%			73.3%		73.3%	73.3%	
Maximum Green (s)	18.0	18.0		18.0	18.0			60.0		60.0	60.0	
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)		18.0			18.0			60.4			60.4	
Actuated g/C Ratio		0.20			0.20			0.67			0.67	
v/c Ratio		0.16			1.01			1.05			0.71	
Control Delay		31.3			90.7			56.8			15.2	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		31.3			90.7			56.8			15.2	
LOS		C			F			E			B	
Approach Delay		31.3			90.7			56.8			15.1	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Approach LOS		C			F			E			B	
Queue Length 50th (ft)		28			~151			~751			208	
Queue Length 95th (ft)		39			#318			#982			312	
Internal Link Dist (ft)		276			413			1044			523	
Turn Bay Length (ft)												
Base Capacity (vph)		354			288			1154			911	
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		0.16			1.01			1.05			0.71	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90.4
Natural Cycle: 110
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.05
Intersection Signal Delay: 48.4 Intersection LOS: D
Intersection Capacity Utilization 94.1% 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.

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

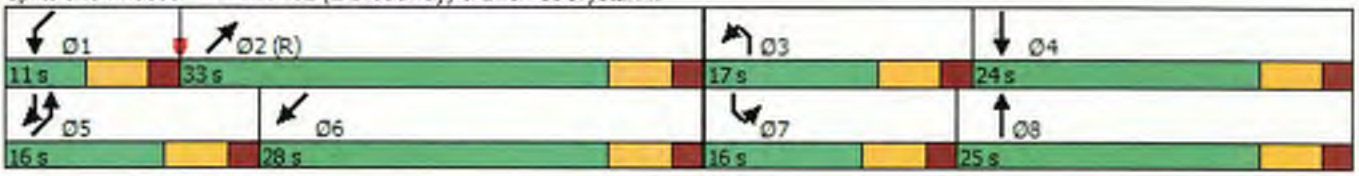
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	105	180	35	135	180	160	100	470	60	70	335	65
Future Volume (vph)	105	180	35	135	180	160	100	470	60	70	335	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane 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		0.976				0.850		0.983			0.976	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1800	0	1752	1845	1568	1787	1849	0	1787	1836	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1752	1800	0	1752	1845	1568	1787	1849	0	1787	1836	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		10				172		8			11	
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)	115	198	38	145	194	172	105	495	63	74	356	69
Shared Lane Traffic (%)												
Lane Group Flow (vph)	115	236	0	145	194	172	105	558	0	74	425	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	25.0		16.0	24.0	16.0	16.0	33.0		11.0	28.0	
Total Split (%)	20.0%	29.4%		18.8%	28.2%	18.8%	18.8%	38.8%		12.9%	32.9%	
Maximum Green (s)	11.0	19.0		10.0	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)	9.7	15.3		9.6	17.7	33.0	9.2	31.9		6.6	26.8	
Actuated g/C Ratio	0.11	0.18		0.11	0.21	0.39	0.11	0.38		0.08	0.32	
v/c Ratio	0.57	0.71		0.73	0.51	0.24	0.54	0.80		0.53	0.72	
Control Delay	47.2	43.0		59.2	35.6	3.7	46.3	36.8		54.4	36.0	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	47.2	43.0		59.2	35.6	3.7	46.3	36.8		54.4	36.0	
LOS	D	D		E	D	A	D	D		D	D	
Approach Delay		44.4			31.6			38.3			38.7	
Approach LOS		D			C			D			D	
Queue Length 50th (ft)	58	113		76	96	0	53	284		38	202	
Queue Length 95th (ft)	111	182		#162	157	37	104	#489		#109	#380	

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Internal Link Dist (ft)		281			331			397			450	
Turn Bay Length (ft)												
Base Capacity (vph)	226	410		206	416	729	215	698		139	587	
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	0.51	0.58		0.70	0.47	0.24	0.49	0.80		0.53	0.72	

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: 0.80
Intersection Signal Delay: 37.8 Intersection LOS: D
Intersection Capacity Utilization 86.2% 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)	0	235	135	495	310	0	115	520	0	165	400	300
Future Volume (vph)	0	235	135	495	310	0	115	520	0	165	400	300
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	0		0	0		0	0		0
Storage Lanes	1		1	2		1	1		1	1		1
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.95	1.00	0.97	1.00	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			0.950		
Satd. Flow (prot)	1863	3539	1583	3433	1863	1863	1770	1863	1863	1787	1881	1599
Flt Permitted				0.950			0.950			0.950		
Satd. Flow (perm)	1863	3539	1583	3433	1863	1863	1770	1863	1863	1787	1881	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			208									134
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		639			394			532			387	
Travel Time (s)		14.5			9.0			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)	0	255	147	527	330	0	120	542	0	174	421	316
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	255	147	527	330	0	120	542	0	174	421	316
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov
Protected Phases	5	2		1	6		7	4		3	8	1
Permitted Phases			2			6			4			8
Detector Phase	5	2	2	1	6	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	8.0
Minimum Split (s)	15.0	25.0	25.0	35.0	45.0	45.0	14.0	40.0	40.0	15.0	25.0	35.0
Total Split (s)	14.0	23.0	23.0	34.0	43.0	43.0	15.0	39.0	39.0	14.0	38.0	34.0
Total Split (%)	12.7%	20.9%	20.9%	30.9%	39.1%	39.1%	13.6%	35.5%	35.5%	12.7%	34.5%	30.9%
Maximum Green (s)	8.0	17.0	17.0	28.0	37.0	37.0	9.0	33.0	33.0	8.0	32.0	28.0
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	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	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	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	6.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lead
Lead-Lag Optimize?	Yes	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	3.0
Recall Mode	None	C-Max	C-Max	None	None	None	None	None	None	None	None	None
Walk Time (s)		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	
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	
Act Effct Green (s)		22.3	22.3	22.7	51.0		9.0	33.0		8.0	32.0	60.7
Actuated g/C Ratio		0.20	0.20	0.21	0.46		0.08	0.30		0.07	0.29	0.55
v/c Ratio		0.36	0.30	0.74	0.38		0.83	0.97		1.35	0.77	0.34
Control Delay		40.5	3.1	56.3	23.0		91.5	70.6		239.2	46.5	7.9
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		40.5	3.1	56.3	23.0		91.5	70.6		239.2	46.5	7.9
LOS		D	A	E	C		F	E		F	D	A
Approach Delay		26.8			43.5			74.4			69.9	
Approach LOS		C			D			E			E	
Queue Length 50th (ft)		82	0	189	160		85	377		~161	271	62
Queue Length 95th (ft)		129	17	262	206		#189	#597		#299	#398	102
Internal Link Dist (ft)		559			314			452			307	
Turn Bay Length (ft)			150									
Base Capacity (vph)		717	486	873	863		144	558		129	547	1013
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		0.36	0.30	0.60	0.38		0.83	0.97		1.35	0.77	0.31

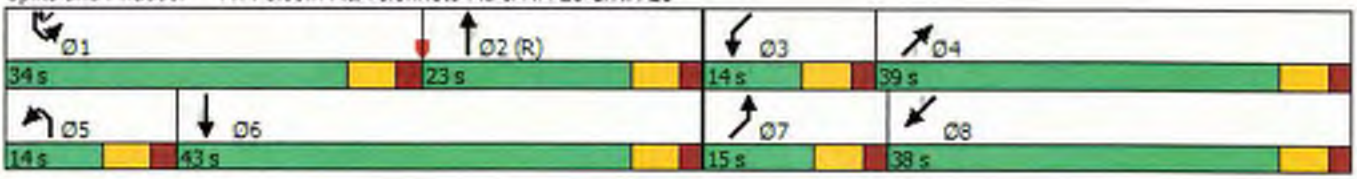
Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 0 (0%), Referenced to phase 2:NBT, Start of Green
Natural Cycle: 115
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.35
Intersection Signal Delay: 56.9 Intersection LOS: E
Intersection Capacity Utilization 79.5% 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: 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)	150	1050	0	0	605	80	0	0	0	25	0	350
Future Volume (vph)	150	1050	0	0	605	80	0	0	0	25	0	350
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
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					0.983							0.850
Flt Protected	0.950										0.950	
Satd. Flow (prot)	1787	3574	0	1881	3513	0	0	1900	1900	0	1787	1599
Flt Permitted	0.950										0.757	
Satd. Flow (perm)	1787	3574	0	1881	3513	0	0	1900	1900	0	1424	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					16							366
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		277			755			230			387	
Travel Time (s)		6.3			17.2			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)	155	1082	0	0	637	84	0	0	0	31	0	438
Shared Lane Traffic (%)												
Lane Group Flow (vph)	155	1082	0	0	721	0	0	0	0	0	31	438
Turn Type	Prot	NA		Prot	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)	26.0	66.0		11.0	51.0		33.0	33.0	33.0	33.0	33.0	33.0
Total Split (%)	23.6%	60.0%		10.0%	46.4%		30.0%	30.0%	30.0%	30.0%	30.0%	30.0%
Maximum Green (s)	20.0	60.0		5.0	45.0		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	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)	14.8	84.1			63.3						13.9	13.9
Actuated g/C Ratio	0.13	0.76			0.58						0.13	0.13
v/c Ratio	0.65	0.40			0.36						0.17	0.84
Control Delay	65.5	4.8			16.4						40.6	23.3
Queue Delay	0.0	0.0			0.0						0.0	0.0
Total Delay	65.5	4.8			16.4						40.6	23.3
LOS	E	A			B						D	C
Approach Delay		12.4			16.4						24.5	

Lane Group	SEL	SET	SER	NWL	NWT	NWR	NEL	NET	NER	SWL	SWT	SWR
Approach LOS		B			B						C	
Queue Length 50th (ft)	118	66			127						20	48
Queue Length 95th (ft)	m160	158			m192						37	90
Internal Link Dist (ft)		197			675			150			307	
Turn Bay Length (ft)												
Base Capacity (vph)	325	2732			2028						349	668
Starvation Cap Reductn	0	0			0						0	0
Spillback Cap Reductn	0	0			0						0	0
Storage Cap Reductn	0	0			0						0	0
Reduced v/c Ratio	0.48	0.40			0.36						0.09	0.66

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: 0.84
Intersection Signal Delay: 15.9 Intersection LOS: B
Intersection Capacity Utilization 52.4% ICU Level of Service A
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

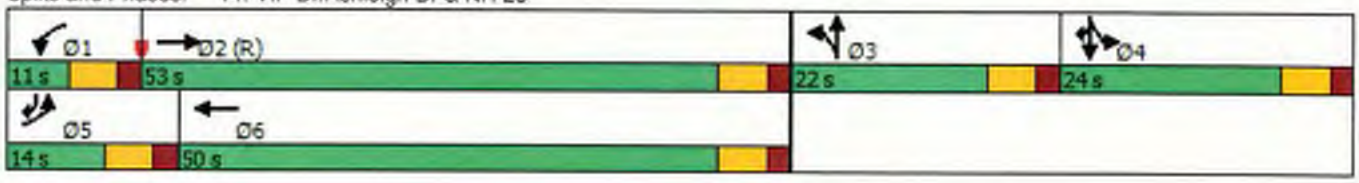
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	115	815	5	5	530	255	35	10	10	350	5	135
Future Volume (vph)	115	815	5	5	530	255	35	10	10	350	5	135
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	150		150	0		0	0		0
Storage Lanes	2		0	1		0	1		0	1		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	0.95	0.95	1.00
Frt		0.999			0.951			0.925				0.850
Flt Protected	0.950			0.950			0.950			0.950	0.954	
Satd. Flow (prot)	3467	3571	0	1770	3366	0	1805	1758	0	1715	1722	1615
Flt Permitted	0.950			0.950			0.950			0.950	0.954	
Satd. Flow (perm)	3467	3571	0	1770	3366	0	1805	1758	0	1715	1722	1615
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		1			88			13				157
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		877			261			151			343	
Travel Time (s)		19.9			5.9			3.4			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)	137	970	6	6	589	283	45	13	13	407	6	157
Shared Lane Traffic (%)										49%		
Lane Group Flow (vph)	137	976	0	6	872	0	45	26	0	208	205	157
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	pt+ov
Protected Phases	5	2		1	6		3	3		4	4	4 5
Permitted Phases		2			6							
Detector Phase	5	2		1	6		3	3		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)	11.0	53.0		11.0	50.0		22.0	22.0		22.0	22.0	
Total Split (s)	14.0	53.0		11.0	50.0		22.0	22.0		24.0	24.0	
Total Split (%)	12.7%	48.2%		10.0%	45.5%		20.0%	20.0%		21.8%	21.8%	
Maximum Green (s)	8.0	47.0		5.0	44.0		16.0	16.0		18.0	18.0	
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	Lead		Lag	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	C-Max		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)	8.6	65.0		5.6	52.6		8.2	8.2		18.9	18.9	33.5
Actuated g/C Ratio	0.08	0.59		0.05	0.48		0.07	0.07		0.17	0.17	0.30
v/c Ratio	0.51	0.46		0.07	0.53		0.34	0.18		0.71	0.69	0.26
Control Delay	55.6	16.1		55.0	20.8		54.4	32.8		55.6	54.7	5.2
Queue Delay	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	55.6	16.1		55.0	20.8		54.4	32.8		55.6	54.7	5.2
LOS	E	B		D	C		D	C		E	D	A
Approach Delay		20.9			21.1			46.5			41.4	
Approach LOS		C			C			D			D	
Queue Length 50th (ft)	47	195		4	150		31	9		145	143	0
Queue Length 95th (ft)	75	316		m10	215		57	30		211	208	39
Internal Link Dist (ft)		797			181			71			263	
Turn Bay Length (ft)	150			150								
Base Capacity (vph)	276	2110		90	1656		262	266		317	319	591
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	0.46		0.07	0.53		0.17	0.10		0.66	0.64	0.27

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 110
Offset: 0 (0%), Referenced to phase 2:EBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.71
Intersection Signal Delay: 26.1 Intersection LOS: C
Intersection Capacity Utilization 58.5% ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 14: VIP Dr/Ashleigh Dr & NH 28



Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	100	80	25	55	50	195	195	800	75	25	265	40
Future Volume (vph)	100	80	25	55	50	195	195	800	75	25	265	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	150		150	150		150	150		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		0.965				0.850		0.987			0.980	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1798	0	1787	1881	1599	1805	1875	0	1805	1862	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1798	0	1787	1881	1599	1805	1875	0	1805	1862	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		17				205		6			9	
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)	101	81	25	58	53	205	219	899	84	27	285	43
Shared Lane Traffic (%)												
Lane Group Flow (vph)	101	106	0	58	53	205	219	983	0	27	328	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		19.0	32.0		14.0	27.0	
Total Split (%)	17.5%	25.0%		17.5%	25.0%		23.8%	40.0%		17.5%	33.8%	
Maximum Green (s)	8.0	14.0		8.0	14.0		13.0	26.0		8.0	21.0	
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	19.6		8.0	16.8	35.2	12.4	34.4		8.0	21.6	
Actuated g/C Ratio	0.10	0.24		0.10	0.21	0.44	0.16	0.43		0.10	0.27	
v/c Ratio	0.57	0.23		0.33	0.13	0.25	0.78	1.22		0.15	0.64	
Control Delay	48.2	24.8		38.9	29.2	3.2	53.3	132.8		35.1	32.2	
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	48.2	24.8		38.9	29.2	3.2	53.3	132.8		35.1	32.2	
LOS	D	C		D	C	A	D	F		D	C	
Approach Delay		36.2			14.1			118.3			32.4	
Approach LOS		D			B			F			C	
Queue Length 50th (ft)	49	39		28	23	0	106	~541		13	142	
Queue Length 95th (ft)	#108	84		63	53	38	#204	#939		36	230	
Internal Link Dist (ft)		401			267			399			291	
Turn Bay Length (ft)	150			150		150	150			150		
Base Capacity (vph)	177	453		178	395	829	293	809		180	509	
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	0.57	0.23		0.33	0.13	0.25	0.75	1.22		0.15	0.64	

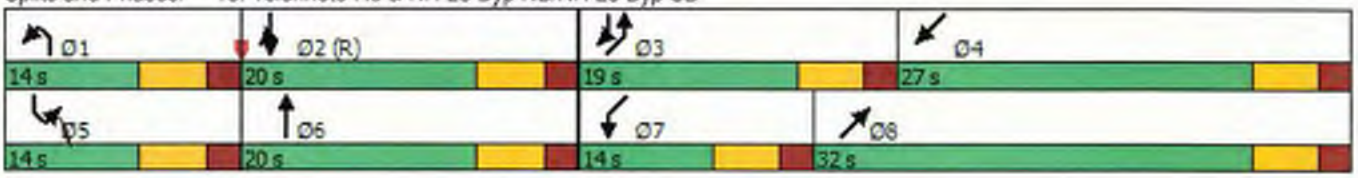
Intersection Summary

Area Type: Other
Cycle Length: 80
Actuated Cycle Length: 80
Offset: 0 (0%), Referenced to phase 2:SBT, Start of Green
Natural Cycle: 110
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.22
Intersection Signal Delay: 79.7 Intersection LOS: E
Intersection Capacity Utilization 80.5% 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: 18: Tsienneto Rd & NH 28 Byp NB/NH 28 Byp SB



APPENDIX O-1: 2040 ALTERNATIVE A INTERSECTION CAPACITY ANALYSES – HCS PRINTOUTS – AM PEAK HOUR

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↰	↱↱
Traffic Volume (vph)	0	1340	825	0	375	850
Future Volume (vph)	0	1340	825	0	375	850
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	1441	938	0	421	955
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	1441	938	0	421	955
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)		34.0	34.0		29.0	29.0
Effective Green, g (s)		34.0	34.0		29.0	29.0
Actuated g/C Ratio		0.45	0.45		0.39	0.39
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)		1573	1544		746	1037
v/s Ratio Prot		c0.42	0.28		0.22	c0.36
v/s Ratio Perm						
v/c Ratio		0.92	0.61		0.56	0.92
Uniform Delay, d1		19.2	15.5		18.0	21.9
Progression Factor		1.07	1.41		1.00	1.00
Incremental Delay, d2		3.9	0.2		1.0	12.9
Delay (s)		24.4	22.0		19.0	34.8
Level of Service		C	C		B	C
Approach Delay (s)		24.4	22.0		30.0	
Approach LOS		C	C		C	

Intersection Summary			
HCM 2000 Control Delay	25.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	75.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	69.8%	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)	490	0	235	0	0	1470	245	0	0	885	175
Future Volume (vph)	490	0	235	0	0	1470	245	0	0	885	175
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)	557	0	267	0	0	1564	261	0	0	962	190
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	557	0	267	0	0	1564	261	0	0	962	190
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)	25.0		25.0			67.0	113.0			40.0	150.0
Effective Green, g (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
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)	540		438			1489	2589			934	1568
v/s Ratio Prot	c0.17		0.10			c0.47	0.08			c0.27	
v/s Ratio Perm											0.12
v/c Ratio	1.03		0.61			1.05	0.10			1.03	0.12
Uniform Delay, d1	62.5		58.0			41.5	4.9			55.0	0.0
Progression Factor	1.00		1.00			0.80	1.82			1.00	1.00
Incremental Delay, d2	47.1		2.4			32.0	0.0			37.4	0.2
Delay (s)	109.6		60.4			65.4	9.0			92.4	0.2
Level of Service	F		E			E	A			F	A
Approach Delay (s)		93.6		0.0			57.3			77.2	
Approach LOS		F		A			E			E	

Intersection Summary			
HCM 2000 Control Delay	71.2	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	96.4%	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	660	455	420	790	0	0	0	0	180	0	445
Future Volume (vph)	0	660	455	420	790	0	0	0	0	180	0	445
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	717	495	575	1082	0	0	0	0	243	0	601
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	72
Lane Group Flow (vph)	0	717	495	575	1082	0	0	0	0	243	0	529
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)		31.0	130.0	42.0	79.0					39.0		39.0
Effective Green, g (s)		31.0	130.0	42.0	79.0					39.0		39.0
Actuated g/C Ratio		0.24	1.00	0.32	0.61					0.30		0.30
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)		755	1417	545	2050					990		457
v/s Ratio Prot		c0.23		c0.34	0.32					0.07		c0.35
v/s Ratio Perm			0.35									
v/c Ratio		0.95	0.35	1.06	0.53					0.25		1.16
Uniform Delay, d1		48.7	0.0	44.0	14.7					34.4		45.5
Progression Factor		1.00	1.00	0.39	0.09					1.00		1.00
Incremental Delay, d2		22.5	0.7	49.0	0.4					0.1		92.9
Delay (s)		71.3	0.7	66.0	1.8					34.5		138.4
Level of Service		E	A	E	A					C		F
Approach Delay (s)		42.4			24.1			0.0			108.5	
Approach LOS		D			C			A			F	

Intersection Summary			
HCM 2000 Control Delay	49.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	86.0%	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)	505	335	0	0	740	630	470	0	180	0	0	0
Future Volume (vph)	505	335	0	0	740	630	470	0	180	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)	580	385	0	0	822	700	603	0	231	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	116	0	0	0
Lane Group Flow (vph)	580	385	0	0	822	700	603	0	115	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)	41.0	76.0			29.0	130.0	42.0		42.0			
Effective Green, g (s)	41.0	76.0			29.0	130.0	42.0		42.0			
Actuated g/C Ratio	0.32	0.58			0.22	1.00	0.32		0.32			
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)	517	1918			766	1538	535		478			
v/s Ratio Prot	c0.35	0.12			c0.24		c0.36		0.08			
v/s Ratio Perm						0.46						
v/c Ratio	1.12	0.20			1.07	0.46	1.13		0.24			
Uniform Delay, d1	44.5	12.7			50.5	0.0	44.0		32.3			
Progression Factor	0.14	0.01			1.00	1.00	1.00		1.00			
Incremental Delay, d2	64.7	0.2			53.9	1.0	78.8		0.3			
Delay (s)	70.9	0.3			104.4	1.0	122.8		32.5			
Level of Service	E	A			F	A	F		C			
Approach Delay (s)		42.7			56.9			97.8			0.0	
Approach LOS		D			E			F			A	

Intersection Summary			
HCM 2000 Control Delay	63.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	86.0%	ICU Level of Service	E
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)	80	0	25	0	1	0	60	430	0	5	930	20
Future Volume (vph)	80	0	25	0	1	0	60	430	0	5	930	20
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		1.00		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		1900		1770	3539		1770	3528	
Flt Permitted		0.76	1.00		1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1407	1583		1900		1770	3539		1770	3528	
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)	87	0	27	0	4	0	65	467	0	5	1011	22
RTOR Reduction (vph)	0	0	12	0	0	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	87	15	0	4	0	65	467	0	5	1032	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)		7.9	40.1		7.9		6.4	45.7		0.8	40.1	
Effective Green, g (s)		7.9	40.1		7.9		6.4	45.7		0.8	40.1	
Actuated g/C Ratio		0.11	0.55		0.11		0.09	0.63		0.01	0.55	
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)		153	876		207		156	2233		19	1954	
v/s Ratio Prot					0.00		c0.04	c0.13		0.00	c0.29	
v/s Ratio Perm		c0.06	0.01									
v/c Ratio		0.57	0.02		0.02		0.42	0.21		0.26	0.53	
Uniform Delay, d1		30.6	7.3		28.8		31.2	5.7		35.5	10.2	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		4.8	0.0		0.0		1.8	0.0		7.3	0.3	
Delay (s)		35.4	7.3		28.8		33.0	5.7		42.8	10.4	
Level of Service		D	A		C		C	A		D	B	
Approach Delay (s)		28.8			28.8			9.1			10.6	
Approach LOS		C			C			A			B	

Intersection Summary			
HCM 2000 Control Delay	11.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	72.4	Sum of lost time (s)	18.0
Intersection Capacity Utilization	61.8%	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	70	10	370	0	50	0	370	110	15	495	0
Future Volume (vph)	10	70	10	370	0	50	0	370	110	15	495	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		0.98			0.98			0.97			1.00	
Flt Protected		0.99			0.96			1.00			1.00	
Satd. Flow (prot)		1824			1738			1705			1807	
Flt Permitted		0.94			0.68			1.00			0.98	
Satd. Flow (perm)		1716			1243			1705			1772	
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	117	17	385	0	52	0	416	124	17	576	0
RTOR Reduction (vph)	0	5	0	0	22	0	0	12	0	0	0	0
Lane Group Flow (vph)	0	146	0	0	415	0	0	528	0	0	593	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)		30.7			30.7			33.9			33.9	
Effective Green, g (s)		30.7			30.7			33.9			33.9	
Actuated g/C Ratio		0.40			0.40			0.44			0.44	
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)		687			498			754			784	
v/s Ratio Prot								0.31				
v/s Ratio Perm		0.08			c0.33						c0.33	
v/c Ratio		0.21			0.83			0.70			0.76	
Uniform Delay, d1		15.0			20.7			17.2			17.9	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.2			11.5			2.9			4.2	
Delay (s)		15.2			32.1			20.1			22.1	
Level of Service		B			C			C			C	
Approach Delay (s)		15.2			32.1			20.1			22.1	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	23.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	76.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	79.7%	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)	20	280	80	20	430	265	170	180	20	90	240	30
Future Volume (vph)	20	280	80	20	430	265	170	180	20	90	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	0.97		1.00	0.94		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)	1656	1685		1703	1690		1719	1782		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	1685		1703	1690		1719	1782		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)	21	292	83	21	457	282	200	212	24	99	264	33
RTOR Reduction (vph)	0	8	0	0	17	0	0	4	0	0	0	27
Lane Group Flow (vph)	21	367	0	21	722	0	200	232	0	99	264	6
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	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases												4
Actuated Green, G (s)	3.1	51.3		1.5	49.7		18.0	29.5		7.1	18.6	21.7
Effective Green, g (s)	3.1	51.3		1.5	49.7		18.0	29.5		7.1	18.6	21.7
Actuated g/C Ratio	0.03	0.45		0.01	0.44		0.16	0.26		0.06	0.16	0.19
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)	45	762		22	740		272	463		106	293	372
v/s Ratio Prot	c0.01	0.22		0.01	c0.43		c0.12	0.13		0.06	c0.15	0.00
v/s Ratio Perm												0.00
v/c Ratio	0.47	0.48		0.95	0.98		0.74	0.50		0.93	0.90	0.02
Uniform Delay, d1	54.3	21.7		55.9	31.3		45.4	35.7		52.9	46.5	37.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	7.5	0.5		169.9	26.9		9.9	0.9		66.1	28.6	0.0
Delay (s)	61.8	22.2		225.8	58.2		55.3	36.6		119.0	75.1	37.2
Level of Service	E	C		F	E		E	D		F	E	D
Approach Delay (s)		24.3			62.8			45.2			82.9	
Approach LOS		C			E			D			F	

Intersection Summary			
HCM 2000 Control Delay	55.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	113.4	Sum of lost time (s)	24.0
Intersection Capacity Utilization	75.8%	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)	240	10	5	240	260	190
Future Volume (vph)	240	10	5	240	260	190
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		0.850			0.943	
Flt Protected	0.950			0.999		
Satd. Flow (prot)	1719	1538	0	1825	1757	0
Flt Permitted	0.950			0.999		
Satd. Flow (perm)	1719	1538	0	1825	1757	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	322			309	249	
Travel Time (s)	7.3			7.0	5.7	
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)	270	11	5	264	280	204
Shared Lane Traffic (%)						
Lane Group Flow (vph)	270	11	0	269	484	0
Sign Control	Stop			Stop	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 45.2%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Intersection Delay, s/veh	16.9
Intersection LOS	C

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	240	10	5	240	260	190
Future Vol, veh/h	240	10	5	240	260	190
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	270	11	5	264	280	204
Number of Lanes	1	1	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	2
HCM Control Delay	17.1	13	18.9
HCM LOS	C	B	C

Lane	NBLn1	EBLn1	EBLn2	SBLn1
Vol Left, %	2%	100%	0%	0%
Vol Thru, %	98%	0%	0%	58%
Vol Right, %	0%	0%	100%	42%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	245	240	10	450
LT Vol	5	240	0	0
Through Vol	240	0	0	260
RT Vol	0	0	10	190
Lane Flow Rate	269	270	11	484
Geometry Grp	2	7	7	2
Degree of Util (X)	0.427	0.527	0.018	0.69
Departure Headway (Hd)	5.703	7.036	5.816	5.131
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	630	512	614	702
Service Time	3.758	4.786	3.565	3.18
HCM Lane V/C Ratio	0.427	0.527	0.018	0.689
HCM Control Delay	13	17.4	8.7	18.9
HCM Lane LOS	B	C	A	C
HCM 95th-tile Q	2.1	3	0.1	5.5

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↱	↰	↑↑	↰↰	↱
Traffic Volume (vph)	1090	270	180	1110	280	200
Future Volume (vph)	1090	270	180	1110	280	200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
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)	3539	1583	1770	3539	3433	1583
Flt Permitted	1.00	1.00	0.09	1.00	0.95	1.00
Satd. Flow (perm)	3539	1583	160	3539	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1185	293	196	1207	304	217
RTOR Reduction (vph)	0	167	0	0	0	17
Lane Group Flow (vph)	1185	126	196	1207	304	200
Turn Type	NA	Perm	pm+pt	NA	Prot	pm+ov
Protected Phases	4		3	8	2	3
Permitted Phases		4	8			2
Actuated Green, G (s)	42.9	42.9	59.1	59.1	31.9	43.6
Effective Green, g (s)	42.9	42.9	59.1	59.1	31.9	43.6
Actuated g/C Ratio	0.43	0.43	0.59	0.59	0.32	0.44
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1518	679	282	2091	1095	761
v/s Ratio Prot	c0.33		c0.08	0.34	0.09	c0.03
v/s Ratio Perm		0.08	0.33			0.10
v/c Ratio	0.78	0.19	0.70	0.58	0.28	0.26
Uniform Delay, d1	24.5	17.7	21.3	12.7	25.4	18.0
Progression Factor	1.00	1.00	1.00	1.96	1.00	1.00
Incremental Delay, d2	2.7	0.1	5.9	0.3	0.6	0.2
Delay (s)	27.2	17.8	27.2	25.3	26.1	18.1
Level of Service	C	B	C	C	C	B
Approach Delay (s)	25.3			25.5	22.8	
Approach LOS	C			C	C	

Intersection Summary

HCM 2000 Control Delay	25.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	59.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	60	1200	30	50	1100	10	5	5	40	150	20	40
Future Volume (vph)	60	1200	30	50	1100	10	5	5	40	150	20	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	
Lane Util. Factor	1.00	0.91		1.00	0.95			1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.98	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	1.00			1.00	0.85	1.00	0.90	
Flt Protected	0.95	1.00		0.95	1.00			0.98	1.00	0.95	1.00	
Satd. Flow (prot)	1687	4830		1719	3434			1779	1583	1805	1710	
Flt Permitted	0.95	1.00		0.95	1.00			0.88	1.00	0.75	1.00	
Satd. Flow (perm)	1687	4830		1719	3434			1608	1583	1419	1710	
Peak-hour factor, PHF	0.89	0.89	0.89	0.96	0.96	0.96	0.65	0.65	0.65	0.67	0.67	0.67
Adj. Flow (vph)	67	1348	34	52	1146	10	8	8	62	224	30	60
RTOR Reduction (vph)	0	2	0	0	0	0	0	0	24	0	48	0
Lane Group Flow (vph)	67	1380	0	52	1156	0	0	16	38	224	42	0
Confl. Peds. (#/hr)							40					
Heavy Vehicles (%)	7%	7%	7%	5%	5%	5%	2%	2%	2%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA	pm+ov	Perm	NA	
Protected Phases	1	6		5	2			4	1		8	
Permitted Phases							4		4	8		
Actuated Green, G (s)	8.2	54.1		7.4	53.3			20.5	28.7	20.5	20.5	
Effective Green, g (s)	8.2	54.1		7.4	53.3			20.5	28.7	20.5	20.5	
Actuated g/C Ratio	0.08	0.54		0.07	0.53			0.20	0.29	0.20	0.20	
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)	138	2613		127	1830			329	549	290	350	
v/s Ratio Prot	c0.04	0.29		0.03	c0.34				0.01		0.02	
v/s Ratio Perm								0.01	0.02	c0.16		
v/c Ratio	0.49	0.53		0.41	0.63			0.05	0.07	0.77	0.12	
Uniform Delay, d1	43.9	14.7		44.2	16.4			31.9	25.9	37.5	32.4	
Progression Factor	1.38	0.49		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	2.0	0.6		2.1	1.7			0.1	0.1	12.0	0.2	
Delay (s)	62.4	7.8		46.4	18.1			32.0	26.0	49.6	32.6	
Level of Service	E	A		D	B			C	C	D	C	
Approach Delay (s)		10.3			19.3			27.2			44.7	
Approach LOS		B			B			C			D	

Intersection Summary			
HCM 2000 Control Delay	17.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	64.9%	ICU Level of Service	C
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)	100	70	40	50	100	0	130	820	320	30	935	220
Future Volume (vph)	100	70	40	50	100	0	130	820	320	30	935	220
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	0.95	1.00	1.00	0.95	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		3400	3505	1568	1752	3505	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		3400	3505	1568	1752	3505	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)	119	83	48	63	127	0	151	953	372	30	944	222
RTOR Reduction (vph)	0	0	35	0	0	0	0	0	0	0	0	73
Lane Group Flow (vph)	119	83	13	63	127	0	151	953	372	30	944	149
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)	14.2	25.0	30.5	7.0	17.8		10.0	49.5	111.0	5.5	45.0	58.0
Effective Green, g (s)	14.2	25.0	30.5	7.0	17.8		10.0	49.5	111.0	5.5	45.0	58.0
Actuated g/C Ratio	0.13	0.23	0.27	0.06	0.16		0.09	0.45	1.00	0.05	0.41	0.52
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)	222	781	510	210	551		306	1563	1568	86	1420	819
v/s Ratio Prot	c0.07	0.02	0.00	0.02	0.04		c0.04	c0.27		0.02	c0.27	0.10
v/s Ratio Perm			0.01						c0.24			
v/c Ratio	0.54	0.11	0.03	0.30	0.23		0.49	0.61	0.24	0.35	0.66	0.18
Uniform Delay, d1	45.3	34.1	29.4	49.7	40.6		48.1	23.4	0.0	51.0	26.9	14.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.43	0.64	0.28
Incremental Delay, d2	2.5	0.3	0.0	0.8	1.0		1.3	0.7	0.4	2.0	1.0	0.1
Delay (s)	47.8	34.4	29.4	50.5	41.6		49.3	24.1	0.4	75.2	18.2	4.1
Level of Service	D	C	C	D	D		D	C	A	E	B	A
Approach Delay (s)		39.8			44.5			20.7			17.0	
Approach LOS		D			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	22.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	111.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	58.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

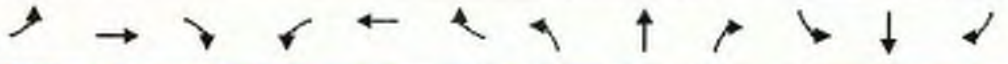
Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Volume (vph)	205	60	580	330	50	980
Future Volume (vph)	205	60	580	330	50	980
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	4.0	6.0	6.0
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95
Frt	1.00	0.85	1.00	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	0.29	1.00
Satd. Flow (perm)	1770	1583	3505	1568	536	3539
Peak-hour factor, PHF	0.83	0.83	0.86	0.86	0.81	0.81
Adj. Flow (vph)	247	72	674	384	62	1210
RTOR Reduction (vph)	0	44	0	0	0	0
Lane Group Flow (vph)	247	28	674	384	62	1210
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)	38.0	43.5	49.5	111.0	61.0	61.0
Effective Green, g (s)	38.0	43.5	49.5	111.0	61.0	61.0
Actuated g/C Ratio	0.34	0.39	0.45	1.00	0.55	0.55
Clearance Time (s)		6.0	6.0		6.0	
Vehicle Extension (s)		3.0	3.0		3.0	
Lane Grp Cap (vph)	605	705	1563	1568	355	1944
v/s Ratio Prot	c0.14	0.00	0.19		0.01	c0.34
v/s Ratio Perm		0.02		0.24	0.09	
v/c Ratio	0.41	0.04	0.43	0.24	0.17	0.62
Uniform Delay, d1	27.9	20.9	21.1	0.0	12.8	17.1
Progression Factor	1.00	1.00	0.37	1.00	1.00	1.00
Incremental Delay, d2	0.5	0.0	0.2	0.3	0.2	0.6
Delay (s)	28.4	20.9	7.9	0.3	13.0	17.7
Level of Service	C	C	A	A	B	B
Approach Delay (s)	26.7		5.1			17.5
Approach LOS	C		A			B

Intersection Summary			
HCM 2000 Control Delay	13.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	111.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	48.4%	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)	20	240	0	0	330	10	5	0	5	20	0	180
Future Volume (vph)	20	240	0	0	330	10	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			1.00			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			3523			1805	1615		1787	1599
Flt Permitted	0.95	1.00			1.00			0.74	1.00		0.75	1.00
Satd. Flow (perm)	1687	3374			3523			1412	1615		1413	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)	24	289	0	0	359	11	10	0	10	22	0	200
RTOR Reduction (vph)	0	0	0	0	2	0	0	0	9	0	0	178
Lane Group Flow (vph)	24	289	0	0	368	0	0	10	1	0	22	22
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)	1.5	44.9			37.4			7.0	7.0		7.0	7.0
Effective Green, g (s)	1.5	44.9			37.4			7.0	7.0		7.0	7.0
Actuated g/C Ratio	0.02	0.70			0.59			0.11	0.11		0.11	0.11
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)	39	2370			2061			154	176		154	175
v/s Ratio Prot	c0.01	0.09			c0.10							
v/s Ratio Perm								0.01	0.00		c0.02	0.01
v/c Ratio	0.62	0.12			0.18			0.06	0.01		0.14	0.13
Uniform Delay, d1	30.9	3.1			6.1			25.5	25.4		25.7	25.7
Progression Factor	1.00	1.00			1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	25.5	0.1			0.0			0.2	0.0		0.4	0.3
Delay (s)	56.4	3.2			6.2			25.7	25.4		26.2	26.0
Level of Service	E	A			A			C	C		C	C
Approach Delay (s)		7.3			6.2			25.5			26.0	
Approach LOS		A			A			C			C	

Intersection Summary			
HCM 2000 Control Delay	11.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.19		
Actuated Cycle Length (s)	63.9	Sum of lost time (s)	18.0
Intersection Capacity Utilization	39.8%	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)	30	200	5	5	330	120	10	5	5	170	5	110
Future Volume (vph)	30	200	5	5	330	120	10	5	5	170	5	110
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	0.97	0.95		1.00	0.95		1.00	1.00		0.95	0.95	1.00
Frt	1.00	1.00		1.00	0.96		1.00	0.93		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	0.96	1.00
Satd. Flow (prot)	3303	3393		1736	3332		1805	1758		1665	1674	1568
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	0.96	1.00
Satd. Flow (perm)	3303	3393		1736	3332		1805	1758		1665	1674	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)	36	241	6	5	340	124	15	7	7	189	6	122
RTOR Reduction (vph)	0	2	0	0	39	0	0	7	0	0	0	80
Lane Group Flow (vph)	36	245	0	5	425	0	15	7	0	98	97	42
Heavy Vehicles (%)	6%	6%	6%	4%	4%	4%	0%	0%	0%	3%	3%	3%
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	pt+ov
Protected Phases	5	2		1	6		3	3		4	4	4 5
Permitted Phases								3				
Actuated Green, G (s)	5.0	23.9		0.9	19.8		2.1	2.1		9.8	9.8	20.8
Effective Green, g (s)	5.0	23.9		0.9	19.8		2.1	2.1		9.8	9.8	20.8
Actuated g/C Ratio	0.08	0.39		0.01	0.33		0.03	0.03		0.16	0.16	0.34
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)	272	1335		25	1086		62	60		268	270	537
v/s Ratio Prot	c0.01	c0.07		0.00	c0.13		c0.01	0.00		c0.06	0.06	0.03
v/s Ratio Perm												
v/c Ratio	0.13	0.18		0.20	0.39		0.24	0.12		0.37	0.36	0.08
Uniform Delay, d1	25.8	12.0		29.5	15.8		28.5	28.4		22.7	22.7	13.5
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.2	0.1		3.9	0.2		2.0	0.9		0.8	0.8	0.1
Delay (s)	26.1	12.1		33.5	16.0		30.6	29.3		23.5	23.5	13.5
Level of Service	C	B		C	B		C	C		C	C	B
Approach Delay (s)		13.9			16.2			30.0			19.7	
Approach LOS		B			B			C			B	

Intersection Summary			
HCM 2000 Control Delay	17.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	60.7	Sum of lost time (s)	24.0
Intersection Capacity Utilization	38.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	50	210	350	10	30	40
Future Vol, veh/h	50	210	350	10	30	40
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	-	-	-	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	60	250	393	11	36	48

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	404	0	-	0	769	399
Stage 1	-	-	-	-	399	-
Stage 2	-	-	-	-	370	-
Critical Hdwy	4.17	-	-	-	6.46	6.26
Critical Hdwy Stg 1	-	-	-	-	5.46	-
Critical Hdwy Stg 2	-	-	-	-	5.46	-
Follow-up Hdwy	2.263	-	-	-	3.554	3.354
Pot Cap-1 Maneuver	1128	-	-	-	364	642
Stage 1	-	-	-	-	669	-
Stage 2	-	-	-	-	690	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1128	-	-	-	345	642
Mov Cap-2 Maneuver	-	-	-	-	345	-
Stage 1	-	-	-	-	634	-
Stage 2	-	-	-	-	690	-

Approach	EB	WB	SB
HCM Control Delay, s	1.6	0	14.4
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1128	-	-	-	469
HCM Lane V/C Ratio	0.053	-	-	-	0.18
HCM Control Delay (s)	8.4	-	-	-	14.4
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.2	-	-	-	0.6

Lane Group	WBL2	WBL	WBR	WBR2	NBL	NBT	NBR	NBR2	SBL2	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	325	325	20	100	100	40	10	10	150	130	50
Future Volume (vph)	10	325	325	20	100	100	40	10	10	150	130	50
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		0.932				0.973					0.980	
Flt Protected		0.976				0.980					0.977	
Satd. Flow (prot)	0	1678	0	0	0	1759	0	0	0	0	1700	0
Flt Permitted		0.976				0.980					0.977	
Satd. Flow (perm)	0	1678	0	0	0	1759	0	0	0	0	1700	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	357	357	22	116	116	47	12	13	188	163	63
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	747	0	0	0	291	0	0	0	0	427	0
Sign Control		Yield				Yield					Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization 112.5%		ICU Level of Service H	
Analysis Period (min) 15			

Lane Group	NEL	NET	NER	NER2	SWL2	SWL	SWT	SWR
Lane Configurations		↔					↔	
Traffic Volume (vph)	70	140	120	120	5	30	230	10
Future Volume (vph)	70	140	120	120	5	30	230	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		0.928					0.995	
Flt Protected		0.992					0.994	
Satd. Flow (prot)	0	1620	0	0	0	0	1756	0
Flt Permitted		0.992					0.994	
Satd. Flow (perm)	0	1620	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)	117	233	200	200	6	36	277	12
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	750	0	0	0	0	331	0
Sign Control		Yield					Yield	

Intersection Summary

Intersection	
Intersection Delay, s/veh	50.5
Intersection LOS	F

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	747	291	427	750	331
Demand Flow Rate, veh/h	770	298	456	810	354
Vehicles Circulating, veh/h	678	815	839	445	1111
Vehicles Exiting, veh/h	435	440	626	850	337
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	94.0	14.5	29.7	38.2	39.1
Approach LOS	F	B	D	E	E

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	770	298	456	810	354
Cap Entry Lane, veh/h	691	601	586	876	444
Entry HV Adj Factor	0.970	0.975	0.936	0.926	0.933
Flow Entry, veh/h	747	291	427	750	330
Cap Entry, veh/h	670	586	549	812	415
V/C Ratio	1.114	0.496	0.778	0.924	0.797
Control Delay, s/veh	94.0	14.5	29.7	38.2	39.1
LOS	F	B	D	E	E
95th %tile Queue, veh	22	3	7	13	7

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	20	260	10	40	50	280	160	10	10	90	20
Future Volume (vph)	10	20	260	10	40	50	280	160	10	10	90	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		30	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
Ped Bike Factor												
Frt			0.850		0.932			0.997			0.978	
Flt Protected		0.984			0.995			0.970			0.996	
Satd. Flow (prot)	0	1731	1495	0	1678	0	0	1784	0	0	1780	0
Flt Permitted		0.984			0.995			0.970			0.996	
Satd. Flow (perm)	0	1731	1495	0	1678	0	0	1784	0	0	1780	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		113			453			475			436	
Travel Time (s)		2.6			10.3			10.8			9.9	
Confl. Peds. (#/hr)			155									
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	317	14	57	71	373	213	13	14	127	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	36	317	0	142	0	0	599	0	0	169	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 51.1%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	24.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↱		✣			✣			✣	
Traffic Vol, veh/h	10	20	260	10	40	50	280	160	10	10	90	20
Future Vol, veh/h	10	20	260	10	40	50	280	160	10	10	90	20
Conflicting Peds, #/hr	0	0	155	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	-	-	30	-	-	-	-	-	-	-	-	-
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	317	14	57	71	373	213	13	14	127	28

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1199	1141	296	1461	1149	220	155	0	0	226	0	0
Stage 1	169	169	-	966	966	-	-	-	-	-	-	-
Stage 2	1030	972	-	495	183	-	-	-	-	-	-	-
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	158	196	729	105	196	812	1419	-	-	1331	-	-
Stage 1	819	747	-	302	329	-	-	-	-	-	-	-
Stage 2	275	323	-	551	743	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	75	135	621	29	135	812	1419	-	-	1331	-	-
Mov Cap-2 Maneuver	75	135	-	29	135	-	-	-	-	-	-	-
Stage 1	572	738	-	211	230	-	-	-	-	-	-	-
Stage 2	132	226	-	220	734	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	20.7	138.9	5.3	0.6
HCM LOS	C	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1419	-	-	107	621	142	1331	-	-
HCM Lane V/C Ratio	0.263	-	-	0.342	0.511	1.006	0.011	-	-
HCM Control Delay (s)	8.4	0	-	55.2	16.7	138.9	7.7	0	-
HCM Lane LOS	A	A	-	F	C	F	A	A	-
HCM 95th %tile Q(veh)	1.1	-	-	1.4	2.9	7.4	0	-	-

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	30	50	20	10	40	180	150	320	70	60	470	170
Future Volume (vph)	30	50	20	10	40	180	150	320	70	60	470	170
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	0.96	
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	3444		1787	3432	
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	3444		1787	3432	
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	222	221	471	103	77	603	218
RTOR Reduction (vph)	0	18	0	0	0	128	0	24	0	0	49	0
Lane Group Flow (vph)	37	67	0	12	49	94	221	550	0	77	772	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)	2.8	16.6		1.4	15.2	29.3	8.1	22.4		4.6	18.9	
Effective Green, g (s)	2.8	16.6		1.4	15.2	29.3	8.1	22.4		4.6	18.9	
Actuated g/C Ratio	0.04	0.24		0.02	0.22	0.42	0.12	0.32		0.07	0.27	
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)	71	425		35	402	659	207	1118		119	940	
v/s Ratio Prot	c0.02	0.04		0.01	0.03	c0.06	c0.12	c0.16		0.04	c0.22	
v/s Ratio Perm												
v/c Ratio	0.52	0.16		0.34	0.12	0.14	1.07	0.49		0.65	0.82	
Uniform Delay, d1	32.4	20.7		33.3	21.6	12.2	30.4	18.7		31.4	23.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.7	0.2		5.8	0.6	0.1	81.6	0.3		11.5	5.8	
Delay (s)	39.2	20.9		39.1	22.2	12.3	112.1	19.1		42.9	29.3	
Level of Service	D	C		D	C	B	F	B		D	C	
Approach Delay (s)		26.4			15.1			44.9			30.5	
Approach LOS		C			B			D			C	

Intersection Summary

HCM 2000 Control Delay	33.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	69.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	51.2%	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)	220	0	10	130	240	530
Future Volume (vph)	220	0	10	130	240	530
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		0.53	1.00	1.00	1.00
Satd. Flow (perm)	1787		984	1863	1845	1568
Peak-hour factor, PHF	0.90	0.90	0.87	0.87	0.89	0.89
Adj. Flow (vph)	244	0	11	149	270	596
RTOR Reduction (vph)	0	0	0	0	0	139
Lane Group Flow (vph)	244	0	11	149	270	457
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)	21.2		32.6	31.9	31.9	55.1
Effective Green, g (s)	21.2		28.6	31.9	31.9	55.1
Actuated g/C Ratio	0.30		0.40	0.44	0.44	0.77
Clearance Time (s)	6.0		6.0			
Vehicle Extension (s)	3.0		3.0			
Lane Grp Cap (vph)	527		399	827	819	1203
v/s Ratio Prot	c0.14		c0.00	0.08	0.15	c0.21
v/s Ratio Perm			0.01			0.09
v/c Ratio	0.46		0.03	0.18	0.33	0.38
Uniform Delay, d1	20.7		13.1	12.1	13.0	2.7
Progression Factor	1.00		1.00	1.00	1.06	1.74
Incremental Delay, d2	0.6		0.0	0.1	0.2	0.2
Delay (s)	21.3		13.2	12.2	13.9	5.0
Level of Service	C		B	B	B	A
Approach Delay (s)	21.3			12.2	7.8	
Approach LOS	C			B	A	

Intersection Summary			
HCM 2000 Control Delay	10.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	71.8	Sum of lost time (s)	22.0
Intersection Capacity Utilization	47.0%	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)	980	0	0	0	1730	0
Future Volume (vph)	980	0	0	0	1730	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)	1043	0	0	0	1840	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1043	0	0	0	1840	0
Turn Type	Prot				Prot	
Protected Phases	2				4	
Permitted Phases						
Actuated Green, G (s)	28.0				50.0	
Effective Green, g (s)	28.0				50.0	
Actuated g/C Ratio	0.31				0.56	
Clearance Time (s)	6.0				6.0	
Vehicle Extension (s)	3.0				3.0	
Lane Grp Cap (vph)	1068				1907	
v/s Ratio Prot	c0.30				c0.54	
v/s Ratio Perm						
v/c Ratio	0.98				0.96	
Uniform Delay, d1	30.7				19.2	
Progression Factor	1.14				1.00	
Incremental Delay, d2	20.6				13.8	
Delay (s)	55.7				33.0	
Level of Service	E				C	
Approach Delay (s)	55.7		0.0			33.0
Approach LOS	E		A			C

Intersection Summary			
HCM 2000 Control Delay	41.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	145.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NWL	NWR
Lane Configurations										
Traffic Volume (vph)	0	1730	0	0	980	1390	0	0	0	795
Future Volume (vph)	0	1730	0	0	980	1390	0	0	0	795
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		0.95			0.95	0.88			1.00	0.95
Frt		1.00			1.00	0.85			0.85	0.85
Flt Protected		1.00			1.00	1.00			1.00	1.00
Satd. Flow (prot)		3539			3539	2787			1583	1504
Flt Permitted		1.00			1.00	1.00			1.00	1.00
Satd. Flow (perm)		3539			3539	2787			1583	1504
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	1840	0	0	1043	1479	0	0	0	846
RTOR Reduction (vph)	0	0	0	0	0	18	0	0	0	0
Lane Group Flow (vph)	0	1840	0	0	1043	1461	0	0	423	423
Turn Type		NA			NA	Perm			Prot	Prot
Protected Phases		2			2				4	4
Permitted Phases	2					2				
Actuated Green, G (s)		51.0			51.0	51.0			27.0	27.0
Effective Green, g (s)		51.0			51.0	51.0			27.0	27.0
Actuated g/C Ratio		0.57			0.57	0.57			0.30	0.30
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)		2005			2005	1579			474	451
v/s Ratio Prot		0.52			0.29				0.27	c0.28
v/s Ratio Perm						c0.52				
v/c Ratio		0.92			0.52	0.93			0.89	0.94
Uniform Delay, d1		17.6			12.0	17.8			30.1	30.7
Progression Factor		0.01			1.00	1.00			1.00	1.00
Incremental Delay, d2		2.7			1.0	10.7			18.7	27.2
Delay (s)		3.0			13.0	28.5			48.8	57.8
Level of Service		A			B	C			D	E
Approach Delay (s)		3.0			22.0		0.0		53.3	
Approach LOS		A			C		A		D	

Intersection Summary			
HCM 2000 Control Delay	20.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	131.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	60	10	320	30	10	710
Future Volume (vph)	60	10	320	30	10	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)	1767		1900	1615	1805	1900
Flt Permitted	0.96		1.00	1.00	0.42	1.00
Satd. Flow (perm)	1767		1900	1615	806	1900
Peak-hour factor, PHF	0.87	0.67	0.95	0.84	0.73	0.96
Adj. Flow (vph)	69	15	337	36	14	740
RTOR Reduction (vph)	8	0	0	17	0	0
Lane Group Flow (vph)	76	0	337	19	14	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)	11.6		37.5	37.5	17.0	37.5
Effective Green, g (s)	11.6		37.5	37.5	17.0	37.5
Actuated g/C Ratio	0.16		0.52	0.52	0.24	0.52
Clearance Time (s)	6.0				6.0	
Vehicle Extension (s)	3.0				3.0	
Lane Grp Cap (vph)	285		992	843	200	992
v/s Ratio Prot	c0.04		0.18		c0.00	c0.39
v/s Ratio Perm				0.01	0.02	
v/c Ratio	0.27		0.34	0.02	0.07	0.75
Uniform Delay, d1	26.4		10.0	8.3	21.2	13.4
Progression Factor	1.00		0.35	0.07	1.00	1.00
Incremental Delay, d2	0.5		0.2	0.0	0.1	3.1
Delay (s)	26.9		3.7	0.6	21.3	16.5
Level of Service	C		A	A	C	B
Approach Delay (s)	26.9		3.4			16.6
Approach LOS	C		A			B

Intersection Summary			
HCM 2000 Control Delay	13.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	71.8	Sum of lost time (s)	22.0
Intersection Capacity Utilization	49.9%	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	30	300	690	20
Future Volume (vph)	5	30	30	300	690	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	42	333	920	36
Shared Lane Traffic (%)						
Lane Group Flow (vph)	47	0	42	333	956	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 47.5%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	30	30	300	690	20
Future Vol, veh/h	5	30	30	300	690	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	42	333	920	36

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1355	938	956	0	-	0
Stage 1	938	-	-	-	-	-
Stage 2	417	-	-	-	-	-
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	166	323	723	-	-	-
Stage 1	384	-	-	-	-	-
Stage 2	669	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	156	323	723	-	-	-
Mov Cap-2 Maneuver	156	-	-	-	-	-
Stage 1	362	-	-	-	-	-
Stage 2	669	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	20.8	1.2	0
HCM LOS	C		

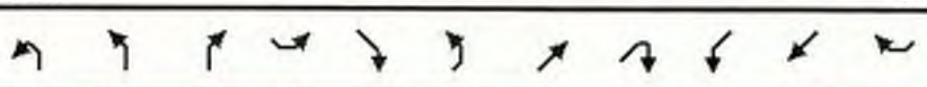
Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	723	-	274	-	-
HCM Lane V/C Ratio	0.058	-	0.171	-	-
HCM Control Delay (s)	10.3	-	20.8	-	-
HCM Lane LOS	B	-	C	-	-
HCM 95th %tile Q(veh)	0.2	-	0.6	-	-

APPENDIX O-2: 2040 ALTERNATIVE A INTERSECTION CAPACITY ANALYSES – HCS PRINTOUTS – PM PEAK HOUR

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↰	↱↱
Traffic Volume (vph)	0	1230	1475	0	385	1195
Future Volume (vph)	0	1230	1475	0	385	1195
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	1323	1676	0	433	1343
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	1323	1676	0	433	1343
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)		59.0	59.0		59.0	59.0
Effective Green, g (s)		59.0	59.0		59.0	59.0
Actuated g/C Ratio		0.45	0.45		0.45	0.45
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)		1575	1545		875	1217
v/s Ratio Prot		0.38	c0.49		0.22	c0.50
v/s Ratio Perm						
v/c Ratio		0.84	1.08		0.49	1.10
Uniform Delay, d1		31.3	35.5		25.0	35.5
Progression Factor		0.66	0.12		1.00	1.00
Incremental Delay, d2		3.4	39.5		0.4	59.0
Delay (s)		23.9	43.9		25.4	94.5
Level of Service		C	D		C	F
Approach Delay (s)		23.9	43.9		77.7	
Approach LOS		C	D		E	

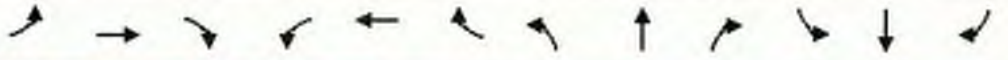
Intersection Summary			
HCM 2000 Control Delay	50.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	94.6%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group



Movement	NBL2	NBL	NBR	SEL	SER	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations											
Traffic Volume (vph)	1360	0	725	0	0	1155	460	0	0	370	110
Future Volume (vph)	1360	0	725	0	0	1155	460	0	0	370	110
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)	1545	0	824	0	0	1229	489	0	0	402	120
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	1545	0	824	0	0	1229	489	0	0	402	120
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)	48.0		48.0			38.0	70.0			26.0	130.0
Effective Green, g (s)	48.0		48.0			38.0	70.0			26.0	130.0
Actuated g/C Ratio	0.37		0.37			0.29	0.54			0.20	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)	1197		971			974	1851			701	1568
v/s Ratio Prot	c0.48		0.31			c0.37	0.14			c0.11	
v/s Ratio Perm											0.08
v/c Ratio	1.29		0.85			1.26	0.26			0.57	0.08
Uniform Delay, d1	41.0		37.7			46.0	16.1			47.0	0.0
Progression Factor	1.00		1.00			0.76	0.46			1.00	1.00
Incremental Delay, d2	137.2		7.0			123.2	0.2			3.4	0.1
Delay (s)	178.2		44.7			158.2	7.7			50.4	0.1
Level of Service	F		D			F	A			D	A
Approach Delay (s)		131.8		0.0			115.3			38.8	
Approach LOS		F		A			F			D	

Intersection Summary			
HCM 2000 Control Delay	115.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.11		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	98.0%	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	755	480	255	665	0	0	0	0	295	0	470
Future Volume (vph)	0	755	480	255	665	0	0	0	0	295	0	470
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	868	552	297	773	0	0	0	0	324	0	516
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	137
Lane Group Flow (vph)	0	868	552	297	773	0	0	0	0	324	0	379
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)		29.1	90.0	18.1	53.2					24.8		24.8
Effective Green, g (s)		29.1	90.0	18.1	53.2					24.8		24.8
Actuated g/C Ratio		0.32	1.00	0.20	0.59					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)		1122	1553	345	2032					927		427
v/s Ratio Prot		c0.25		c0.17	0.22					0.10		c0.24
v/s Ratio Perm			0.36									
v/c Ratio		0.77	0.36	0.86	0.38					0.35		0.89
Uniform Delay, d1		27.5	0.0	34.7	9.7					26.1		31.3
Progression Factor		1.00	1.00	0.04	0.00					1.00		1.00
Incremental Delay, d2		5.2	0.6	10.1	0.2					0.2		19.5
Delay (s)		32.7	0.6	11.6	0.2					26.4		50.7
Level of Service		C	A	B	A					C		D
Approach Delay (s)		20.2			3.3			0.0			41.3	
Approach LOS		C			A			A			D	

Intersection Summary				
HCM 2000 Control Delay	20.1	HCM 2000 Level of Service	C	
HCM 2000 Volume to Capacity ratio	0.83			
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0	
Intersection Capacity Utilization	77.2%	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)	480	570	0	0	555	445	365	0	420	0	0	0
Future Volume (vph)	480	570	0	0	555	445	365	0	420	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)	522	620	0	0	610	489	545	0	627	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	176	0	0	0
Lane Group Flow (vph)	522	620	0	0	610	489	545	0	451	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)	26.0	50.0			18.0	90.0	28.0		28.0			
Effective Green, g (s)	26.0	50.0			18.0	90.0	28.0		28.0			
Actuated g/C Ratio	0.29	0.56			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)	506	1947			701	1568	529		474			
v/s Ratio Prot	c0.30	0.18			c0.17		c0.32		0.30			
v/s Ratio Perm						0.31						
v/c Ratio	1.03	0.32			0.87	0.31	1.03		0.95			
Uniform Delay, d1	32.0	10.8			34.9	0.0	31.0		30.3			
Progression Factor	0.10	0.17			1.00	1.00	1.00		1.00			
Incremental Delay, d2	39.7	0.4			13.9	0.5	47.1		29.4			
Delay (s)	42.8	2.2			48.8	0.5	78.1		59.7			
Level of Service	D	A			D	A	E		E			
Approach Delay (s)		20.7			27.3			68.3			0.0	
Approach LOS		C			C			E			A	

Intersection Summary			
HCM 2000 Control Delay	39.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	77.2%	ICU Level of Service	D
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)	100	5	90	10	0	10	210	880	120	5	520	140
Future Volume (vph)	100	5	90	10	0	10	210	880	120	5	520	140
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		0.95	1.00		0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1778	1583		1729		1770	3476		1770	3427	
Flt Permitted		0.78	1.00		0.78		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1461	1583		1388		1770	3476		1770	3427	
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)	109	5	98	40	0	40	228	957	130	5	565	152
RTOR Reduction (vph)	0	0	57	0	70	0	0	10	0	0	24	0
Lane Group Flow (vph)	0	114	41	0	10	0	228	1077	0	5	693	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)		9.3	30.8		9.3		14.7	44.7		0.8	30.8	
Effective Green, g (s)		9.3	30.8		9.3		14.7	44.7		0.8	30.8	
Actuated g/C Ratio		0.13	0.42		0.13		0.20	0.61		0.01	0.42	
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)		186	669		177		357	2134		19	1449	
v/s Ratio Prot							c0.13	c0.31		0.00	0.20	
v/s Ratio Perm		c0.08	0.03		0.01							
v/c Ratio		0.61	0.06		0.06		0.64	0.50		0.26	0.48	
Uniform Delay, d1		30.0	12.4		27.9		26.6	7.9		35.7	15.2	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		5.9	0.0		0.1		3.7	0.2		7.3	0.3	
Delay (s)		35.9	12.5		28.0		30.3	8.0		43.0	15.4	
Level of Service		D	B		C		C	A		D	B	
Approach Delay (s)		25.1			28.0			11.9			15.6	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	14.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	72.8	Sum of lost time (s)	18.0
Intersection Capacity Utilization	60.9%	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	110	5	270	0	70	0	710	130	15	345	0
Future Volume (vph)	20	110	5	270	0	70	0	710	130	15	345	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		1.00			0.97			0.98			1.00	
Flt Protected		0.99			0.96			1.00			1.00	
Satd. Flow (prot)		1840			1725			1723			1806	
Flt Permitted		0.92			0.58			1.00			0.70	
Satd. Flow (perm)		1706			1046			1723			1268	
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	183	8	281	0	73	0	798	146	17	401	0
RTOR Reduction (vph)	0	1	0	0	25	0	0	7	0	0	0	0
Lane Group Flow (vph)	0	223	0	0	329	0	0	937	0	0	418	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)		28.0			28.0			50.0			50.0	
Effective Green, g (s)		28.0			28.0			50.0			50.0	
Actuated g/C Ratio		0.31			0.31			0.56			0.56	
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)		530			325			957			704	
v/s Ratio Prot								c0.54				
v/s Ratio Perm		0.13			c0.31						0.33	
v/c Ratio		0.42			1.01			0.98			0.59	
Uniform Delay, d1		24.6			31.0			19.5			13.3	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.5			53.2			23.8			1.4	
Delay (s)		25.1			84.2			43.2			14.6	
Level of Service		C			F			D			B	
Approach Delay (s)		25.1			84.2			43.2			14.6	
Approach LOS		C			F			D			B	

Intersection Summary			
HCM 2000 Control Delay	42.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	84.5%	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)	20	520	40	60	360	195	170	180	20	80	260	20
Future Volume (vph)	20	520	40	60	360	195	170	180	20	80	260	20
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	0.95		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)	1656	1724		1703	1698		1719	1782		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	1724		1703	1698		1719	1782		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)	21	542	42	64	383	207	200	212	24	88	286	22
RTOR Reduction (vph)	0	2	0	0	15	0	0	4	0	0	0	17
Lane Group Flow (vph)	21	582	0	64	575	0	200	232	0	88	286	5
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	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases												4
Actuated Green, G (s)	2.2	42.8		4.1	44.7		17.6	29.1		9.2	20.7	22.9
Effective Green, g (s)	2.2	42.8		4.1	44.7		17.6	29.1		9.2	20.7	22.9
Actuated g/C Ratio	0.02	0.39		0.04	0.41		0.16	0.27		0.08	0.19	0.21
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)	33	675		63	695		277	474		143	339	403
v/s Ratio Prot	0.01	0.34		c0.04	c0.34		c0.12	0.13		0.05	c0.16	0.00
v/s Ratio Perm												0.00
v/c Ratio	0.64	0.86		1.02	0.83		0.72	0.49		0.62	0.84	0.01
Uniform Delay, d1	53.1	30.5		52.6	28.8		43.5	33.8		48.3	42.7	34.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	33.9	11.0		117.9	8.0		8.9	0.8		7.6	17.1	0.0
Delay (s)	87.0	41.4		170.5	36.8		52.4	34.6		55.9	59.8	34.2
Level of Service	F	D		F	D		D	C		E	E	C
Approach Delay (s)		43.0			49.9			42.8			57.5	
Approach LOS		D			D			D			E	

Intersection Summary			
HCM 2000 Control Delay	47.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	109.2	Sum of lost time (s)	24.0
Intersection Capacity Utilization	77.3%	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)	560	10	5	555	270	220
Future Volume (vph)	560	10	5	555	270	220
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		0.850			0.939	
Flt Protected	0.950					
Satd. Flow (prot)	1719	1538	0	1827	1749	0
Flt Permitted	0.950					
Satd. Flow (perm)	1719	1538	0	1827	1749	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	322			309	450	
Travel Time (s)	7.3			7.0	10.2	
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)	629	11	5	610	290	237
Shared Lane Traffic (%)						
Lane Group Flow (vph)	629	11	0	615	527	0
Sign Control	Stop			Stop	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 70.9%		ICU Level of Service C	
Analysis Period (min) 15			

Intersection	
Intersection Delay, s/veh	148.5
Intersection LOS	F

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	560	10	5	555	270	220
Future Vol, veh/h	560	10	5	555	270	220
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	629	11	5	610	290	237
Number of Lanes	1	1	0	1	1	0

Approach	EB	NB	SB
Opposing Approach		SB	NB
Opposing Lanes	0	1	1
Conflicting Approach Left	SB	EB	
Conflicting Lanes Left	1	2	0
Conflicting Approach Right	NB		EB
Conflicting Lanes Right	1	0	2
HCM Control Delay	225	138.3	67.4
HCM LOS	F	F	F

Lane	NBLn1	EBLn1	EBLn2	SBLn1
Vol Left, %	1%	100%	0%	0%
Vol Thru, %	99%	0%	0%	55%
Vol Right, %	0%	0%	100%	45%
Sign Control	Stop	Stop	Stop	Stop
Traffic Vol by Lane	560	560	10	490
LT Vol	5	560	0	0
Through Vol	555	0	0	270
RT Vol	0	0	10	220
Lane Flow Rate	615	629	11	527
Geometry Grp	2	7	7	2
Degree of Util (X)	1.205	1.427	0.022	0.982
Departure Headway (Hd)	8.184	8.587	7.347	8.193
Convergence, Y/N	Yes	Yes	Yes	Yes
Cap	449	428	490	448
Service Time	6.184	6.287	5.047	6.193
HCM Lane V/C Ratio	1.37	1.47	0.022	1.176
HCM Control Delay	138.3	228.8	10.2	67.4
HCM Lane LOS	F	F	B	F
HCM 95th-tile Q	20.8	29.9	0.1	12.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↱	↰	↑↑	↰↰	↱
Traffic Volume (vph)	1715	265	225	1025	660	460
Future Volume (vph)	1715	265	225	1025	660	460
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
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)	3539	1583	1770	3539	3433	1583
Flt Permitted	1.00	1.00	0.06	1.00	0.95	1.00
Satd. Flow (perm)	3539	1583	107	3539	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1864	288	245	1114	717	500
RTOR Reduction (vph)	0	96	0	0	0	6
Lane Group Flow (vph)	1864	192	245	1114	717	494
Turn Type	NA	Perm	pm+pt	NA	Prot	pm+ov
Protected Phases	4		3	8	2	3
Permitted Phases		4	8			2
Actuated Green, G (s)	65.0	65.0	83.5	83.5	27.5	41.5
Effective Green, g (s)	65.0	65.0	83.5	83.5	27.5	41.5
Actuated g/C Ratio	0.54	0.54	0.70	0.70	0.23	0.35
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1916	857	268	2462	786	606
v/s Ratio Prot	c0.53		0.11	0.31	c0.21	c0.09
v/s Ratio Perm		0.12	0.53			0.22
v/c Ratio	0.97	0.22	0.91	0.45	0.91	0.82
Uniform Delay, d1	26.6	14.3	40.9	8.1	45.1	35.8
Progression Factor	1.00	1.00	1.05	1.39	1.00	1.00
Incremental Delay, d2	14.6	0.1	27.6	0.1	16.7	8.3
Delay (s)	41.2	14.5	70.5	11.4	61.8	44.1
Level of Service	D	B	E	B	E	D
Approach Delay (s)	37.7			22.0	54.5	
Approach LOS	D			C	D	

Intersection Summary			
HCM 2000 Control Delay	37.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	13.5
Intersection Capacity Utilization	90.0%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	70	2075	30	120	960	80	20	10	90	200	30	60
Future Volume (vph)	70	2075	30	120	960	80	20	10	90	200	30	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	
Lane Util. Factor	1.00	0.91		1.00	0.95			1.00	1.00	1.00	1.00	
Frpb, ped/bikes	1.00	1.00		1.00	1.00			1.00	1.00	1.00	1.00	
Flpb, ped/bikes	1.00	1.00		1.00	1.00			0.97	1.00	1.00	1.00	
Frt	1.00	1.00		1.00	0.99			1.00	0.85	1.00	0.90	
Flt Protected	0.95	1.00		0.95	1.00			0.97	1.00	0.95	1.00	
Satd. Flow (prot)	1687	4837		1719	3399			1746	1583	1805	1710	
Flt Permitted	0.95	1.00		0.95	1.00			0.77	1.00	0.73	1.00	
Satd. Flow (perm)	1687	4837		1719	3399			1390	1583	1381	1710	
Peak-hour factor, PHF	0.89	0.89	0.89	0.96	0.96	0.96	0.65	0.65	0.65	0.67	0.67	0.67
Adj. Flow (vph)	79	2331	34	125	1000	83	31	15	138	299	45	90
RTOR Reduction (vph)	0	1	0	0	4	0	0	0	31	0	60	0
Lane Group Flow (vph)	79	2364	0	125	1079	0	0	46	107	299	75	0
Confl. Peds. (#/hr)							40					
Heavy Vehicles (%)	7%	7%	7%	5%	5%	5%	2%	2%	2%	0%	0%	0%
Turn Type	Prot	NA		Prot	NA		Perm	NA	pm+ov	Perm	NA	
Protected Phases	1	6		5	2			4	1		8	
Permitted Phases							4		4	8		
Actuated Green, G (s)	11.0	61.5		14.0	64.5			26.5	37.5	26.5	26.5	
Effective Green, g (s)	11.0	61.5		14.0	64.5			26.5	37.5	26.5	26.5	
Actuated g/C Ratio	0.09	0.51		0.12	0.54			0.22	0.31	0.22	0.22	
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)	154	2478		200	1826			306	573	304	377	
v/s Ratio Prot	0.05	c0.49		c0.07	c0.32				0.02		0.04	
v/s Ratio Perm								0.03	0.05	c0.22		
v/c Ratio	0.51	0.95		0.62	0.59			0.15	0.19	0.98	0.20	
Uniform Delay, d1	51.9	27.9		50.5	18.8			37.7	30.1	46.5	38.1	
Progression Factor	1.22	0.80		1.00	1.00			1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.2	4.9		6.0	1.4			0.2	0.2	46.8	0.3	
Delay (s)	64.4	27.3		56.5	20.2			37.9	30.3	93.3	38.4	
Level of Service	E	C		E	C			D	C	F	D	
Approach Delay (s)		28.5			24.0			32.2			76.2	
Approach LOS		C			C			C			E	

Intersection Summary			
HCM 2000 Control Delay	32.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.92		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	80.2%	ICU Level of Service	D
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)	40	240	40	50	200	0	230	1380	340	45	820	235
Future Volume (vph)	40	240	40	50	200	0	230	1380	340	45	820	235
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	0.95	1.00	1.00	0.95	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		3400	3505	1568	1752	3505	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		3400	3505	1568	1752	3505	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)	48	286	48	63	253	0	267	1605	395	45	828	237
RTOR Reduction (vph)	0	0	35	0	0	0	0	0	0	0	0	62
Lane Group Flow (vph)	48	286	13	63	253	0	267	1605	395	45	828	175
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)	9.0	24.0	32.6	5.0	20.0		15.0	57.5	119.1	8.6	51.1	62.1
Effective Green, g (s)	9.0	24.0	32.6	5.0	20.0		15.0	57.5	119.1	8.6	51.1	62.1
Actuated g/C Ratio	0.08	0.20	0.27	0.04	0.17		0.13	0.48	1.00	0.07	0.43	0.52
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)	131	699	503	140	577		428	1692	1568	126	1503	817
v/s Ratio Prot	c0.03	c0.08	0.00	0.02	0.07		c0.08	c0.46		0.03	0.24	0.11
v/s Ratio Perm			0.01						c0.25			
v/c Ratio	0.37	0.41	0.03	0.45	0.44		0.62	0.95	0.25	0.36	0.55	0.21
Uniform Delay, d1	52.3	41.4	31.6	55.7	44.5		49.4	29.4	0.0	52.6	25.4	15.4
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.39	0.72	0.45
Incremental Delay, d2	1.7	1.8	0.0	2.3	2.4		2.8	12.7	0.4	1.4	0.4	0.1
Delay (s)	54.1	43.2	31.7	58.0	46.9		52.2	42.1	0.4	74.8	18.7	7.0
Level of Service	D	D	C	E	D		D	D	A	E	B	A
Approach Delay (s)		43.1			49.1			36.0			18.5	
Approach LOS		D			D			D			B	

Intersection Summary			
HCM 2000 Control Delay	32.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	119.1	Sum of lost time (s)	24.0
Intersection Capacity Utilization	74.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Volume (vph)	205	90	920	550	80	1010
Future Volume (vph)	205	90	920	550	80	1010
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	0.15	1.00
Satd. Flow (perm)	1770	1583	3505	1568	278	3539
Peak-hour factor, PHF	0.83	0.83	0.86	0.86	0.81	0.81
Adj. Flow (vph)	247	108	1070	640	99	1247
RTOR Reduction (vph)	0	33	0	0	0	0
Lane Group Flow (vph)	247	75	1070	640	99	1247
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)	33.0	41.6	57.5	119.1	72.1	72.1
Effective Green, g (s)	33.0	41.6	57.5	119.1	72.1	72.1
Actuated g/C Ratio	0.28	0.35	0.48	1.00	0.61	0.61
Clearance Time (s)		6.0	6.0		6.0	
Vehicle Extension (s)		3.0	3.0		3.0	
Lane Grp Cap (vph)	490	632	1692	1568	276	2142
v/s Ratio Prot	c0.14	0.01	c0.31		0.03	c0.35
v/s Ratio Perm		0.04		c0.41	0.19	
v/c Ratio	0.50	0.12	0.63	0.41	0.36	0.58
Uniform Delay, d1	36.2	26.3	22.9	0.0	13.9	14.3
Progression Factor	1.00	1.00	0.40	1.00	1.00	1.00
Incremental Delay, d2	0.8	0.1	0.7	0.3	0.8	0.4
Delay (s)	37.0	26.4	10.0	0.3	14.7	14.7
Level of Service	D	C	B	A	B	B
Approach Delay (s)	33.8		6.4			14.7
Approach LOS	C		A			B

Intersection Summary			
HCM 2000 Control Delay	12.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	119.1	Sum of lost time (s)	24.0
Intersection Capacity Utilization	56.2%	ICU Level of Service	B
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)	170	300	5	20	550	40	15	10	15	20	10	170
Future Volume (vph)	170	300	5	20	550	40	15	10	15	20	10	170
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		0.97	1.00
Satd. Flow (prot)	1687	3366		1770	3504			1845	1615		1821	1599
Flt Permitted	0.95	1.00		0.95	1.00			0.80	1.00		0.77	1.00
Satd. Flow (perm)	1687	3366		1770	3504			1514	1615		1446	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)	205	361	6	22	598	43	30	20	30	22	11	189
RTOR Reduction (vph)	0	1	0	0	5	0	0	0	27	0	0	168
Lane Group Flow (vph)	205	366	0	22	636	0	0	50	3	0	33	21
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)	8.1	40.5		1.8	34.2			7.6	7.6		7.6	7.6
Effective Green, g (s)	8.1	40.5		1.8	34.2			7.6	7.6		7.6	7.6
Actuated g/C Ratio	0.12	0.60		0.03	0.50			0.11	0.11		0.11	0.11
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)	201	2007		46	1764			169	180		161	178
v/s Ratio Prot	c0.12	0.11		0.01	c0.18							
v/s Ratio Perm								c0.03	0.00		0.02	0.01
v/c Ratio	1.02	0.18		0.48	0.36			0.30	0.02		0.20	0.12
Uniform Delay, d1	29.9	6.2		32.6	10.2			27.7	26.8		27.4	27.1
Progression Factor	1.00	1.00		1.00	1.00			1.00	1.00		1.00	1.00
Incremental Delay, d2	68.7	0.2		7.6	0.1			1.0	0.0		0.6	0.3
Delay (s)	98.6	6.4		40.2	10.3			28.7	26.9		28.0	27.4
Level of Service	F	A		D	B			C	C		C	C
Approach Delay (s)		39.5			11.3			28.0			27.5	
Approach LOS		D			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	25.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	67.9	Sum of lost time (s)	18.0
Intersection Capacity Utilization	49.2%	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)	30	330	5	5	430	140	30	10	10	320	5	150
Future Volume (vph)	30	330	5	5	430	140	30	10	10	320	5	150
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	0.97	0.95		1.00	0.95		1.00	1.00		0.95	0.95	1.00
Frt	1.00	1.00		1.00	0.96		1.00	0.93		1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00		0.95	0.95	1.00
Satd. Flow (prot)	3303	3398		1736	3343		1805	1758		1665	1672	1568
Flt Permitted	0.95	1.00		0.95	1.00		0.95	1.00		0.95	0.95	1.00
Satd. Flow (perm)	3303	3398		1736	3343		1805	1758		1665	1672	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)	36	398	6	5	443	144	45	15	15	356	6	167
RTOR Reduction (vph)	0	1	0	0	34	0	0	14	0	0	0	108
Lane Group Flow (vph)	36	403	0	5	553	0	45	16	0	182	180	59
Heavy Vehicles (%)	6%	6%	6%	4%	4%	4%	0%	0%	0%	3%	3%	3%
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	pt+ov
Protected Phases	5	2		1	6		3	3		4	4	4 5
Permitted Phases								3				
Actuated Green, G (s)	6.5	28.3		1.0	22.8		5.7	5.7		13.2	13.2	25.7
Effective Green, g (s)	6.5	28.3		1.0	22.8		5.7	5.7		13.2	13.2	25.7
Actuated g/C Ratio	0.09	0.39		0.01	0.32		0.08	0.08		0.18	0.18	0.36
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)	297	1331		24	1055		142	138		304	305	558
v/s Ratio Prot	0.01	c0.12		0.00	c0.17		c0.02	0.01		c0.11	0.11	c0.04
v/s Ratio Perm												
v/c Ratio	0.12	0.30		0.21	0.52		0.32	0.12		0.60	0.59	0.11
Uniform Delay, d1	30.2	15.1		35.2	20.3		31.4	30.9		27.1	27.0	15.6
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.2	0.1		4.3	0.5		1.3	0.4		3.2	3.0	0.1
Delay (s)	30.4	15.3		39.5	20.7		32.7	31.3		30.2	30.1	15.6
Level of Service	C	B		D	C		C	C		C	C	B
Approach Delay (s)		16.5			20.9			32.1			25.6	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	21.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	72.2	Sum of lost time (s)	24.0
Intersection Capacity Utilization	44.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	10	400	360	60	30	30
Future Volume (vph)	10	400	360	60	30	30
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			0.981		0.932	
Flt Protected	0.950				0.976	
Satd. Flow (prot)	1687	1776	1792	0	1630	0
Flt Permitted	0.950				0.976	
Satd. Flow (perm)	1687	1776	1792	0	1630	0
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)	12	476	404	67	36	36
Shared Lane Traffic (%)						
Lane Group Flow (vph)	12	476	471	0	72	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 32.8%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1.2

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	10	400	360	60	30	30
Future Vol, veh/h	10	400	360	60	30	30
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	-	-	-	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	12	476	404	67	36	36

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	471	0	-	0	938	438
Stage 1	-	-	-	-	438	-
Stage 2	-	-	-	-	500	-
Critical Hdwy	4.17	-	-	-	6.46	6.26
Critical Hdwy Stg 1	-	-	-	-	5.46	-
Critical Hdwy Stg 2	-	-	-	-	5.46	-
Follow-up Hdwy	2.263	-	-	-	3.554	3.354
Pot Cap-1 Maneuver	1065	-	-	-	289	610
Stage 1	-	-	-	-	642	-
Stage 2	-	-	-	-	601	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1065	-	-	-	286	610
Mov Cap-2 Maneuver	-	-	-	-	286	-
Stage 1	-	-	-	-	635	-
Stage 2	-	-	-	-	601	-

Approach	EB	WB	SB
HCM Control Delay, s	0.2	0	16.4
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1065	-	-	-	389
HCM Lane V/C Ratio	0.011	-	-	-	0.186
HCM Control Delay (s)	8.4	-	-	-	16.4
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0	-	-	-	0.7

Lane Group	WBL2	WBL	WBR	WBR2	NBL	NBT	NBR	NBR2	SBL2	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	265	265	20	90	100	80	10	10	370	160	30
Future Volume (vph)	10	265	265	20	90	100	80	10	10	370	160	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		0.931				0.957					0.993	
Flt Protected		0.976				0.984					0.968	
Satd. Flow (prot)	0	1709	0	0	0	1754	0	0	0	0	1808	0
Flt Permitted		0.976				0.984					0.968	
Satd. Flow (perm)	0	1709	0	0	0	1754	0	0	0	0	1808	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	291	291	22	103	115	92	11	11	402	174	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	615	0	0	0	321	0	0	0	0	620	0
Sign Control		Yield				Yield					Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization 141.4%		ICU Level of Service H	
Analysis Period (min) 15			

Lane Group	NEL	NET	NER	NER2	SWL2	SWL	SWT	SWR
Lane Configurations								
Traffic Volume (vph)	50	280	340	90	10	30	160	20
Future Volume (vph)	50	280	340	90	10	30	160	20
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		0.924					0.988	
Flt Protected		0.997					0.991	
Satd. Flow (prot)	0	1733	0	0	0	0	1824	0
Flt Permitted		0.997					0.991	
Satd. Flow (perm)	0	1733	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)	56	311	378	100	11	33	176	22
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	845	0	0	0	0	242	0
Sign Control		Yield					Yield	

Intersection Summary

Intersection	
Intersection Delay, s/veh	63.2
Intersection LOS	F

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	615	321	620	845	242
Demand Flow Rate, veh/h	621	327	626	854	247
Vehicles Circulating, veh/h	698	1181	635	649	876
Vehicles Exiting, veh/h	810	322	490	612	441
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	41.9	39.0	32.9	124.2	13.7
Approach LOS	E	E	D	F	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	621	327	626	854	247
Cap Entry Lane, veh/h	677	414	722	712	564
Entry HV Adj Factor	0.990	0.981	0.991	0.989	0.981
Flow Entry, veh/h	615	321	620	845	242
Cap Entry, veh/h	670	406	715	704	553
V/C Ratio	0.917	0.790	0.867	1.200	0.438
Control Delay, s/veh	41.9	39.0	32.9	124.2	13.7
LOS	E	E	D	F	B
95th %tile Queue, veh	12	7	10	29	2

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	50	580	10	30	20	215	145	10	25	110	10
Future Volume (vph)	10	50	580	10	30	20	215	145	10	25	110	10
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			0.850		0.956			0.996			0.991	
Flt Protected		0.992			0.992			0.972			0.992	
Satd. Flow (prot)	0	1848	1583	0	1802	0	0	1821	0	0	1849	0
Flt Permitted		0.992			0.992			0.972			0.992	
Satd. Flow (perm)	0	1848	1583	0	1802	0	0	1821	0	0	1849	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		113			453			475			436	
Travel Time (s)		2.6			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	659	12	37	24	231	156	11	27	121	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	68	659	0	73	0	0	398	0	0	159	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 57.0%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	14.5

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↑	↱		↕			↕			↕	
Traffic Vol, veh/h	10	50	580	10	30	20	215	145	10	25	110	10
Future Vol, veh/h	10	50	580	10	30	20	215	145	10	25	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	-	-	0	-	-	-	-	-	-	-	-	-
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	659	12	37	24	231	156	11	27	121	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	835	810	127	1163	810	162	132	0	0	167	0	0
Stage 1	181	181	-	624	624	-	-	-	-	-	-	-
Stage 2	654	629	-	539	186	-	-	-	-	-	-	-
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	287	314	923	173	316	888	1459	-	-	1417	-	-
Stage 1	821	750	-	477	481	-	-	-	-	-	-	-
Stage 2	456	475	-	530	750	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	212	254	923	35	255	888	1459	-	-	1417	-	-
Mov Cap-2 Maneuver	212	254	-	35	255	-	-	-	-	-	-	-
Stage 1	677	734	-	394	397	-	-	-	-	-	-	-
Stage 2	332	392	-	137	734	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	18.7	55.3	4.6	1.3
HCM LOS	C	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1459	-	-	246	923	141	1417	-	-
HCM Lane V/C Ratio	0.158	-	-	0.277	0.714	0.519	0.019	-	-
HCM Control Delay (s)	7.9	0	-	25.2	18	55.3	7.6	0	-
HCM Lane LOS	A	A	-	D	C	F	A	A	-
HCM 95th %tile Q(veh)	0.6	-	-	1.1	6.3	2.5	0.1	-	-

Movement	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	30	70	30	40	40	140	190	1010	60	20	340	70
Future Volume (vph)	30	70	30	40	40	140	190	1010	60	20	340	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	0.95		1.00	0.95	
Frt	1.00	0.96		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)	1770	1780		1787	1881	1599	1805	3580		1805	3518	
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	3580		1805	3518	
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	42	42	147	213	1135	67	22	366	75
RTOR Reduction (vph)	0	25	0	0	0	91	0	5	0	0	27	0
Lane Group Flow (vph)	30	76	0	42	42	56	213	1197	0	22	414	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)	1.7	8.2		1.7	8.2	22.4	8.2	23.2		1.3	16.3	
Effective Green, g (s)	1.7	8.2		1.7	8.2	22.4	8.2	23.2		1.3	16.3	
Actuated g/C Ratio	0.03	0.14		0.03	0.14	0.38	0.14	0.40		0.02	0.28	
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)	51	249		52	264	613	253	1422		40	981	
v/s Ratio Prot	0.02	c0.04		c0.02	0.02	0.04	c0.12	c0.33		0.01	0.12	
v/s Ratio Perm												
v/c Ratio	0.59	0.31		0.81	0.16	0.09	0.84	0.84		0.55	0.42	
Uniform Delay, d1	28.0	22.5		28.2	22.1	11.5	24.5	15.9		28.3	17.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	16.1	0.7		58.8	1.3	0.1	21.6	4.7		15.3	0.3	
Delay (s)	44.1	23.2		87.0	23.4	11.6	46.1	20.6		43.6	17.5	
Level of Service	D	C		F	C	B	D	C		D	B	
Approach Delay (s)		28.0			27.4			24.5			18.7	
Approach LOS		C			C			C			B	

Intersection Summary			
HCM 2000 Control Delay	23.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	58.4	Sum of lost time (s)	24.0
Intersection Capacity Utilization	60.4%	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)	620	0	10	290	180	350
Future Volume (vph)	620	0	10	290	180	350
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		0.53	1.00	1.00	1.00
Satd. Flow (perm)	1787		987	1863	1845	1568
Peak-hour factor, PHF	0.90	0.90	0.87	0.87	0.89	0.89
Adj. Flow (vph)	689	0	11	333	202	393
RTOR Reduction (vph)	0	0	0	0	0	78
Lane Group Flow (vph)	689	0	11	333	202	315
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)	40.3		26.6	25.7	25.7	68.0
Effective Green, g (s)	40.3		22.6	25.7	25.7	68.0
Actuated g/C Ratio	0.47		0.27	0.30	0.30	0.80
Clearance Time (s)	6.0		6.0			
Vehicle Extension (s)	3.0		3.0			
Lane Grp Cap (vph)	848		271	563	558	1255
v/s Ratio Prot	c0.39		c0.00	c0.18	0.11	0.15
v/s Ratio Perm			0.01			0.05
v/c Ratio	0.81		0.04	0.59	0.36	0.25
Uniform Delay, d1	19.1		23.1	25.1	23.2	2.1
Progression Factor	1.00		1.00	1.00	1.12	0.16
Incremental Delay, d2	6.0		0.1	1.7	0.4	0.1
Delay (s)	25.0		23.1	26.8	26.2	0.4
Level of Service	C		C	C	C	A
Approach Delay (s)	25.0			26.7	9.2	
Approach LOS	C			C	A	

Intersection Summary			
HCM 2000 Control Delay	19.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	84.9	Sum of lost time (s)	22.0
Intersection Capacity Utilization	57.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	875	0	0	0	1545	0
Future Volume (vph)	875	0	0	0	1545	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)	931	0	0	0	1644	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	931	0	0	0	1644	0
Turn Type	Prot				Prot	
Protected Phases	2				4	
Permitted Phases						
Actuated Green, G (s)	26.0				42.0	
Effective Green, g (s)	26.0				42.0	
Actuated g/C Ratio	0.32				0.52	
Clearance Time (s)	6.0				6.0	
Vehicle Extension (s)	3.0				3.0	
Lane Grp Cap (vph)	1115				1802	
v/s Ratio Prot	c0.27				c0.48	
v/s Ratio Perm						
v/c Ratio	0.83				0.91	
Uniform Delay, d1	25.0				17.3	
Progression Factor	1.18				1.00	
Incremental Delay, d2	6.6				7.5	
Delay (s)	36.1				24.8	
Level of Service	D				C	
Approach Delay (s)	36.1		0.0			24.8
Approach LOS	D		A			C

Intersection Summary			
HCM 2000 Control Delay	28.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	131.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NWL	NWR
Lane Configurations		↑↑			↑↑	↱↱			↰	↱
Traffic Volume (vph)	0	1545	0	0	875	1240	0	0	0	710
Future Volume (vph)	0	1545	0	0	875	1240	0	0	0	710
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		0.95			0.95	0.88			1.00	0.95
Frt		1.00			1.00	0.85			0.85	0.85
Flt Protected		1.00			1.00	1.00			1.00	1.00
Satd. Flow (prot)		3539			3539	2787			1583	1504
Flt Permitted		1.00			1.00	1.00			1.00	1.00
Satd. Flow (perm)		3539			3539	2787			1583	1504
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	1644	0	0	931	1319	0	0	0	755
RTOR Reduction (vph)	0	0	0	0	0	34	0	0	0	0
Lane Group Flow (vph)	0	1644	0	0	931	1285	0	0	378	377
Turn Type		NA			NA	Perm			Prot	Prot
Protected Phases		2			2				4	4
Permitted Phases						2				
Actuated Green, G (s)		43.0			43.0	43.0			25.0	25.0
Effective Green, g (s)		43.0			43.0	43.0			25.0	25.0
Actuated g/C Ratio		0.54			0.54	0.54			0.31	0.31
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)		1902			1902	1498			494	470
v/s Ratio Prot		c0.46			0.26				0.24	c0.25
v/s Ratio Perm						0.46				
v/c Ratio		0.86			0.49	0.86			0.77	0.80
Uniform Delay, d1		16.0			11.6	15.9			24.8	25.2
Progression Factor		0.07			1.00	1.00			1.00	1.00
Incremental Delay, d2		2.3			0.9	6.6			10.8	13.5
Delay (s)		3.5			12.5	22.4			35.6	38.7
Level of Service		A			B	C			D	D
Approach Delay (s)		3.5			18.3		0.0		37.2	
Approach LOS		A			B		A		D	

Intersection Summary			
HCM 2000 Control Delay	16.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	117.6%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	60	10	750	160	10	470
Future Volume (vph)	60	10	750	160	10	470
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	0.25	1.00
Satd. Flow (perm)	1767		1900	1615	484	1900
Peak-hour factor, PHF	0.87	0.67	0.95	0.84	0.73	0.96
Adj. Flow (vph)	69	15	789	190	14	490
RTOR Reduction (vph)	8	0	0	44	0	0
Lane Group Flow (vph)	76	0	789	146	14	490
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)	6.0		56.0	56.0	16.6	56.0
Effective Green, g (s)	6.0		56.0	56.0	16.6	56.0
Actuated g/C Ratio	0.07		0.66	0.66	0.20	0.66
Clearance Time (s)	6.0				6.0	
Vehicle Extension (s)	3.0				3.0	
Lane Grp Cap (vph)	124		1253	1065	108	1253
v/s Ratio Prot	c0.04		c0.42		c0.00	0.26
v/s Ratio Perm				0.09	0.02	
v/c Ratio	0.61		0.63	0.14	0.13	0.39
Uniform Delay, d1	38.3		8.4	5.4	28.5	6.6
Progression Factor	1.00		0.49	0.68	1.00	1.00
Incremental Delay, d2	8.2		0.7	0.0	0.5	0.2
Delay (s)	46.6		4.8	3.7	29.0	6.8
Level of Service	D		A	A	C	A
Approach Delay (s)	46.6		4.6			7.4
Approach LOS	D		A			A

Intersection Summary			
HCM 2000 Control Delay	7.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	84.9	Sum of lost time (s)	22.0
Intersection Capacity Utilization	52.0%	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	40	720	470	10
Future Volume (vph)	10	10	40	720	470	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				0.996	
Flt Protected	0.973		0.950			
Satd. Flow (prot)	1736	0	1787	1900	1874	0
Flt Permitted	0.973		0.950			
Satd. Flow (perm)	1736	0	1787	1900	1874	0
Link Speed (mph)	30			30	30	
Link Distance (ft)	332			268	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	56	800	627	18
Shared Lane Traffic (%)						
Lane Group Flow (vph)	29	0	56	800	645	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 47.9%		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	40	720	470	10
Future Vol, veh/h	10	10	40	720	470	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	56	800	627	18

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1548	636	645	0	-	0
Stage 1	636	-	-	-	-	-
Stage 2	912	-	-	-	-	-
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	127	481	945	-	-	-
Stage 1	531	-	-	-	-	-
Stage 2	395	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	120	481	945	-	-	-
Mov Cap-2 Maneuver	120	-	-	-	-	-
Stage 1	500	-	-	-	-	-
Stage 2	395	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	28.4	0.6	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	945	-	182	-	-
HCM Lane V/C Ratio	0.06	-	0.157	-	-
HCM Control Delay (s)	9.1	-	28.4	-	-
HCM Lane LOS	A	-	D	-	-
HCM 95th %tile Q(veh)	0.2	-	0.5	-	-

APPENDIX O-3: 2040 ALTERNATIVE A INTERSECTION CAPACITY ANALYSES – SYNCHRO PRINTOUTS – AM PEAK HOUR

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↰	↱↱
Traffic Volume (vph)	0	1340	825	0	375	850
Future Volume (vph)	0	1340	825	0	375	850
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	1441	938	0	421	955
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1441	938	0	421	955
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)		40.0	40.0		35.0	35.0
Total Split (%)		53.3%	53.3%		46.7%	46.7%
Maximum Green (s)		34.0	34.0		29.0	29.0
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)		34.0	34.0		29.0	29.0
Actuated g/C Ratio		0.45	0.45		0.39	0.39
v/c Ratio		0.92	0.61		0.56	0.92
Control Delay		25.0	22.2		21.7	37.9
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		25.0	22.2		21.7	37.9
LOS		C	C		C	D
Approach Delay		25.0	22.2		32.9	
Approach LOS		C	C		C	
Queue Length 50th (ft)		354	397		150	234
Queue Length 95th (ft)		m373	m385		232	#361
Internal Link Dist (ft)		632	308		132	
Turn Bay Length (ft)						
Base Capacity (vph)		1573	1544		746	1037
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		0.92	0.61		0.56	0.92

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: 0.92

Intersection Signal Delay: 27.2 Intersection LOS: C
Intersection Capacity Utilization 69.8% 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)	490	0	235	0	0	1470	245	0	0	885	175
Future Volume (vph)	490	0	235	0	0	1470	245	0	0	885	175
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)											109
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)	557	0	267	0	0	1564	261	0	0	962	190
Shared Lane Traffic (%)											
Lane Group Flow (vph)	557	0	267	0	0	1564	261	0	0	962	190
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	1.03		0.61			1.05	0.10			1.03	0.12
Control Delay	106.8		64.7			65.1	9.1			90.4	0.2
Queue Delay	0.0		0.0			0.0	0.0			0.0	0.0
Total Delay	106.8		64.7			65.1	9.1			90.4	0.2
LOS	F		E			E	A			F	A
Approach Delay		93.1					57.1			75.5	
Approach LOS		F					E			E	
Queue Length 50th (ft)	~300		139			~849	55			~527	0
Queue Length 95th (ft)	#404		190			#980	m63			#665	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	1.03		0.61			1.05	0.10			1.03	0.12

Intersection Summary

Area Type: Other
Cycle Length: 150
Actuated Cycle Length: 150
Offset: 67 (45%), Referenced to phase 2:NET and 6:SWT, Start of Yellow
Natural Cycle: 150

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.05
Intersection Signal Delay: 70.5 Intersection LOS: E
Intersection Capacity Utilization 96.4% 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	660	455	420	790	0	0	0	0	180	0	445
Future Volume (vph)	0	660	455	420	790	0	0	0	0	180	0	445
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)			495									103
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	717	495	575	1082	0	0	0	0	243	0	601
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	717	495	575	1082	0	0	0	0	243	0	601
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)		37.0		48.0	85.0					45.0		45.0
Total Split (%)		28.5%		36.9%	65.4%					34.6%		34.6%
Maximum Green (s)		31.0		42.0	79.0					39.0		39.0
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)		31.0	130.0	42.0	79.0					39.0		39.0
Actuated g/C Ratio		0.24	1.00	0.32	0.61					0.30		0.30
v/c Ratio		0.95	0.35	1.06	0.53					0.25		1.14
Control Delay		71.4	0.7	65.8	1.8					35.2		117.1
Queue Delay		0.0	0.0	0.0	0.4					0.0		0.0
Total Delay		71.4	0.7	65.8	2.2					35.2		117.1
LOS		E	A	E	A					D		F
Approach Delay		42.5			24.3						93.5	
Approach LOS		D			C						F	
Queue Length 50th (ft)		315	0	418	17					79		~526
Queue Length 95th (ft)		#438	0	m150	m14					93		#528
Internal Link Dist (ft)		771			613			406			501	
Turn Bay Length (ft)			350									
Base Capacity (vph)		755	1417	545	2050					990		529
Starvation Cap Reductn		0	0	0	443					0		0
Spillback Cap Reductn		0	0	0	0					0		0
Storage Cap Reductn		0	0	0	0					0		0
Reduced v/c Ratio		0.95	0.35	1.06	0.67					0.25		1.14

Intersection Summary	
Area Type:	Other
Cycle Length: 130	
Actuated Cycle Length: 130	
Offset: 69 (53%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow	
Natural Cycle: 130	

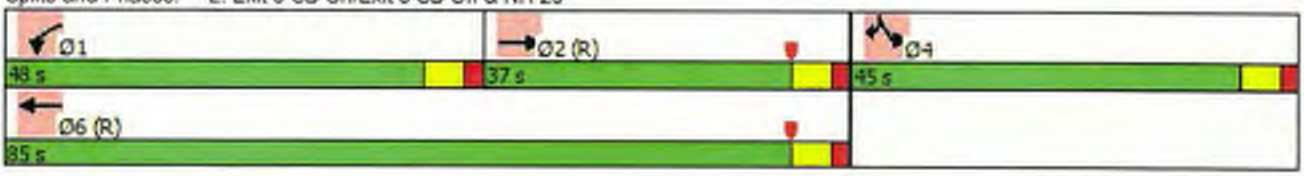
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.14
Intersection Signal Delay: 46.0 Intersection LOS: D
Intersection Capacity Utilization 86.0% ICU Level of Service E
Analysis Period (min) 15

~ 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.

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



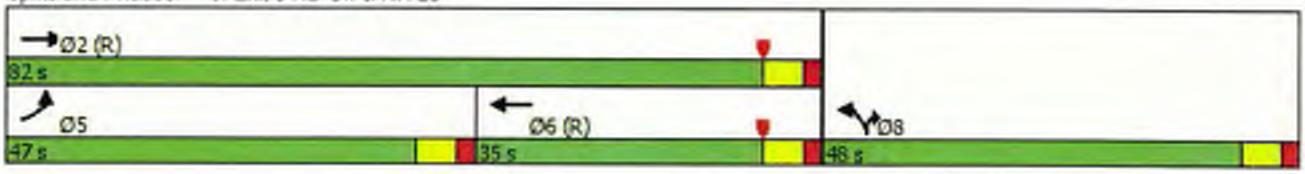
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	505	335	0	0	740	630	470	0	180	0	0	0
Future Volume (vph)	505	335	0	0	740	630	470	0	180	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	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)						492			172			
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)	580	385	0	0	822	700	603	0	231	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	580	385	0	0	822	700	603	0	231	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)	47.0	82.0			35.0		48.0		48.0			
Total Split (%)	36.2%	63.1%			26.9%		36.9%		36.9%			
Maximum Green (s)	41.0	76.0			29.0		42.0		42.0			
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)	41.0	76.0			29.0	130.0	42.0		42.0			
Actuated g/C Ratio	0.32	0.58			0.22	1.00	0.32		0.32			
v/c Ratio	1.12	0.20			1.07	0.46	1.13		0.39			
Control Delay	76.7	0.3			101.5	1.0	119.5		11.5			
Queue Delay	0.0	0.0			0.0	0.0	0.0		0.0			
Total Delay	76.7	0.3			101.5	1.0	119.5		11.5			
LOS	E	A			F	A	F		B			
Approach Delay		46.2			55.3			89.6				
Approach LOS		D			E			F				
Queue Length 50th (ft)	~567	1			~404	0	~587		35			
Queue Length 95th (ft)	m#607	m1			#534	0	#645		69			
Internal Link Dist (ft)		613			462			787			312	
Turn Bay Length (ft)												
Base Capacity (vph)	517	1918			766	1538	535		595			
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	1.12	0.20			1.07	0.46	1.13		0.39			

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: 150	
Control Type: Actuated-Coordinated	
Maximum v/c Ratio: 1.13	
Intersection Signal Delay: 61.2	Intersection LOS: E

Intersection Capacity Utilization 86.0% 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.
m Volume for 95th percentile queue is metered by upstream signal.

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	0	25	0	1	0	60	430	0	5	930	20
Future Volume (vph)	80	0	25	0	1	0	60	430	0	5	930	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		0.755					0.950			0.950		
Satd. Flow (perm)	0	1406	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)	87	0	27	0	4	0	65	467	0	5	1011	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	87	27	0	4	0	65	467	0	5	1033	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)		10.0	38.9		9.8		8.3	47.8		5.4	38.9	
Actuated g/C Ratio		0.15	0.59		0.15		0.13	0.72		0.08	0.59	
v/c Ratio		0.41	0.03		0.01		0.29	0.18		0.03	0.50	
Control Delay		35.0	0.0		27.0		33.7	5.7		34.6	13.8	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		35.0	0.0		27.0		33.7	5.7		34.6	13.8	
LOS		D	A		C		C	A		C	B	
Approach Delay		26.8			27.0			9.1			13.9	
Approach LOS		C			C			A			B	
Queue Length 50th (ft)		36	0		2		27	31		2	159	
Queue Length 95th (ft)		80	0		3		66	88		13	265	
Internal Link Dist (ft)		513			367			670			250	
Turn Bay Length (ft)			225				350			100		
Base Capacity (vph)		409	999		554		516	2641		143	2059	
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	0.03		0.01		0.13	0.18		0.03	0.50	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 66.3
Natural Cycle: 75
Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.50
Intersection Signal Delay: 13.3 Intersection LOS: B
Intersection Capacity Utilization 61.8% 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	70	10	370	0	50	0	370	110	15	495	0
Future Volume (vph)	10	70	10	370	0	50	0	370	110	15	495	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			0.984			0.969				
Flt Protected		0.994			0.958						0.999	
Satd. Flow (prot)	0	1824	0	0	1739	0	0	1705	0	0	1808	0
Flt Permitted		0.935			0.685						0.979	
Satd. Flow (perm)	0	1716	0	0	1243	0	0	1705	0	0	1772	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		9			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	117	17	385	0	52	0	416	124	17	576	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	151	0	0	437	0	0	540	0	0	593	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)	43.0	43.0		43.0	43.0			47.0		47.0	47.0	
Total Split (%)	47.8%	47.8%		47.8%	47.8%			52.2%		52.2%	52.2%	
Maximum Green (s)	37.0	37.0		37.0	37.0			41.0		41.0	41.0	
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)		30.7			30.7			33.9			33.9	
Actuated g/C Ratio		0.40			0.40			0.44			0.44	
v/c Ratio		0.22			0.85			0.71			0.76	
Control Delay		16.6			37.8			23.8			26.8	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		16.6			37.8			23.8			26.8	
LOS		B			D			C			C	
Approach Delay		16.6			37.8			23.8			26.8	
Approach LOS		B			D			C			C	
Queue Length 50th (ft)		50			198			225			266	
Queue Length 95th (ft)		57			#374			339			369	
Internal Link Dist (ft)		276			413			1044			523	
Turn Bay Length (ft)												
Base Capacity (vph)		876			649			969			998	
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		0.17			0.67			0.56			0.59	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 77.3
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.85
Intersection Signal Delay: 27.8 Intersection LOS: C
Intersection Capacity Utilization 79.7% ICU Level of Service D

Analysis Period (min) 15

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

Splits and Phases: 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)	20	280	80	20	430	265	170	180	20	90	240	30
Future Volume (vph)	20	280	80	20	430	265	170	180	20	90	240	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		0.967			0.943			0.985				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1656	1686	0	1703	1690	0	1719	1782	0	1703	1792	1524
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1656	1686	0	1703	1690	0	1719	1782	0	1703	1792	1524
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14			30			5				136
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)	21	292	83	21	457	282	200	212	24	99	264	33
Shared Lane Traffic (%)												
Lane Group Flow (vph)	21	375	0	21	739	0	200	236	0	99	264	33
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases												4
Detector Phase	5	2		1	6		3	8		7	4	5
Switch Phase												
Minimum Initial (s)	4.0	5.0		4.0	10.0		4.0	10.0		4.0	9.0	4.0
Minimum Split (s)	10.0	30.0		10.0	30.0		10.0	25.0		10.0	25.0	10.0
Total Split (s)	10.0	53.0		10.0	53.0		32.0	44.0		13.0	25.0	10.0
Total Split (%)	8.3%	44.2%		8.3%	44.2%		26.7%	36.7%		10.8%	20.8%	8.3%
Maximum Green (s)	4.0	47.0		4.0	47.0		26.0	38.0		7.0	19.0	4.0
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	Lead
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	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		10			10			0			10	
Act Effct Green (s)	4.0	51.4		4.0	47.4		18.0	29.5		7.1	18.6	28.7
Actuated g/C Ratio	0.04	0.47		0.04	0.43		0.16	0.27		0.06	0.17	0.26
v/c Ratio	0.35	0.47		0.34	0.99		0.71	0.49		0.91	0.87	0.07
Control Delay	70.7	23.8		69.8	62.7		58.2	36.9		117.8	74.1	0.3
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	70.7	23.8		69.8	62.7		58.2	36.9		117.8	74.1	0.3
LOS	E	C		E	E		E	D		F	E	A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		26.2			62.9			46.7			78.9	
Approach LOS		C			E			D			E	
Queue Length 50th (ft)	15	158		15	~553		138	140		72	188	0
Queue Length 95th (ft)	#45	315		44	#868		204	202		#194	#367	0
Internal Link Dist (ft)		425			450			281			331	
Turn Bay Length (ft)												
Base Capacity (vph)	60	796		62	746		410	625		109	312	498
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	0.35	0.47		0.34	0.99		0.49	0.38		0.91	0.85	0.07

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 109.8
Natural Cycle: 100
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.99
Intersection Signal Delay: 55.2 Intersection LOS: E
Intersection Capacity Utilization 75.8% ICU Level of Service D
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

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

Splits and Phases: 7: Birch St/Crystal Ave & NH 102

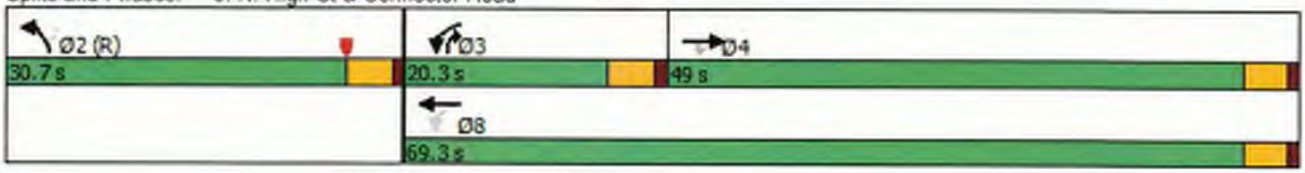
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1090	270	180	1110	280	200
Future Volume (vph)	1090	270	180	1110	280	200
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	250		0	400
Storage Lanes		1	1		2	1
Taper Length (ft)			25		25	
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3539	1583	1770	3539	3433	1583
Flt Permitted			0.086		0.950	
Satd. Flow (perm)	3539	1583	160	3539	3433	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		293				30
Link Speed (mph)	30			30	30	
Link Distance (ft)	511			427	520	
Travel Time (s)	11.6			9.7	11.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1185	293	196	1207	304	217
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1185	293	196	1207	304	217
Turn Type	NA	Perm	pm+pt	NA	Prot	pm+ov
Protected Phases	4		3	8	2	3
Permitted Phases		4	8			2
Detector Phase	4	4	3	8	2	3
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	29.5	29.5	9.5	29.5	29.5	9.5
Total Split (s)	49.0	49.0	20.3	69.3	30.7	20.3
Total Split (%)	49.0%	49.0%	20.3%	69.3%	30.7%	20.3%
Maximum Green (s)	44.5	44.5	15.8	64.8	26.2	15.8
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lag	Lead			Lead
Lead-Lag Optimize?	Yes	Yes	Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Max	None
Walk Time (s)	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	20.0	20.0		20.0	20.0	
Pedestrian Calls (#/hr)	0	0		0	0	
Act Effct Green (s)	42.9	42.9	59.1	59.1	31.9	48.1
Actuated g/C Ratio	0.43	0.43	0.59	0.59	0.32	0.48
v/c Ratio	0.78	0.35	0.70	0.58	0.28	0.28
Control Delay	28.4	3.2	28.7	25.2	27.9	15.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.4	3.2	28.7	25.2	27.9	15.3

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
LOS	C	A	C	C	C	B
Approach Delay	23.4			25.7	22.6	
Approach LOS	C			C	C	
Queue Length 50th (ft)	315	0	5	388	76	72
Queue Length 95th (ft)	406	46	145	457	119	121
Internal Link Dist (ft)	431			347	440	
Turn Bay Length (ft)			250			400
Base Capacity (vph)	1600	876	349	2293	1095	840
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	0.74	0.33	0.56	0.53	0.28	0.26

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:NBL and 6:, Start of Yellow
Natural Cycle: 75
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.78
Intersection Signal Delay: 24.3 — Intersection LOS: C
Intersection Capacity Utilization 59.3% — ICU Level of Service B
Analysis Period (min) 15

Splits and Phases: 9: N. High St & Connector Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	60	1200	30	50	1100	10	5	5	40	150	20	40
Future Volume (vph)	60	1200	30	50	1100	10	5	5	40	150	20	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50		100	100		0	0		200	100		0
Storage Lanes	1		0	1		0	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor								0.98				
Frt		0.996			0.999				0.850		0.900	
Flt Protected	0.950			0.950				0.976		0.950		
Satd. Flow (prot)	1687	4828	0	1719	3435	0	0	1818	1583	1805	1710	0
Flt Permitted	0.950			0.950				0.882		0.747		
Satd. Flow (perm)	1687	4828	0	1719	3435	0	0	1608	1583	1419	1710	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			1				33		60	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		333			347			309			251	
Travel Time (s)		7.6			7.9			7.0			5.7	
Confl. Peds. (#/hr)							40					
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)	67	1348	34	52	1146	10	8	8	62	224	30	60
Shared Lane Traffic (%)												
Lane Group Flow (vph)	67	1382	0	52	1156	0	0	16	62	224	90	0
Turn Type	Prot	NA		Prot	NA		Perm	NA	pm+ov	Perm	NA	
Protected Phases	1	6		5	2			4	1		8	
Permitted Phases							4		4	8		
Detector Phase	1	6		5	2		4	4	1	8	8	
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)	31.0	31.0		31.0	31.0		31.0	31.0	31.0	32.5	32.5	
Total Split (s)	31.0	36.4		31.0	36.4		32.6	32.6	31.0	32.6	32.6	
Total Split (%)	31.0%	36.4%		31.0%	36.4%		32.6%	32.6%	31.0%	32.6%	32.6%	
Maximum Green (s)	25.0	30.4		25.0	30.4		26.6	26.6	25.0	26.6	26.6	
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	C-Max		None	None	None	None	None	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Flash Dont Walk (s)	20.0	20.0		20.0	20.0		20.0	20.0	20.0	20.0	20.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	
Act Effct Green (s)	9.3	55.4		8.5	54.5			20.5	35.8	20.5	20.5	
Actuated g/C Ratio	0.09	0.55		0.08	0.54			0.20	0.36	0.20	0.20	
v/c Ratio	0.43	0.52		0.36	0.62			0.05	0.11	0.77	0.23	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Control Delay	64.2	8.4		49.3	19.9			29.3	10.3	54.8	14.0	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0	0.0	0.0	
Total Delay	64.2	8.4		49.3	19.9			29.3	10.3	54.8	14.0	
LOS	E	A		D	B			C	B	D	B	
Approach Delay		11.0			21.2			14.2			43.1	
Approach LOS		B			C			B			D	
Queue Length 50th (ft)	40	205		32	268			8	12	135	16	
Queue Length 95th (ft)	m55	299		68	415			17	20	141	31	
Internal Link Dist (ft)		253			267			229			171	
Turn Bay Length (ft)	50			100					200	100		
Base Capacity (vph)	421	2674		429	1874			427	831	377	498	
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	0.16	0.52		0.12	0.62			0.04	0.07	0.59	0.18	

Intersection Summary

Area Type: Other
Cycle Length: 100
Actuated Cycle Length: 100
Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow
Natural Cycle: 95
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 18.4 Intersection LOS: B
Intersection Capacity Utilization 64.9% ICU Level of Service C
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 10: Franklin St/Franklin St Ext & Folsom Road

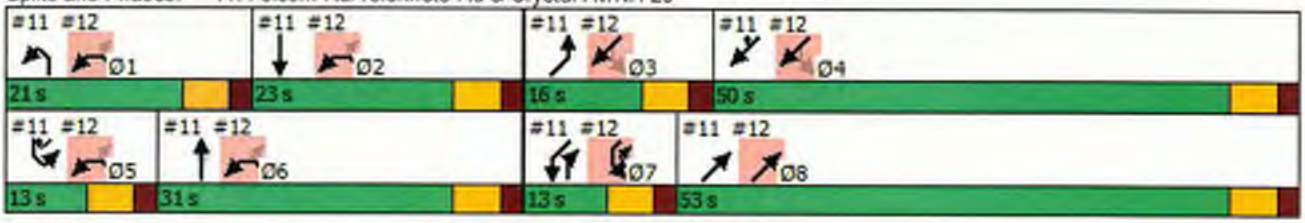
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	100	70	40	50	100	0	130	820	320	30	935	220
Future Volume (vph)	100	70	40	50	100	0	130	820	320	30	935	220
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	360		400	250		100	0		100
Storage Lanes	1		0	2		0	2		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	0.97	0.95	1.00	1.00	0.95	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	3400	3505	1568	1752	3505	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1736	3471	1553	3335	3438	0	3400	3505	1568	1752	3505	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			89						268			152
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		639			1148			921			387	
Travel Time (s)		14.5			26.1			20.9			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)	119	83	48	63	127	0	151	953	372	30	944	222
Shared Lane Traffic (%)												
Lane Group Flow (vph)	119	83	48	63	127	0	151	953	372	30	944	222
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	
Detector Phase	1	6	7	5	2		3	8		7	4	4 5
Switch Phase												
Minimum Initial (s)	8.0	8.0	6.0	7.0	8.0		7.0	8.0		6.0	8.0	
Minimum Split (s)	14.0	40.0	12.0	13.0	31.0		13.0	21.0		12.0	21.0	
Total Split (s)	21.0	31.0	13.0	13.0	23.0		16.0	53.0		13.0	50.0	
Total Split (%)	19.1%	28.2%	11.8%	11.8%	20.9%		14.5%	48.2%		11.8%	45.5%	
Maximum Green (s)	15.0	25.0	7.0	7.0	17.0		10.0	47.0		7.0	44.0	
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	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	None	Max	None	None	Max		None	None		None	None	
Act Effct Green (s)	14.2	25.0	37.7	7.0	17.8		10.0	49.5	109.8	6.7	43.8	56.8
Actuated g/C Ratio	0.13	0.23	0.34	0.06	0.16		0.09	0.45	1.00	0.06	0.40	0.52
v/c Ratio	0.53	0.11	0.08	0.30	0.23		0.49	0.60	0.24	0.28	0.68	0.25
Control Delay	53.8	34.1	1.2	53.0	41.8		53.3	25.5	0.4	76.5	19.8	2.0
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.9	0.0
Total Delay	53.8	34.1	1.2	53.0	41.8		53.3	25.5	0.4	76.5	20.7	2.0
LOS	D	C	A	D	D		D	C	A	E	C	A
Approach Delay		37.2			45.5			22.0			18.6	

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Approach LOS		D			D			C			B	
Queue Length 50th (ft)	79	24	0	22	42		53	273	0	23	291	5
Queue Length 95th (ft)	129	42	3	39	62		82	321	0	m40	316	11
Internal Link Dist (ft)		559			1068			841			307	
Turn Bay Length (ft)	150		150	360			250		100			100
Base Capacity (vph)	236	789	595	212	558		309	1580	1568	111	1404	871
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	209	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	0.50	0.11	0.08	0.30	0.23		0.49	0.60	0.24	0.27	0.79	0.25

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 109.8
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 23.3 — Intersection LOS: C
Intersection Capacity Utilization 58.9% — ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

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



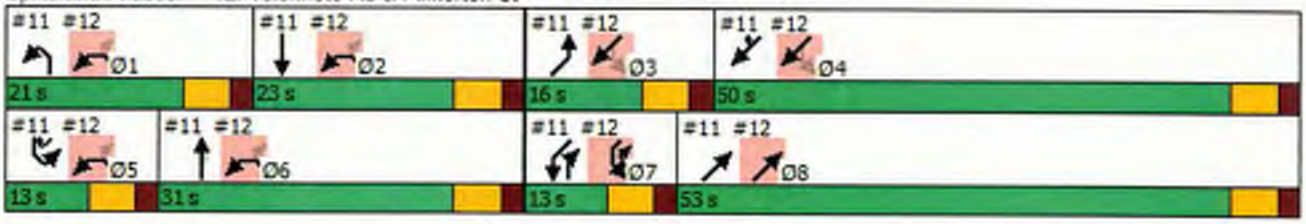
Lane Group	NWL	NWR	NET	NER	SWL	SWT	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6
Lane Configurations												
Traffic Volume (vph)	205	60	580	330	50	980						
Future Volume (vph)	205	60	580	330	50	980						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900						
Storage Length (ft)	180	0		0	220							
Storage Lanes	1	1		1	1							
Taper Length (ft)	25				25							
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95						
Frt		0.850		0.850								
Flt Protected	0.950				0.950							
Satd. Flow (prot)	1770	1583	3505	1568	1770	3539						
Flt Permitted	0.950				0.288							
Satd. Flow (perm)	1770	1583	3505	1568	536	3539						
Right Turn on Red		Yes		Yes								
Satd. Flow (RTOR)		72		384								
Link Speed (mph)	30		30			30						
Link Distance (ft)	408		387			376						
Travel Time (s)	9.3		8.8			8.5						
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)	247	72	674	384	62	1210						
Shared Lane Traffic (%)												
Lane Group Flow (vph)	247	72	674	384	62	1210						
Turn Type	Prot	pm+ov	NA	Free	pm+pt	NA						
Protected Phases	1 2 5 6	7	8		7	3 4	1	2	3	4	5	6
Permitted Phases		1 2 5 6		Free	3 4							
Detector Phase	1 2 5 6	7	8		7	3 4						
Switch Phase												
Minimum Initial (s)		6.0	8.0		6.0		8.0	8.0	7.0	8.0	7.0	8.0
Minimum Split (s)		12.0	21.0		12.0		14.0	31.0	13.0	21.0	13.0	40.0
Total Split (s)		13.0	53.0		13.0		21.0	23.0	16.0	50.0	13.0	31.0
Total Split (%)		11.8%	48.2%		11.8%		19%	21%	15%	45%	12%	28%
Maximum Green (s)		7.0	47.0		7.0		15.0	17.0	10.0	44.0	7.0	25.0
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							
Total Lost Time (s)		6.0	6.0		6.0							
Lead/Lag		Lead	Lag		Lead		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		None	None		None		None	Max	None	None	None	Max
Act Effct Green (s)	37.6	50.3	49.5	109.8	59.8	59.8						
Actuated g/C Ratio	0.34	0.46	0.45	1.00	0.54	0.54						
v/c Ratio	0.41	0.09	0.43	0.24	0.17	0.63						
Control Delay	29.9	4.2	8.5	0.3	12.9	19.1						
Queue Delay	0.0	0.0	0.2	0.0	0.0	0.1						
Total Delay	29.9	4.2	8.7	0.3	12.9	19.2						
LOS	C	A	A	A	B	B						
Approach Delay	24.1		5.7			18.9						

Lane Group	NWL	NWR	NET	NER	SWL	SWT	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6
Approach LOS	C		A			B						
Queue Length 50th (ft)	132	0	42	0	20	295						
Queue Length 95th (ft)	184	21	50	0	36	308						
Internal Link Dist (ft)	328		307			296						
Turn Bay Length (ft)	180				220							
Base Capacity (vph)	612	768	1580	1568	370	1933						
Starvation Cap Reductn	0	0	253	0	0	0						
Spillback Cap Reductn	0	0	0	0	0	97						
Storage Cap Reductn	0	0	0	0	0	0						
Reduced v/c Ratio	0.40	0.09	0.51	0.24	0.17	0.66						

Intersection Summary

Area Type: Other
Cycle Length: 110
Actuated Cycle Length: 109.8
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.68
Intersection Signal Delay: 14.2 — Intersection LOS: B
Intersection Capacity Utilization 48.4% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 12: Tsienneto Rd & Pinkerton St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	20	240	0	0	330	10	5	0	5	20	0	180
Future Volume (vph)	20	240	0	0	330	10	5	0	5	20	0	180
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		0	150		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					0.996				0.850			0.850
Flt Protected	0.950							0.950			0.950	
Satd. Flow (prot)	1687	3374	0	1863	3525	0	0	1805	1615	0	1787	1599
Flt Permitted	0.950							0.743			0.751	
Satd. Flow (perm)	1687	3374	0	1863	3525	0	0	1412	1615	0	1413	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)					4				109			200
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		277			1148			218			433	
Travel Time (s)		6.3			26.1			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)	24	289	0	0	359	11	10	0	10	22	0	200
Shared Lane Traffic (%)												
Lane Group Flow (vph)	24	289	0	0	370	0	0	10	10	0	22	200
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	Max		None	None		None	None	None	None	None	None
Act Effct Green (s)	8.0	40.0			37.4			7.0	7.0		7.0	7.0
Actuated g/C Ratio	0.14	0.68			0.63			0.12	0.12		0.12	0.12
v/c Ratio	0.11	0.13			0.17			0.06	0.03		0.13	0.55
Control Delay	24.5	3.7			6.1			23.4	0.2		24.8	10.5
Queue Delay	0.0	0.0			0.0			0.0	0.0		0.0	0.0
Total Delay	24.5	3.7			6.1			23.4	0.2		24.8	10.5
LOS	C	A			A			C	A		C	B
Approach Delay		5.3			6.1			11.8			11.9	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Approach LOS		A			A			B			B	
Queue Length 50th (ft)	8	14			18			3	0		7	0
Queue Length 95th (ft)	25	28			71			8	0		25	49
Internal Link Dist (ft)		197			1068			138			353	
Turn Bay Length (ft)	75											
Base Capacity (vph)	228	2288			2358			646	798		647	840
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	0.11	0.13			0.16			0.02	0.01		0.03	0.24

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 59
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.55
Intersection Signal Delay: 7.4 — Intersection LOS: A
Intersection Capacity Utilization 39.8% — ICU Level of Service A
Analysis Period (min) 15

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)	30	200	5	5	330	120	10	5	5	170	5	110
Future Volume (vph)	30	200	5	5	330	120	10	5	5	170	5	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	150		150	0		0	0		0
Storage Lanes	2		0	1		0	1		0	1		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	0.95	0.95	1.00
Frt		0.996			0.960			0.925				0.850
Flt Protected	0.950			0.950			0.950			0.950	0.955	
Satd. Flow (prot)	3303	3392	0	1736	3332	0	1805	1758	0	1665	1674	1568
Flt Permitted	0.950			0.950			0.950			0.950	0.955	
Satd. Flow (perm)	3303	3392	0	1736	3332	0	1805	1758	0	1665	1674	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			58			7				122
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		412			486			151			343	
Travel Time (s)		9.4			11.0			3.4			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)	36	241	6	5	340	124	15	7	7	189	6	122
Shared Lane Traffic (%)										48%		
Lane Group Flow (vph)	36	247	0	5	464	0	15	14	0	98	97	122
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	pt+ov
Protected Phases	5	2		1	6		3	3		4	4	4 5
Permitted Phases								3				
Detector Phase	5	2		1	6		3	3		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	50.0		22.0	22.0		22.0	22.0	
Total Split (s)	14.0	53.0		13.0	52.0		22.0	22.0		22.0	22.0	
Total Split (%)	12.7%	48.2%		11.8%	47.3%		20.0%	20.0%		20.0%	20.0%	
Maximum Green (s)	8.0	47.0		7.0	46.0		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	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	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	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)	6.4	23.8		6.0	15.9		6.3	6.3		9.8	9.8	22.5
Actuated g/C Ratio	0.12	0.46		0.12	0.31		0.12	0.12		0.19	0.19	0.43
v/c Ratio	0.09	0.16		0.03	0.44		0.07	0.06		0.31	0.31	0.16
Control Delay	25.8	11.9		27.4	16.8		26.9	21.2		24.6	24.4	4.0
Queue Delay	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	25.8	11.9		27.4	16.8		26.9	21.2		24.6	24.4	4.0
LOS	C	B		C	B		C	C		C	C	A
Approach Delay		13.7			16.9			24.2			16.6	
Approach LOS		B			B			C			B	
Queue Length 50th (ft)	4	14		1	45		4	2		23	23	0
Queue Length 95th (ft)	18	65		12	121		16	13		81	81	30
Internal Link Dist (ft)		332			406			71			263	
Turn Bay Length (ft)	150			150								
Base Capacity (vph)	533	2996		245	2929		583	572		537	540	786
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	0.07	0.08		0.02	0.16		0.03	0.02		0.18	0.18	0.16

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 52.1			
Natural Cycle: 110			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.44			
Intersection Signal Delay: 16.2		Intersection LOS: B	
Intersection Capacity Utilization 38.9%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 14: VIP Dr/Ashleigh Dr & NH 28

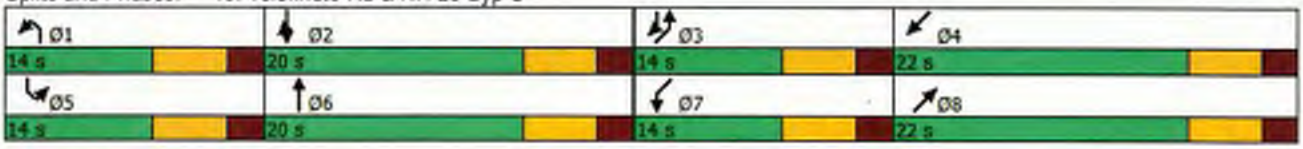
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	30	50	20	10	40	180	150	320	70	60	470	170
Future Volume (vph)	30	50	20	10	40	180	150	320	70	60	470	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	150		150	150		150	150		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	0.95	0.95	1.00	0.95	0.95
Frt		0.958				0.850		0.973			0.960	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	1767	0	1736	1827	1553	1770	3444	0	1787	3431	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1752	1767	0	1736	1827	1553	1770	3444	0	1787	3431	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		24				222		35			68	
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	222	221	471	103	77	603	218
Shared Lane Traffic (%)												
Lane Group Flow (vph)	37	85	0	12	49	222	221	574	0	77	821	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	22.0		14.0	22.0	
Total Split (%)	20.0%	28.6%		20.0%	28.6%		20.0%	31.4%		20.0%	31.4%	
Maximum Green (s)	8.0	14.0		8.0	14.0		8.0	16.0		8.0	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	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	Max		None	None		None	None	
Act Effct Green (s)	8.1	16.6		8.1	14.2	28.3	8.1	22.4		8.1	16.2	
Actuated g/C Ratio	0.13	0.27		0.13	0.23	0.46	0.13	0.36		0.13	0.26	
v/c Ratio	0.16	0.17		0.05	0.12	0.27	0.95	0.45		0.33	0.86	
Control Delay	28.4	15.5		27.4	22.2	3.2	81.8	19.0		30.9	33.5	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	28.4	15.5		27.4	22.2	3.2	81.8	19.0		30.9	33.5	
LOS	C	B		C	C	A	F	B		C	C	
Approach Delay		19.4			7.5			36.4			33.3	

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Approach LOS		B			A			D			C	
Queue Length 50th (ft)	11	16		4	13	0	74	79		23	121	
Queue Length 95th (ft)	37	51		17	39	27	#154	114		60	#222	
Internal Link Dist (ft)		401			267			399			291	
Turn Bay Length (ft)	150			150		150	150			150		
Base Capacity (vph)	230	494		228	420	834	232	1272		235	951	
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	0.17		0.05	0.12	0.27	0.95	0.45		0.33	0.86	

Intersection Summary

Area Type: Other
Cycle Length: 70
Actuated Cycle Length: 61.6
Natural Cycle: 75
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 30.2 — Intersection LOS: C
Intersection Capacity Utilization 51.2% — 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.

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



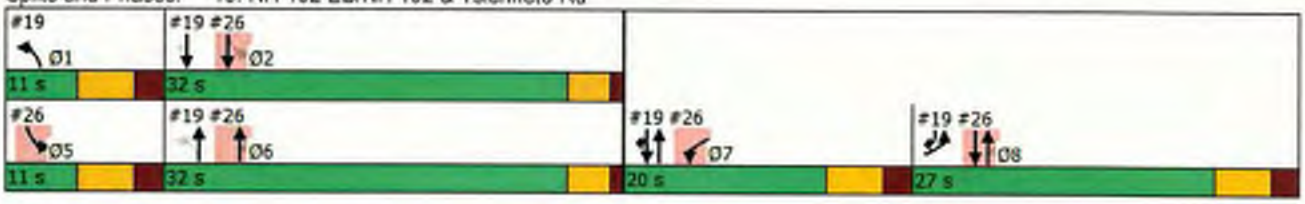
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2	Ø5	Ø6	Ø7
Lane Configurations										
Traffic Volume (vph)	220	0	10	130	240	530				
Future Volume (vph)	220	0	10	130	240	530				
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900				
Storage Length (ft)	200	0	100			90				
Storage Lanes	0	0	1			1				
Taper Length (ft)	25		25							
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00				
Frt						0.850				
Flt Protected	0.950		0.950							
Satd. Flow (prot)	1787	0	1770	1863	1845	1568				
Flt Permitted	0.950		0.528							
Satd. Flow (perm)	1787	0	984	1863	1845	1568				
Right Turn on Red		Yes				Yes				
Satd. Flow (RTOR)						596				
Link Speed (mph)	30			30	30					
Link Distance (ft)	392			704	263					
Travel Time (s)	8.9			16.0	6.0					
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)	244	0	11	149	270	596				
Shared Lane Traffic (%)										
Lane Group Flow (vph)	244	0	11	149	270	596				
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)	21.2		32.8	34.1	34.1	64.8				
Actuated g/C Ratio	0.32		0.49	0.51	0.51	0.96				
v/c Ratio	0.43		0.02	0.16	0.29	0.39				
Control Delay	24.7		7.2	9.5	11.1	0.9				
Queue Delay	0.0		0.0	0.0	1.0	0.1				
Total Delay	24.7		7.2	9.5	12.1	1.0				
LOS	C		A	A	B	A				
Approach Delay	24.7			9.3	4.5					

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2	Ø5	Ø6	Ø7
Approach LOS	C			A	A					
Queue Length 50th (ft)	78		2	28	77	0				
Queue Length 95th (ft)	201		8	69	116	19				
Internal Link Dist (ft)	312			624	183					
Turn Bay Length (ft)	200		100			90				
Base Capacity (vph)	577		540	1024	1014	1494				
Starvation Cap Reductn	0		0	0	506	152				
Spillback Cap Reductn	0		0	0	0	0				
Storage Cap Reductn	0		0	0	0	0				
Reduced v/c Ratio	0.42		0.02	0.15	0.53	0.44				

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 67.3
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.61
Intersection Signal Delay: 9.0 — Intersection LOS: A
Intersection Capacity Utilization 47.0% — ICU Level of Service A
Analysis Period (min) 15

Splits and Phases: 19: NH 102 EB/NH 102 & Tsienneto Rd



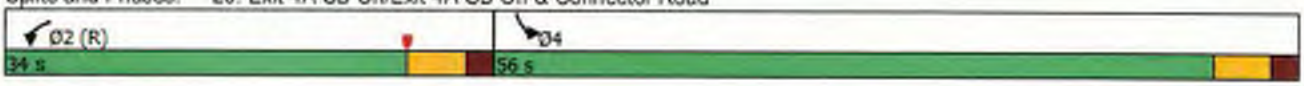
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	980	0	0	0	1730	0
Future Volume (vph)	980	0	0	0	1730	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	1.00	1.00	1.00	0.97	1.00
Frt						
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3433	0	0	0	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)	1043	0	0	0	1840	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1043	0	0	0	1840	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)	34.0				56.0	
Total Split (%)	37.8%				62.2%	
Maximum Green (s)	28.0				50.0	
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)	28.0				50.0	
Actuated g/C Ratio	0.31				0.56	
v/c Ratio	0.98				0.96	
Control Delay	56.5				34.1	
Queue Delay	40.4				0.0	
Total Delay	96.9				34.1	
LOS	F				C	
Approach Delay	96.9					34.1
Approach LOS	F					C
Queue Length 50th (ft)	336				482	
Queue Length 95th (ft)	#456				#679	
Internal Link Dist (ft)	292		449			477

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Turn Bay Length (ft)						
Base Capacity (vph)	1068				1907	
Starvation Cap Reductn	186				0	
Spillback Cap Reductn	0				0	
Storage Cap Reductn	0				0	
Reduced v/c Ratio	1.18				0.96	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 25 (28%), Referenced to phase 2:WBL, Start of Yellow
Natural Cycle: 90
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.98
Intersection Signal Delay: 56.8 Intersection LOS: E
Intersection Capacity Utilization 145.8% 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



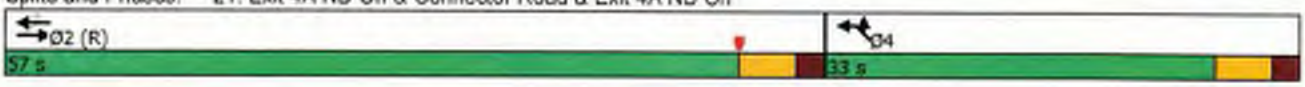
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NWL	NWR
Lane Configurations										
Traffic Volume (vph)	0	1730	0	0	980	1390	0	0	0	795
Future Volume (vph)	0	1730	0	0	980	1390	0	0	0	795
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		200	0	0	0	0
Storage Lanes	0		0	0		2	0	0	1	1
Taper Length (ft)	25			25			25		25	
Lane Util. Factor	0.95	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)	0	3539	0	0	3539	2787	0	0	1583	1504
Flt Permitted										
Satd. Flow (perm)	0	3539	0	0	3539	2787	0	0	1583	1504
Right Turn on Red			Yes			Yes		Yes		
Satd. Flow (RTOR)						42				
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	1840	0	0	1043	1479	0	0	0	846
Shared Lane Traffic (%)										50%
Lane Group Flow (vph)	0	1840	0	0	1043	1479	0	0	423	423
Turn Type		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)	57.0	57.0			57.0	57.0			33.0	33.0
Total Split (%)	63.3%	63.3%			63.3%	63.3%			36.7%	36.7%
Maximum Green (s)	51.0	51.0			51.0	51.0			27.0	27.0
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
Total Lost Time (s)		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)		51.0			51.0	51.0			27.0	27.0
Actuated g/C Ratio		0.57			0.57	0.57			0.30	0.30
v/c Ratio		0.92			0.52	0.93			0.89	0.94
Control Delay		4.2			13.1	29.0			53.6	62.1
Queue Delay		1.1			1.7	0.0			0.0	0.0
Total Delay		5.3			14.8	29.0			53.6	62.1
LOS		A			B	C			D	E
Approach Delay		5.3			23.1				57.8	
Approach LOS		A			C				E	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NWL	NWR
Queue Length 50th (ft)		0			178	397			229	245
Queue Length 95th (ft)		m0			230	#601			#401	#436
Internal Link Dist (ft)		292			314		518		439	
Turn Bay Length (ft)						200				
Base Capacity (vph)		2005			2005	1597			474	451
Starvation Cap Reductn		53			0	0			0	0
Spillback Cap Reductn		0			742	0			0	0
Storage Cap Reductn		0			0	0			0	0
Reduced v/c Ratio		0.94			0.83	0.93			0.89	0.94

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: 0.94
Intersection Signal Delay: 22.5 Intersection LOS: C
Intersection Capacity Utilization 131.6% 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



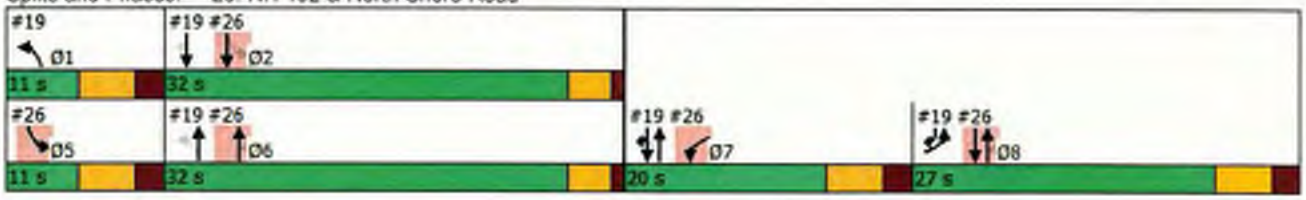
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø1	Ø2	Ø6	Ø8
Lane Configurations										
Traffic Volume (vph)	60	10	320	30	10	710				
Future Volume (vph)	60	10	320	30	10	710				
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900				
Storage Length (ft)	0	0		90	100					
Storage Lanes	1	0		1	1					
Taper Length (ft)	25				25					
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00				
Frt	0.976			0.850						
Flt Protected	0.961				0.950					
Satd. Flow (prot)	1768	0	1900	1615	1805	1900				
Flt Permitted	0.961				0.424					
Satd. Flow (perm)	1768	0	1900	1615	806	1900				
Right Turn on Red		Yes		Yes						
Satd. Flow (RTOR)	10			36						
Link Speed (mph)	30		30			30				
Link Distance (ft)	524		263			288				
Travel Time (s)	11.9		6.0			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)	69	15	337	36	14	740				
Shared Lane Traffic (%)										
Lane Group Flow (vph)	84	0	337	36	14	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)	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		43.1	43.1	15.0	43.1				
Actuated g/C Ratio	0.17		0.64	0.64	0.22	0.64				
v/c Ratio	0.27		0.28	0.03	0.05	0.61				
Control Delay	26.9		2.3	0.2	18.9	9.3				
Queue Delay	0.0		0.1	0.0	0.0	0.0				
Total Delay	26.9		2.4	0.2	18.9	9.3				
LOS	C		A	A	B	A				
Approach Delay	26.9		2.2			9.5				

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø1	Ø2	Ø6	Ø8
Approach LOS	C		A			A				
Queue Length 50th (ft)	25		17	0	5	151				
Queue Length 95th (ft)	77		25	0	13	224				
Internal Link Dist (ft)	444		183			208				
Turn Bay Length (ft)				90	100					
Base Capacity (vph)	388		1550	1324	256	1550				
Starvation Cap Reductn	0		428	0	0	0				
Spillback Cap Reductn	0		0	0	0	0				
Storage Cap Reductn	0		0	0	0	0				
Reduced v/c Ratio	0.22		0.30	0.03	0.05	0.48				

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 67.3
Natural Cycle: 60
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.61
Intersection Signal Delay: 8.4 — Intersection LOS: A
Intersection Capacity Utilization 49.9% — ICU Level of Service A
Analysis Period (min) 15

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



APPENDIX O-4: 2040 ALTERNATIVE A INTERSECTION CAPACITY ANALYSES – SYNCHRO PRINTOUTS – PM PEAK HOUR

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↰	↱↱
Traffic Volume (vph)	0	1230	1475	0	385	1195
Future Volume (vph)	0	1230	1475	0	385	1195
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	1323	1676	0	433	1343
Shared Lane Traffic (%)						
Lane Group Flow (vph)	0	1323	1676	0	433	1343
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)		65.0	65.0		65.0	65.0
Total Split (%)		50.0%	50.0%		50.0%	50.0%
Maximum Green (s)		59.0	59.0		59.0	59.0
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)		59.0	59.0		59.0	59.0
Actuated g/C Ratio		0.45	0.45		0.45	0.45
v/c Ratio		0.84	1.08		0.49	1.10
Control Delay		24.2	48.6		27.4	93.3
Queue Delay		0.0	0.0		0.0	0.0
Total Delay		24.2	48.6		27.4	93.3
LOS		C	D		C	F
Approach Delay		24.2	48.6		77.2	
Approach LOS		C	D		E	
Queue Length 50th (ft)		307	~866		252	~730
Queue Length 95th (ft)		m358	m53		344	#863
Internal Link Dist (ft)		632	308		132	
Turn Bay Length (ft)						
Base Capacity (vph)		1575	1545		875	1217
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		0.84	1.08		0.49	1.10

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: 1.10

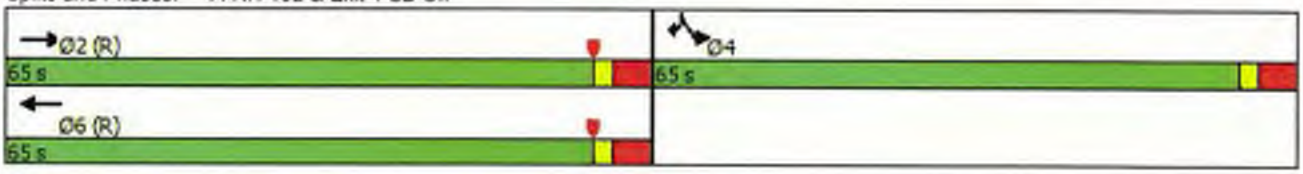
Intersection Signal Delay: 52.5 Intersection LOS: D
Intersection Capacity Utilization 94.6% ICU Level of Service F
Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
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)	1360	0	725	0	0	1155	460	0	0	370	110
Future Volume (vph)	1360	0	725	0	0	1155	460	0	0	370	110
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)											126
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)	1545	0	824	0	0	1229	489	0	0	402	120
Shared Lane Traffic (%)											
Lane Group Flow (vph)	1545	0	824	0	0	1229	489	0	0	402	120
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)	54.0		54.0			44.0	76.0			32.0	
Total Split (%)	41.5%		41.5%			33.8%	58.5%			24.6%	
Maximum Green (s)	48.0		48.0			38.0	70.0			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)	48.0		48.0			38.0	70.0			26.0	130.0
Actuated g/C Ratio	0.37		0.37			0.29	0.54			0.20	1.00
v/c Ratio	1.29		0.85			1.26	0.26			0.57	0.08
Control Delay	172.3		47.4			155.0	7.7			50.7	0.1
Queue Delay	0.0		0.0			0.0	0.0			0.0	0.0
Total Delay	172.3		47.4			155.0	7.7			50.7	0.1
LOS	F		D			F	A			D	A
Approach Delay		128.8					113.1			39.1	
Approach LOS		F					F			D	
Queue Length 50th (ft)	~854		359			~670	51			162	0
Queue Length 95th (ft)	#957		440			#797	m71			217	0
Internal Link Dist (ft)		776		310			680			777	
Turn Bay Length (ft)						550					
Base Capacity (vph)	1197		971			974	1851			701	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	1.29		0.85			1.26	0.26			0.57	0.08

Intersection Summary

Area Type: Other
Cycle Length: 130
Actuated Cycle Length: 130
Offset: 44 (34%), Referenced to phase 2:NET and 6:SWT, Start of Yellow
Natural Cycle: 150

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 1.29
Intersection Signal Delay: 112.8 Intersection LOS: F
Intersection Capacity Utilization 98.0% 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	755	480	255	665	0	0	0	0	295	0	470
Future Volume (vph)	0	755	480	255	665	0	0	0	0	295	0	470
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)			552									189
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	868	552	297	773	0	0	0	0	324	0	516
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	868	552	297	773	0	0	0	0	324	0	516
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		25.0	58.0					32.0		32.0
Total Split (%)		36.7%		27.8%	64.4%					35.6%		35.6%
Maximum Green (s)		27.0		19.0	52.0					26.0		26.0
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)		29.0	90.0	18.1	53.2					24.8		24.8
Actuated g/C Ratio		0.32	1.00	0.20	0.59					0.28		0.28
v/c Ratio		0.78	0.36	0.86	0.38					0.35		0.91
Control Delay		34.2	0.6	16.9	0.2					27.0		42.4
Queue Delay		0.0	0.0	0.0	0.0					0.0		0.0
Total Delay		34.2	0.6	16.9	0.2					27.0		42.4
LOS		C	A	B	A					C		D
Approach Delay		21.1			4.8						36.4	
Approach LOS		C			A						D	
Queue Length 50th (ft)		241	0	0	0					74		185
Queue Length 95th (ft)		301	0	m0	m0					110		#379
Internal Link Dist (ft)		771			613			406			501	
Turn Bay Length (ft)			350									
Base Capacity (vph)		1120	1553	362	2030					972		583
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		0.78	0.36	0.82	0.38					0.33		0.89

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Offset: 50 (56%), Referenced to phase 2:EBT and 6:WBT, Start of Yellow
Natural Cycle: 80

Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.91
Intersection Signal Delay: 19.7 Intersection LOS: B
Intersection Capacity Utilization 77.2% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
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	570	0	0	555	445	365	0	420	0	0	0
Future Volume (vph)	480	570	0	0	555	445	365	0	420	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)						489			255			
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)	522	620	0	0	610	489	545	0	627	0	0	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	522	620	0	0	610	489	545	0	627	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)	32.0	56.0			24.0		34.0		34.0			
Total Split (%)	35.6%	62.2%			26.7%		37.8%		37.8%			
Maximum Green (s)	26.0	50.0			18.0		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)	26.0	50.0			18.0	90.0	28.0		28.0			
Actuated g/C Ratio	0.29	0.56			0.20	1.00	0.31		0.31			
v/c Ratio	1.03	0.32			0.87	0.31	1.03		0.97			
Control Delay	49.0	2.2			49.7	0.5	79.7		47.8			
Queue Delay	0.0	0.0			0.0	0.0	0.0		0.0			
Total Delay	49.0	2.2			49.7	0.5	79.7		47.8			
LOS	D	A			D	A	E		D			
Approach Delay		23.6			27.8			62.6				
Approach LOS		C			C			E				
Queue Length 50th (ft)	~321	8			177	0	~335		228			
Queue Length 95th (ft)	m#449	11			#270	0	298		199			
Internal Link Dist (ft)		613			462			787			312	
Turn Bay Length (ft)												
Base Capacity (vph)	506	1947			701	1568	529		649			
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	0.32			0.87	0.31	1.03		0.97			

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: 1.03	
Intersection Signal Delay: 38.3	Intersection LOS: D

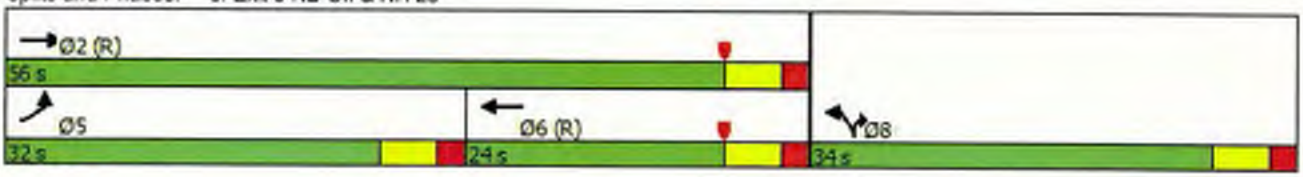
Intersection Capacity Utilization 77.2% ICU Level of Service D
Analysis Period (min) 15

~ 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.

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

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)	100	5	90	10	0	10	210	880	120	5	520	140
Future Volume (vph)	100	5	90	10	0	10	210	880	120	5	520	140
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			0.982			0.968	
Flt Protected		0.954			0.976		0.950			0.950		
Satd. Flow (prot)	0	1777	1583	0	1728	0	1770	3476	0	1770	3426	0
Flt Permitted		0.784			0.784		0.950			0.950		
Satd. Flow (perm)	0	1460	1583	0	1388	0	1770	3476	0	1770	3426	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			182		162			25			41	
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)	109	5	98	40	0	40	228	957	130	5	565	152
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	114	98	0	80	0	228	1087	0	5	717	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)	26.0	26.0	36.0	26.0	26.0		28.0	53.0		11.0	36.0	
Total Split (%)	28.9%	28.9%	40.0%	28.9%	28.9%		31.1%	58.9%		12.2%	40.0%	
Maximum Green (s)	20.0	20.0	30.0	20.0	20.0		22.0	47.0		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)		11.8	24.9		11.5		14.7	47.1		5.6	24.9	
Actuated g/C Ratio		0.18	0.37		0.17		0.22	0.71		0.08	0.37	
v/c Ratio		0.44	0.14		0.21		0.58	0.44		0.03	0.55	
Control Delay		34.9	0.4		1.2		33.3	7.9		37.6	19.3	
Queue Delay		0.0	0.0		0.0		0.0	0.0		0.0	0.0	
Total Delay		34.9	0.4		1.2		33.3	7.9		37.6	19.3	
LOS		C	A		A		C	A		D	B	
Approach Delay		18.9			1.2			12.4			19.4	
Approach LOS		B			A			B			B	
Queue Length 50th (ft)		47	0		0		93	98		2	118	
Queue Length 95th (ft)		105	0		0		181	257		14	220	
Internal Link Dist (ft)		513			367			670			250	
Turn Bay Length (ft)			225				350			100		
Base Capacity (vph)		493	891		589		657	2546		149	1755	
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	0.11		0.14		0.35	0.43		0.03	0.41	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 66.7
Natural Cycle: 75
Control Type: Actuated-Uncoordinated

Maximum v/c Ratio: 0.58
Intersection Signal Delay: 14.8 Intersection LOS: B
Intersection Capacity Utilization 60.9% 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	110	5	270	0	70	0	710	130	15	345	0
Future Volume (vph)	20	110	5	270	0	70	0	710	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		0.995			0.972			0.979				
Flt Protected		0.993			0.962						0.998	
Satd. Flow (prot)	0	1840	0	0	1725	0	0	1722	0	0	1806	0
Flt Permitted		0.920			0.583						0.701	
Satd. Flow (perm)	0	1705	0	0	1045	0	0	1722	0	0	1268	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			36			16				
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	183	8	281	0	73	0	798	146	17	401	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	224	0	0	354	0	0	944	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)	34.0	34.0		34.0	34.0			56.0		56.0	56.0	
Total Split (%)	37.8%	37.8%		37.8%	37.8%			62.2%		62.2%	62.2%	
Maximum Green (s)	28.0	28.0		28.0	28.0			50.0		50.0	50.0	
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)		28.0			28.0			50.0			50.0	
Actuated g/C Ratio		0.31			0.31			0.56			0.56	
v/c Ratio		0.42			1.01			0.98			0.59	
Control Delay		27.4			82.1			45.6			17.7	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		27.4			82.1			45.6			17.7	
LOS		C			F			D			B	
Approach Delay		27.4			82.1			45.6			17.7	
Approach LOS		C			F			D			B	
Queue Length 50th (ft)		99			~189			484			147	
Queue Length 95th (ft)		101			#371			#769			224	
Internal Link Dist (ft)		276			413			1044			523	
Turn Bay Length (ft)												
Base Capacity (vph)		531			349			963			704	
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		0.42			1.01			0.98			0.59	

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 90
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.01
Intersection Signal Delay: 44.1 Intersection LOS: D
Intersection Capacity Utilization 84.5% ICU Level of Service E

Analysis Period (min) 15

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
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)	20	520	40	60	360	195	170	180	20	80	260	20
Future Volume (vph)	20	520	40	60	360	195	170	180	20	80	260	20
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		0.989			0.947			0.985				0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1656	1724	0	1703	1697	0	1719	1782	0	1703	1792	1524
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1656	1724	0	1703	1697	0	1719	1782	0	1703	1792	1524
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			26			5				136
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)	21	542	42	64	383	207	200	212	24	88	286	22
Shared Lane Traffic (%)												
Lane Group Flow (vph)	21	584	0	64	590	0	200	236	0	88	286	22
Turn Type	Prot	NA		Prot	NA		Prot	NA		Prot	NA	pm+ov
Protected Phases	5	2		1	6		3	8		7	4	5
Permitted Phases												4
Detector Phase	5	2		1	6		3	8		7	4	5
Switch Phase												
Minimum Initial (s)	4.0	5.0		4.0	10.0		4.0	10.0		4.0	9.0	4.0
Minimum Split (s)	10.0	30.0		10.0	30.0		10.0	25.0		10.0	25.0	10.0
Total Split (s)	10.0	51.0		10.0	51.0		30.0	43.0		16.0	29.0	10.0
Total Split (%)	8.3%	42.5%		8.3%	42.5%		25.0%	35.8%		13.3%	24.2%	8.3%
Maximum Green (s)	4.0	45.0		4.0	45.0		24.0	37.0		10.0	23.0	4.0
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	Lead
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	
Flash Dont Walk (s)		11.0			11.0			11.0			11.0	
Pedestrian Calls (#/hr)		10			10			0			10	
Act Effct Green (s)	4.1	40.0		4.1	44.7		17.6	29.1		9.2	20.7	30.9
Actuated g/C Ratio	0.04	0.37		0.04	0.42		0.16	0.27		0.09	0.19	0.29
v/c Ratio	0.33	0.90		1.00	0.81		0.71	0.48		0.60	0.82	0.04
Control Delay	69.8	51.2		167.1	39.2		58.0	36.3		68.5	63.4	0.1
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	0.0
Total Delay	69.8	51.2		167.1	39.2		58.0	36.3		68.5	63.4	0.1
LOS	E	D		F	D		E	D		E	E	A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Approach Delay		51.8			51.7			46.2			61.0	
Approach LOS		D			D			D			E	
Queue Length 50th (ft)	15	386		~53	379		141	142		63	202	0
Queue Length 95th (ft)	#45	#641		#151	#636		208	204		#137	#358	0
Internal Link Dist (ft)		425			450			281			331	
Turn Bay Length (ft)												
Base Capacity (vph)	63	743		64	757		394	633		162	394	537
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	0.79		1.00	0.78		0.51	0.37		0.54	0.73	0.04

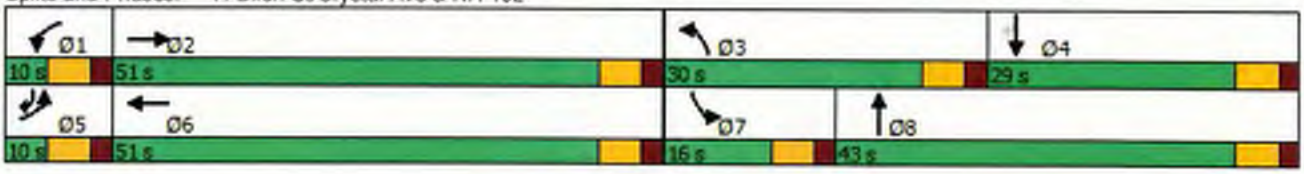
Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 106.9
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 1.00
Intersection Signal Delay: 52.4 Intersection LOS: D
Intersection Capacity Utilization 77.3% 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: 7: Birch St/Crystal Ave & NH 102



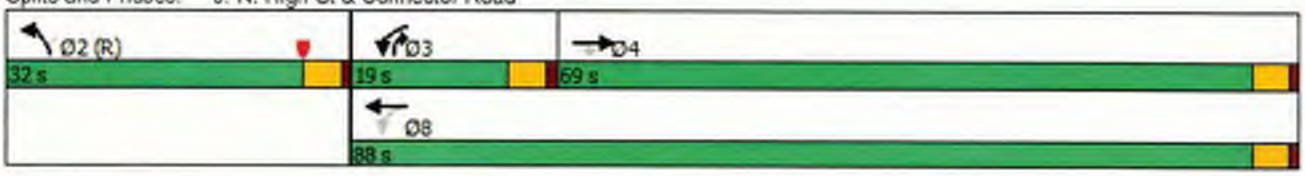
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↱	↰	↑↑	↰↰	↱
Traffic Volume (vph)	1715	265	225	1025	660	460
Future Volume (vph)	1715	265	225	1025	660	460
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)		0	250		0	400
Storage Lanes		1	1		2	1
Taper Length (ft)			25		25	
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	1.00
Frt		0.850				0.850
Flt Protected			0.950		0.950	
Satd. Flow (prot)	3539	1583	1770	3539	3433	1583
Flt Permitted			0.058		0.950	
Satd. Flow (perm)	3539	1583	108	3539	3433	1583
Right Turn on Red		Yes				Yes
Satd. Flow (RTOR)		209				9
Link Speed (mph)	30			30	30	
Link Distance (ft)	511			427	520	
Travel Time (s)	11.6			9.7	11.8	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1864	288	245	1114	717	500
Shared Lane Traffic (%)						
Lane Group Flow (vph)	1864	288	245	1114	717	500
Turn Type	NA	Perm	pm+pt	NA	Prot	pm+ov
Protected Phases	4		3	8	2	3
Permitted Phases		4	8			2
Detector Phase	4	4	3	8	2	3
Switch Phase						
Minimum Initial (s)	5.0	5.0	5.0	5.0	5.0	5.0
Minimum Split (s)	29.5	29.5	9.5	29.5	29.5	9.5
Total Split (s)	69.0	69.0	19.0	88.0	32.0	19.0
Total Split (%)	57.5%	57.5%	15.8%	73.3%	26.7%	15.8%
Maximum Green (s)	64.5	64.5	14.5	83.5	27.5	14.5
Yellow Time (s)	3.5	3.5	3.5	3.5	3.5	3.5
All-Red Time (s)	1.0	1.0	1.0	1.0	1.0	1.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lead/Lag	Lag	Lag	Lead			Lead
Lead-Lag Optimize?	Yes	Yes	Yes			Yes
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Recall Mode	None	None	None	None	C-Max	None
Walk Time (s)	5.0	5.0		5.0	5.0	
Flash Dont Walk (s)	20.0	20.0		20.0	20.0	
Pedestrian Calls (#/hr)	0	0		0	0	
Act Effct Green (s)	65.0	65.0	83.5	83.5	27.5	46.0
Actuated g/C Ratio	0.54	0.54	0.70	0.70	0.23	0.38
v/c Ratio	0.97	0.30	0.91	0.45	0.91	0.82
Control Delay	42.3	5.2	64.8	11.9	62.2	44.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.3	5.2	64.8	11.9	62.2	44.9

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
LOS	D	A	E	B	E	D
Approach Delay	37.3			21.4	55.1	
Approach LOS	D			C	E	
Queue Length 50th (ft)	713	29	147	200	280	336
Queue Length 95th (ft)	#913	75	m#258	m294	#389	#514
Internal Link Dist (ft)	431			347	440	
Turn Bay Length (ft)			250			400
Base Capacity (vph)	1916	953	275	2462	786	618
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	0.97	0.30	0.89	0.45	0.91	0.81

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:NBL and 6:, Start of Yellow
Natural Cycle: 100
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.97
Intersection Signal Delay: 37.3 Intersection LOS: D
Intersection Capacity Utilization 90.0% 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 9: N. High St & Connector Road



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations												
Traffic Volume (vph)	70	2075	30	120	960	80	20	10	90	200	30	60
Future Volume (vph)	70	2075	30	120	960	80	20	10	90	200	30	60
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	50		100	100		0	0		200	100		0
Storage Lanes	1		0	1		0	0		1	1		0
Taper Length (ft)	25			25			25			25		
Lane Util. Factor	1.00	0.91	0.91	1.00	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Ped Bike Factor								0.97				
Frt		0.998			0.989				0.850		0.900	
Flt Protected	0.950			0.950				0.967		0.950		
Satd. Flow (prot)	1687	4838	0	1719	3400	0	0	1801	1583	1805	1710	0
Flt Permitted	0.950			0.950				0.770		0.727		
Satd. Flow (perm)	1687	4838	0	1719	3400	0	0	1390	1583	1381	1710	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			9				45		77	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		333			347			309			251	
Travel Time (s)		7.6			7.9			7.0			5.7	
Confl. Peds. (#/hr)							40					
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)	79	2331	34	125	1000	83	31	15	138	299	45	90
Shared Lane Traffic (%)												
Lane Group Flow (vph)	79	2365	0	125	1083	0	0	46	138	299	135	0
Turn Type	Prot	NA		Prot	NA		Perm	NA	pm+ov	Perm	NA	
Protected Phases	1	6		5	2			4	1		8	
Permitted Phases							4		4	8		
Detector Phase	1	6		5	2		4	4	1	8	8	
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)	31.0	31.0		31.0	31.0		31.0	31.0	31.0	32.5	32.5	
Total Split (s)	31.0	56.5		31.0	56.5		32.5	32.5	31.0	32.5	32.5	
Total Split (%)	25.8%	47.1%		25.8%	47.1%		27.1%	27.1%	25.8%	27.1%	27.1%	
Maximum Green (s)	25.0	50.5		25.0	50.5		26.5	26.5	25.0	26.5	26.5	
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	C-Max		None	None	None	None	None	
Walk Time (s)	5.0	5.0		5.0	5.0		5.0	5.0	5.0	5.0	5.0	
Flash Dont Walk (s)	20.0	20.0		20.0	20.0		20.0	20.0	20.0	20.0	20.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0	0	0	0	
Act Effct Green (s)	11.0	61.5		14.0	64.5			26.5	43.5	26.5	26.5	
Actuated g/C Ratio	0.09	0.51		0.12	0.54			0.22	0.36	0.22	0.22	
v/c Ratio	0.52	0.95		0.62	0.59			0.15	0.23	0.98	0.31	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Control Delay	67.1	28.4		63.5	20.8			39.3	18.0	94.7	19.9	
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0	0.0	0.0	
Total Delay	67.1	28.4		63.5	20.8			39.3	18.0	94.7	19.9	
LOS	E	C		E	C			D	B	F	B	
Approach Delay		29.7			25.2			23.3			71.5	
Approach LOS		C			C			C			E	
Queue Length 50th (ft)	59	679		94	284			29	48	232	36	
Queue Length 95th (ft)	m61	m#789		151	382			45	56	#238	54	
Internal Link Dist (ft)		253			267			229			171	
Turn Bay Length (ft)	50			100					200	100		
Base Capacity (vph)	351	2480		358	1832			306	781	304	437	
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	0.23	0.95		0.35	0.59			0.15	0.18	0.98	0.31	

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 120
Offset: 0 (0%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow
Natural Cycle: 145
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.98
Intersection Signal Delay: 32.4 Intersection LOS: C
Intersection Capacity Utilization 80.2% 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.
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 10: Franklin St/Franklin St Ext & Folsom Road

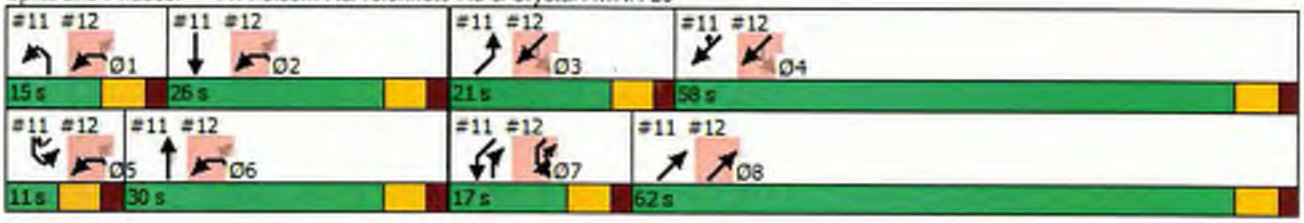
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	40	240	40	50	200	0	230	1380	340	45	820	235
Future Volume (vph)	40	240	40	50	200	0	230	1380	340	45	820	235
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	360		300	250		100	0		100
Storage Lanes	1		0	2		0	2		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	0.97	0.95	1.00	1.00	0.95	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	3400	3505	1568	1752	3505	1568
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1736	3471	1553	3335	3438	0	3400	3505	1568	1752	3505	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			82						191			130
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		622			1162			532			412	
Travel Time (s)		14.1			26.4			12.1			9.4	
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)	48	286	48	63	253	0	267	1605	395	45	828	237
Shared Lane Traffic (%)												
Lane Group Flow (vph)	48	286	48	63	253	0	267	1605	395	45	828	237
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	
Detector Phase	1	6	7	5	2		3	8		7	4	4 5
Switch Phase												
Minimum Initial (s)	6.0	8.0	5.0	7.0	8.0		7.0	8.0		5.0	8.0	
Minimum Split (s)	12.0	40.0	11.0	13.0	31.0		13.0	40.0		11.0	21.0	
Total Split (s)	15.0	30.0	17.0	11.0	26.0		21.0	62.0		17.0	58.0	
Total Split (%)	12.5%	25.0%	14.2%	9.2%	21.7%		17.5%	51.7%		14.2%	48.3%	
Maximum Green (s)	9.0	24.0	11.0	5.0	20.0		15.0	56.0		11.0	52.0	
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	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	None	Max	None	None	Max		None	Max		None	None	
Act Effct Green (s)	9.0	24.0	38.6	5.0	20.0		15.0	57.5	119.1	8.6	51.1	62.1
Actuated g/C Ratio	0.08	0.20	0.32	0.04	0.17		0.13	0.48	1.00	0.07	0.43	0.52
v/c Ratio	0.37	0.41	0.09	0.45	0.44		0.62	0.95	0.25	0.36	0.55	0.27
Control Delay	61.2	43.7	1.9	66.8	47.5		56.7	42.8	0.4	79.9	19.7	3.7
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0	0.0	0.5	0.0
Total Delay	61.2	43.7	1.9	66.8	47.5		56.7	42.8	0.4	79.9	20.2	3.7
LOS	E	D	A	E	D		E	D	A	E	C	A
Approach Delay		40.6			51.3			37.0			19.1	

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Approach LOS		D			D			D			B	
Queue Length 50th (ft)	36	102	0	25	93		102	601	0	37	270	23
Queue Length 95th (ft)	71	135	5	43	118		140	#740	0	m65	310	45
Internal Link Dist (ft)		542			1082			452			332	
Turn Bay Length (ft)	150		150	360			250		100			100
Base Capacity (vph)	131	699	588	139	577		428	1691	1568	161	1530	875
Starvation Cap Reductn	0	0	0	0	0		0	0	0	0	319	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	0.37	0.41	0.08	0.45	0.44		0.62	0.95	0.25	0.28	0.68	0.27

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 119.1
Natural Cycle: 125
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 33.6 Intersection LOS: C
Intersection Capacity Utilization 74.8% ICU Level of Service D
Analysis Period (min) 15
95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.
m Volume for 95th percentile queue is metered by upstream signal.

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



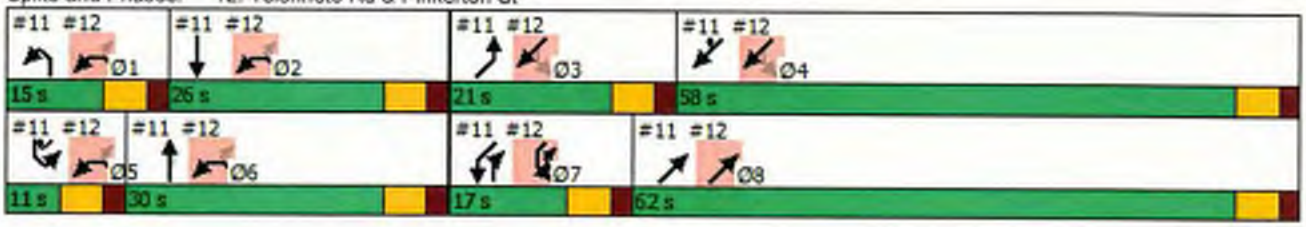
Lane Group	NWL	NWR	NET	NER	SWL	SWT	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6
Lane Configurations												
Traffic Volume (vph)	205	90	920	550	80	1010						
Future Volume (vph)	205	90	920	550	80	1010						
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900						
Storage Length (ft)	150	150		100	220							
Storage Lanes	0	1		1	1							
Taper Length (ft)	25				25							
Lane Util. Factor	1.00	1.00	0.95	1.00	1.00	0.95						
Frt		0.850		0.850								
Flt Protected	0.950				0.950							
Satd. Flow (prot)	1770	1583	3505	1568	1770	3539						
Flt Permitted	0.950				0.149							
Satd. Flow (perm)	1770	1583	3505	1568	278	3539						
Right Turn on Red		Yes		Yes								
Satd. Flow (RTOR)		50		171								
Link Speed (mph)	30		30			30						
Link Distance (ft)	408		412			410						
Travel Time (s)	9.3		9.4			9.3						
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)	247	108	1070	640	99	1247						
Shared Lane Traffic (%)												
Lane Group Flow (vph)	247	108	1070	640	99	1247						
Turn Type	Prot	pm+ov	NA	Free	pm+pt	NA						
Protected Phases	1 2 5 6	7	8		7	3 4	1	2	3	4	5	6
Permitted Phases		1 2 5 6		Free	3 4							
Detector Phase	1 2 5 6	7	8		7	3 4						
Switch Phase												
Minimum Initial (s)		5.0	8.0		5.0		6.0	8.0	7.0	8.0	7.0	8.0
Minimum Split (s)		11.0	40.0		11.0		12.0	31.0	13.0	21.0	13.0	40.0
Total Split (s)		17.0	62.0		17.0		15.0	26.0	21.0	58.0	11.0	30.0
Total Split (%)		14.2%	51.7%		14.2%		13%	22%	18%	48%	9%	25%
Maximum Green (s)		11.0	56.0		11.0		9.0	20.0	15.0	52.0	5.0	24.0
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							
Total Lost Time (s)		6.0	6.0		6.0							
Lead/Lag		Lead	Lag		Lead		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		None	Max		None		None	Max	None	None	None	Max
Act Effct Green (s)	33.0	47.6	57.5	119.1	72.1	72.1						
Actuated g/C Ratio	0.28	0.40	0.48	1.00	0.61	0.61						
v/c Ratio	0.50	0.16	0.63	0.41	0.36	0.58						
Control Delay	39.7	12.6	10.2	0.7	13.5	15.7						
Queue Delay	0.0	0.0	0.9	0.0	0.0	0.0						
Total Delay	39.7	12.6	11.1	0.7	13.5	15.7						
LOS	D	B	B	A	B	B						
Approach Delay	31.4		7.2			15.5						

Lane Group	NWL	NWR	NET	NER	SWL	SWT	Ø1	Ø2	Ø3	Ø4	Ø5	Ø6
Approach LOS	C		A			B						
Queue Length 50th (ft)	158	27	70	0	30	288						
Queue Length 95th (ft)	217	55	m104	m0	48	296						
Internal Link Dist (ft)	328		332			330						
Turn Bay Length (ft)	150	150		100	220							
Base Capacity (vph)	490	693	1691	1568	305	2169						
Starvation Cap Reductn	0	0	332	0	0	0						
Spillback Cap Reductn	0	0	0	0	0	41						
Storage Cap Reductn	0	0	0	0	0	0						
Reduced v/c Ratio	0.50	0.16	0.79	0.41	0.32	0.59						

Intersection Summary

Area Type: Other
Cycle Length: 120
Actuated Cycle Length: 119.1
Natural Cycle: 125
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.95
Intersection Signal Delay: 13.0 — Intersection LOS: B
Intersection Capacity Utilization 56.2% — ICU Level of Service B
Analysis Period (min) 15
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 12: Tsienneto Rd & Pinkerton St



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	170	300	5	20	550	40	15	10	15	20	10	170
Future Volume (vph)	170	300	5	20	550	40	15	10	15	20	10	170
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	75		0	150		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		0.998			0.990				0.850			0.850
Flt Protected	0.950			0.950				0.971			0.968	
Satd. Flow (prot)	1687	3367	0	1770	3504	0	0	1845	1615	0	1821	1599
Flt Permitted	0.950			0.950				0.797			0.769	
Satd. Flow (perm)	1687	3367	0	1770	3504	0	0	1514	1615	0	1447	1599
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			10				109			189
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		277			1162			218			433	
Travel Time (s)		6.3			26.4			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)	205	361	6	22	598	43	30	20	30	22	11	189
Shared Lane Traffic (%)												
Lane Group Flow (vph)	205	367	0	22	641	0	0	50	30	0	33	189
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	Max		None	None		None	None	None	None	None	None
Act Effct Green (s)	8.1	40.5		5.1	30.2			7.6	7.6		7.6	7.6
Actuated g/C Ratio	0.13	0.63		0.08	0.47			0.12	0.12		0.12	0.12
v/c Ratio	0.97	0.17		0.16	0.39			0.28	0.10		0.19	0.53
Control Delay	88.4	6.3		33.6	11.6			31.4	0.7		29.8	11.1
Queue Delay	0.0	0.0		0.0	0.0			0.0	0.0		0.0	0.0
Total Delay	88.4	6.3		33.6	11.6			31.4	0.7		29.8	11.1
LOS	F	A		C	B			C	A		C	B
Approach Delay		35.8			12.3			19.9			13.9	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NEL	NET	NER	SWL	SWT	SWR
Approach LOS		D			B			B			B	
Queue Length 50th (ft)	73	20		7	76			17	0		11	0
Queue Length 95th (ft)	#209	57		31	123			27	0		38	53
Internal Link Dist (ft)		197			1082			138			353	
Turn Bay Length (ft)	75			150								
Base Capacity (vph)	212	2125		139	2050			644	750		616	789
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	0.97	0.17		0.16	0.31			0.08	0.04		0.05	0.24

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 64.1
Natural Cycle: 90
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.97
Intersection Signal Delay: 21.7 Intersection LOS: C
Intersection Capacity Utilization 49.2% 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.

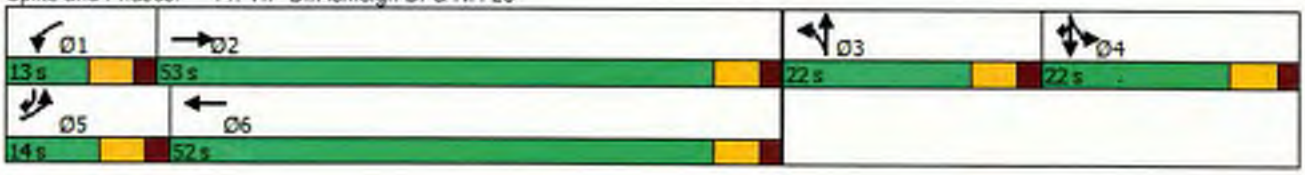
Splits and Phases: 13: Applebees/Linlew Dr & NH 28

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	330	5	5	430	140	30	10	10	320	5	150
Future Volume (vph)	30	330	5	5	430	140	30	10	10	320	5	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	0		0
Storage Lanes	2		0	1		0	1		0	1		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	0.95	0.95	1.00
Frt		0.998			0.963			0.925				0.850
Flt Protected	0.950			0.950			0.950			0.950	0.954	
Satd. Flow (prot)	3303	3399	0	1736	3343	0	1805	1758	0	1665	1672	1568
Flt Permitted	0.950			0.950			0.950			0.950	0.954	
Satd. Flow (perm)	3303	3399	0	1736	3343	0	1805	1758	0	1665	1672	1568
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			49			15				167
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		412			486			151			343	
Travel Time (s)		9.4			11.0			3.4			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)	36	398	6	5	443	144	45	15	15	356	6	167
Shared Lane Traffic (%)										49%		
Lane Group Flow (vph)	36	404	0	5	587	0	45	30	0	182	180	167
Turn Type	Prot	NA		Prot	NA		Split	NA		Split	NA	pt+ov
Protected Phases	5	2		1	6		3	3		4	4	4 5
Permitted Phases								3				
Detector Phase	5	2		1	6		3	3		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	50.0		22.0	22.0		22.0	22.0	
Total Split (s)	14.0	53.0		13.0	52.0		22.0	22.0		22.0	22.0	
Total Split (%)	12.7%	48.2%		11.8%	47.3%		20.0%	20.0%		20.0%	20.0%	
Maximum Green (s)	8.0	47.0		7.0	46.0		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	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	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	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)	6.5	28.3		6.1	17.4		7.5	7.5		13.2	13.2	26.1
Actuated g/C Ratio	0.10	0.43		0.09	0.26		0.11	0.11		0.20	0.20	0.39
v/c Ratio	0.11	0.28		0.03	0.64		0.22	0.14		0.55	0.54	0.23
Control Delay	33.0	15.6		33.8	24.4		33.9	22.9		33.8	33.5	4.2
Queue Delay	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	33.0	15.6		33.8	24.4		33.9	22.9		33.8	33.5	4.2
LOS	C	B		C	C		C	C		C	C	A
Approach Delay		17.0			24.4			29.5			24.3	
Approach LOS		B			C			C			C	
Queue Length 50th (ft)	7	56		2	108		18	6		73	72	0
Queue Length 95th (ft)	21	111		13	172		38	21		156	154	38
Internal Link Dist (ft)		332			406			71			263	
Turn Bay Length (ft)	150			150								
Base Capacity (vph)	421	2460		193	2396		460	459		424	426	733
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	0.09	0.16		0.03	0.24		0.10	0.07		0.43	0.42	0.23

Intersection Summary			
Area Type:	Other		
Cycle Length: 110			
Actuated Cycle Length: 66.3			
Natural Cycle: 110			
Control Type: Actuated-Uncoordinated			
Maximum v/c Ratio: 0.64			
Intersection Signal Delay: 22.6		Intersection LOS: C	
Intersection Capacity Utilization 44.8%		ICU Level of Service A	
Analysis Period (min) 15			

Splits and Phases: 14: VIP Dr/Ashleigh Dr & NH 28



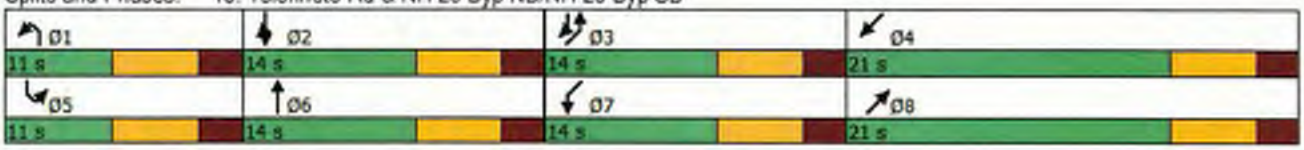
Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Lane Configurations												
Traffic Volume (vph)	30	70	30	40	40	140	190	1010	60	20	340	70
Future Volume (vph)	30	70	30	40	40	140	190	1010	60	20	340	70
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	150		150	150		150	150		0	150		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	0.95	0.95	1.00	0.95	0.95
Frt		0.955				0.850		0.992			0.974	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1770	1779	0	1787	1881	1599	1805	3581	0	1805	3516	0
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	1770	1779	0	1787	1881	1599	1805	3581	0	1805	3516	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		29				164		9			38	
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	42	42	147	213	1135	67	22	366	75
Shared Lane Traffic (%)												
Lane Group Flow (vph)	30	101	0	42	42	147	213	1202	0	22	441	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		8.0	8.0	
Minimum Split (s)	11.0	14.0		11.0	14.0		14.0	14.0		14.0	14.0	
Total Split (s)	11.0	14.0		11.0	14.0		14.0	21.0		14.0	21.0	
Total Split (%)	18.3%	23.3%		18.3%	23.3%		23.3%	35.0%		23.3%	35.0%	
Maximum Green (s)	5.0	8.0		5.0	8.0		8.0	15.0		8.0	15.0	
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	
Act Effct Green (s)	5.1	8.2		5.1	8.2	22.6	8.2	23.2		8.2	11.2	
Actuated g/C Ratio	0.10	0.16		0.10	0.16	0.45	0.16	0.47		0.16	0.23	
v/c Ratio	0.16	0.32		0.23	0.14	0.18	0.72	0.72		0.07	0.54	
Control Delay	26.3	19.6		27.2	22.4	2.9	40.7	18.8		22.2	18.7	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	26.3	19.6		27.2	22.4	2.9	40.7	18.8		22.2	18.7	
LOS	C	B		C	C	A	D	B		C	B	
Approach Delay		21.1			10.9			22.1			18.9	

Lane Group	NBL	NBT	NBR	SBL	SBT	SBR	NEL	NET	NER	SWL	SWT	SWR
Approach LOS		C			B			C			B	
Queue Length 50th (ft)	7	16		10	9	0	51	92		5	46	
Queue Length 95th (ft)	32	63		41	38	26	#183	#421		25	103	
Internal Link Dist (ft)		401			267			399			291	
Turn Bay Length (ft)	150			150		150	150			150		
Base Capacity (vph)	182	317		184	310	815	297	1676		297	1114	
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	0.32		0.23	0.14	0.18	0.72	0.72		0.07	0.40	

Intersection Summary

Area Type: Other
Cycle Length: 60
Actuated Cycle Length: 49.7
Natural Cycle: 70
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.72
Intersection Signal Delay: 20.2 Intersection LOS: C
Intersection Capacity Utilization 60.4% 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: 18: Tsienneto Rd & NH 28 Byp NB/NH 28 Byp SB



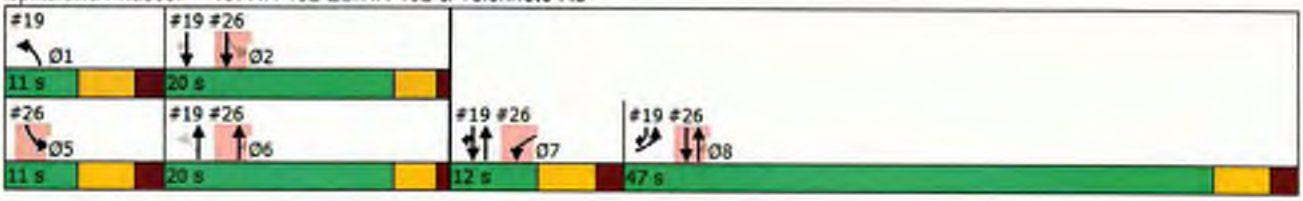
Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2	Ø5	Ø6	Ø7
Lane Configurations										
Traffic Volume (vph)	620	0	10	290	180	350				
Future Volume (vph)	620	0	10	290	180	350				
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900				
Storage Length (ft)	200	0	100			90				
Storage Lanes	0	0	1			1				
Taper Length (ft)	25		25							
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00				
Frt						0.850				
Flt Protected	0.950		0.950							
Satd. Flow (prot)	1787	0	1770	1863	1845	1568				
Flt Permitted	0.950		0.530							
Satd. Flow (perm)	1787	0	987	1863	1845	1568				
Right Turn on Red		Yes				Yes				
Satd. Flow (RTOR)						393				
Link Speed (mph)	30			30	30					
Link Distance (ft)	392			704	263					
Travel Time (s)	8.9			16.0	6.0					
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)	689	0	11	333	202	393				
Shared Lane Traffic (%)										
Lane Group Flow (vph)	689	0	11	333	202	393				
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)	47.0		11.0				20.0	11.0	20.0	12.0
Total Split (%)	52.2%		12.2%				22%	12%	22%	13%
Maximum Green (s)	41.0		5.0				16.0	5.0	16.0	6.0
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)	40.3		26.6	27.7	27.7	77.0				
Actuated g/C Ratio	0.50		0.33	0.35	0.35	0.96				
v/c Ratio	0.77		0.03	0.52	0.32	0.26				
Control Delay	24.2		17.1	25.2	24.3	0.4				
Queue Delay	0.1		0.0	0.0	1.4	0.0				
Total Delay	24.3		17.1	25.2	25.6	0.5				
LOS	C		B	C	C	A				
Approach Delay	24.3			25.0	9.0					

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR	Ø2	Ø5	Ø6	Ø7
Approach LOS	C			C	A					
Queue Length 50th (ft)	250		4	127	76	0				
Queue Length 95th (ft)	#549		13	234	129	1				
Internal Link Dist (ft)	312			624	183					
Turn Bay Length (ft)	200		100			90				
Base Capacity (vph)	919		377	634	628	1517				
Starvation Cap Reductn	0		0	0	259	164				
Spillback Cap Reductn	12		0	0	0	0				
Storage Cap Reductn	0		0	0	0	0				
Reduced v/c Ratio	0.76		0.03	0.53	0.55	0.29				

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 80
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 18.9 Intersection LOS: B
Intersection Capacity Utilization 57.9% 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: 19: NH 102 EB/NH 102 & Tsienneto Rd



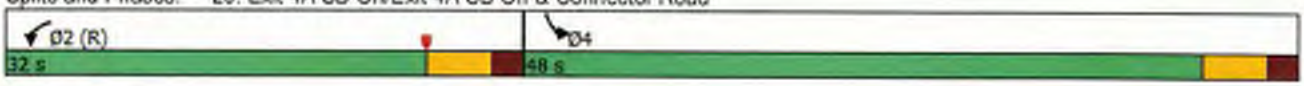
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	875	0	0	0	1545	0
Future Volume (vph)	875	0	0	0	1545	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Util. Factor	0.97	1.00	1.00	1.00	0.97	1.00
Frt						
Flt Protected	0.950				0.950	
Satd. Flow (prot)	3433	0	0	0	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)	931	0	0	0	1644	0
Shared Lane Traffic (%)						
Lane Group Flow (vph)	931	0	0	0	1644	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)	32.0				48.0	
Total Split (%)	40.0%				60.0%	
Maximum Green (s)	26.0				42.0	
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)	26.0				42.0	
Actuated g/C Ratio	0.32				0.52	
v/c Ratio	0.83				0.91	
Control Delay	36.8				26.9	
Queue Delay	4.4				0.0	
Total Delay	41.2				26.9	
LOS	D				C	
Approach Delay	41.2					26.9
Approach LOS	D					C
Queue Length 50th (ft)	267				361	
Queue Length 95th (ft)	#334				#534	
Internal Link Dist (ft)	292		449			477

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT
Turn Bay Length (ft)						
Base Capacity (vph)	1115				1802	
Starvation Cap Reductn	124				0	
Spillback Cap Reductn	0				0	
Storage Cap Reductn	0				0	
Reduced v/c Ratio	0.94				0.91	

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: 70
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.91
Intersection Signal Delay: 32.1 — Intersection LOS: C
Intersection Capacity Utilization 131.8% — 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



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	875	0	0	0	1545	0
Future Volume (vph)	875	0	0	0	1545	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)	931	0	0	0	1644	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	931	0	0	0	1644	0
Turn Type	Prot				Prot	
Protected Phases	2				4	
Permitted Phases						
Actuated Green, G (s)	26.0				42.0	
Effective Green, g (s)	26.0				42.0	
Actuated g/C Ratio	0.32				0.52	
Clearance Time (s)	6.0				6.0	
Vehicle Extension (s)	3.0				3.0	
Lane Grp Cap (vph)	1115				1802	
v/s Ratio Prot	c0.27				c0.48	
v/s Ratio Perm						
v/c Ratio	0.83				0.91	
Uniform Delay, d1	25.0				17.3	
Progression Factor	1.18				1.00	
Incremental Delay, d2	6.6				7.5	
Delay (s)	36.1				24.8	
Level of Service	D				C	
Approach Delay (s)	36.1		0.0			24.8
Approach LOS	D		A			C

Intersection Summary			
HCM 2000 Control Delay	28.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	131.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (veh/h)	875	0	0	0	1545	0
Future Volume (veh/h)	875	0	0	0	1545	0
Number	5	12			7	4
Initial Q (Qb), veh	0	0			0	0
Ped-Bike Adj(A_pbT)	1.00	1.00			1.00	
Parking Bus, Adj	1.00	1.00			1.00	1.00
Adj Sat Flow, veh/h/ln	1863	0			1863	0
Adj Flow Rate, veh/h	931	0			1644	0
Adj No. of Lanes	2	0			2	0
Peak Hour Factor	0.94	0.94			0.94	0.94
Percent Heavy Veh, %	2	0			2	0
Cap, veh/h	0	0			0	0
Arrive On Green	0.00	0.00			0.00	0.00
Sat Flow, veh/h	0					0
Grp Volume(v), veh/h	0.0					0.0
Grp Sat Flow(s),veh/h/ln						
Q Serve(g_s), s						
Cycle Q Clear(g_c), s						
Prop In Lane						
Lane Grp Cap(c), veh/h						
V/C Ratio(X)						
Avail Cap(c_a), veh/h						
HCM Platoon Ratio						
Upstream Filter(I)						
Uniform Delay (d), s/veh						
Incr Delay (d2), s/veh						
Initial Q Delay(d3),s/veh						
%ile BackOfQ(50%),veh/ln						
LnGrp Delay(d),s/veh						
LnGrp LOS						
Approach Vol, veh/h						
Approach Delay, s/veh						
Approach LOS						

Timer	1	2	3	4	5	6	7	8
Assigned Phs								
Phs Duration (G+Y+Rc), s								
Change Period (Y+Rc), s								
Max Green Setting (Gmax), s								
Max Q Clear Time (g_c+I1), s								
Green Ext Time (p_c), s								

Intersection Summary	
HCM 2010 Ctrl Delay	0.0
HCM 2010 LOS	A

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NWL	NWR
Lane Configurations		↑↑			↑↑	↱↱			↰	↱
Traffic Volume (vph)	0	1545	0	0	875	1240	0	0	0	710
Future Volume (vph)	0	1545	0	0	875	1240	0	0	0	710
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		200	0	0	0	0
Storage Lanes	0		0	0		2	0	0	1	1
Taper Length (ft)	25			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)	0	3539	0	0	3539	2787	0	0	1583	1504
Flt Permitted										
Satd. Flow (perm)	0	3539	0	0	3539	2787	0	0	1583	1504
Right Turn on Red			Yes			Yes		Yes		
Satd. Flow (RTOR)						74				
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	1644	0	0	931	1319	0	0	0	755
Shared Lane Traffic (%)										50%
Lane Group Flow (vph)	0	1644	0	0	931	1319	0	0	378	377
Turn Type		NA			NA	Perm			Prot	Prot
Protected Phases		2			2				4	4
Permitted Phases						2				
Detector Phase		2			2	2			4	4
Switch Phase										
Minimum Initial (s)		5.0			5.0	5.0			9.0	9.0
Minimum Split (s)		24.0			24.0	24.0			24.0	24.0
Total Split (s)		49.0			49.0	49.0			31.0	31.0
Total Split (%)		61.3%			61.3%	61.3%			38.8%	38.8%
Maximum Green (s)		43.0			43.0	43.0			25.0	25.0
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 Optimize?										
Vehicle Extension (s)		3.0			3.0	3.0			3.0	3.0
Recall Mode		C-Max			C-Max	C-Max			Max	Max
Act Effct Green (s)		43.0			43.0	43.0			25.0	25.0
Actuated g/C Ratio		0.54			0.54	0.54			0.31	0.31
v/c Ratio		0.86			0.49	0.86			0.77	0.80
Control Delay		4.1			12.7	22.5			37.0	40.4
Queue Delay		0.2			0.1	0.0			0.0	0.0
Total Delay		4.4			12.8	22.5			37.0	40.4
LOS		A			B	C			D	D
Approach Delay		4.4			18.5				38.7	
Approach LOS		A			B				D	

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	SBL	SBR	NWL	NWR
Queue Length 50th (ft)		8			143	286			169	180
Queue Length 95th (ft)		m18			191	#413			#303	#330
Internal Link Dist (ft)		292			314		518		439	
Turn Bay Length (ft)						200				
Base Capacity (vph)		1902			1902	1532			494	470
Starvation Cap Reductn		28			0	0			0	0
Spillback Cap Reductn		0			200	0			0	0
Storage Cap Reductn		0			0	0			0	0
Reduced v/c Ratio		0.88			0.55	0.86			0.77	0.80

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: 60
Control Type: Actuated-Coordinated
Maximum v/c Ratio: 0.86
Intersection Signal Delay: 16.8 Intersection LOS: B
Intersection Capacity Utilization 117.6% 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

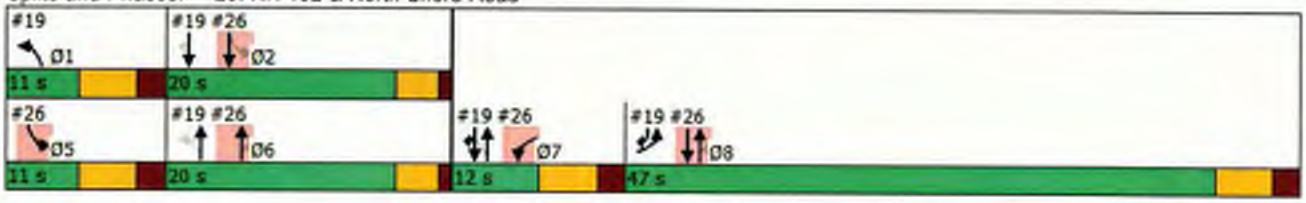
Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø1	Ø2	Ø6	Ø8
Lane Configurations										
Traffic Volume (vph)	60	10	750	160	10	470				
Future Volume (vph)	60	10	750	160	10	470				
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900				
Storage Length (ft)	0	0		90	100					
Storage Lanes	1	0		1	1					
Taper Length (ft)	25				25					
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00				
Frt	0.976			0.850						
Flt Protected	0.961				0.950					
Satd. Flow (prot)	1768	0	1900	1615	1805	1900				
Flt Permitted	0.961				0.255					
Satd. Flow (perm)	1768	0	1900	1615	484	1900				
Right Turn on Red		Yes		Yes						
Satd. Flow (RTOR)	9			129						
Link Speed (mph)	30		30			30				
Link Distance (ft)	524		263			288				
Travel Time (s)	11.9		6.0			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)	69	15	789	190	14	490				
Shared Lane Traffic (%)										
Lane Group Flow (vph)	84	0	789	190	14	490				
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)	12.0				11.0		11.0	20.0	20.0	47.0
Total Split (%)	13.3%				12.2%		12%	22%	22%	52%
Maximum Green (s)	6.0				5.0		5.0	16.0	16.0	41.0
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)	6.0		61.3	61.3	14.5	61.3				
Actuated g/C Ratio	0.08		0.77	0.77	0.18	0.77				
v/c Ratio	0.60		0.54	0.15	0.08	0.34				
Control Delay	53.1		2.8	0.8	26.6	3.3				
Queue Delay	0.0		0.7	0.3	0.0	0.0				
Total Delay	53.1		3.5	1.1	26.6	3.3				
LOS	D		A	A	C	A				
Approach Delay	53.1		3.1			4.0				

Lane Group	WBL	WBR	NBT	NBR	SBL	SBT	Ø1	Ø2	Ø6	Ø8
Approach LOS	D		A			A				
Queue Length 50th (ft)	36		31	0	6	46				
Queue Length 95th (ft)	#107		113	m9	16	69				
Internal Link Dist (ft)	444		183			208				
Turn Bay Length (ft)				90	100					
Base Capacity (vph)	141		1465	1275	170	1465				
Starvation Cap Reductn	0		349	659	0	0				
Spillback Cap Reductn	0		0	0	0	0				
Storage Cap Reductn	0		0	0	0	0				
Reduced v/c Ratio	0.60		0.71	0.31	0.08	0.33				

Intersection Summary

Area Type: Other
Cycle Length: 90
Actuated Cycle Length: 80
Natural Cycle: 80
Control Type: Actuated-Uncoordinated
Maximum v/c Ratio: 0.77
Intersection Signal Delay: 6.0 — Intersection LOS: A
Intersection Capacity Utilization 52.0% — 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 P-1: 2040 ALTERNATIVE B INTERSECTION CAPACITY ANALYSES – HCS PRINOUTS – AM PEAK HOUR

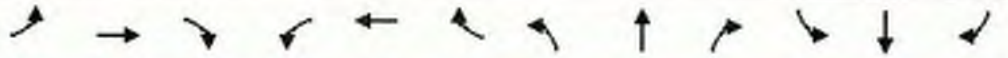
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations		↑↑	↑↑		↰	↱↱
Traffic Volume (vph)	0	1280	720	0	385	925
Future Volume (vph)	0	1280	720	0	385	925
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width	12	12	12	12	16	12
Total Lost time (s)		6.0	6.0		6.0	6.0
Lane Util. Factor		0.95	0.95		1.00	0.88
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	1376	818	0	433	1039
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	1376	818	0	433	1039
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		c0.40	0.24		0.22	c0.39
v/s Ratio Perm						
v/c Ratio		0.93	0.56		0.54	0.94
Uniform Delay, d1		20.4	16.2		16.6	21.1
Progression Factor		1.01	1.36		1.00	1.00
Incremental Delay, d2		5.3	0.4		0.8	14.4
Delay (s)		25.8	22.5		17.4	35.4
Level of Service		C	C		B	D
Approach Delay (s)		25.8	22.5		30.1	
Approach LOS		C	C		C	

Intersection Summary			
HCM 2000 Control Delay	26.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.93		
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)	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
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)	551	0	278	0	0	1505	266	0	0	891	543
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	551	0	278	0	0	1505	266	0	0	891	543
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)	25.0		25.0			67.0	113.0			40.0	150.0
Effective Green, g (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
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)	540		438			1489	2589			934	1568
v/s Ratio Prot	c0.17		0.11			c0.45	0.08			c0.25	
v/s Ratio Perm											0.35
v/c Ratio	1.02		0.63			1.01	0.10			0.95	0.35
Uniform Delay, d1	62.5		58.2			41.5	4.9			54.1	0.0
Progression Factor	1.00		1.00			0.75	1.80			1.00	1.00
Incremental Delay, d2	44.0		3.0			19.5	0.0			20.2	0.6
Delay (s)	106.5		61.2			50.8	8.9			74.3	0.6
Level of Service	F		E			D	A			E	A
Approach Delay (s)		91.3		0.0			44.5			46.4	
Approach LOS		F		A			D			D	

Intersection Summary			
HCM 2000 Control Delay	54.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	92.9%	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	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
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	750	457	356	1000	0	0	0	0	142	0	520
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	75
Lane Group Flow (vph)	0	750	457	356	1000	0	0	0	0	142	0	445
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)		40.3	130.0	30.7	77.0					41.0		41.0
Effective Green, g (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
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)		981	1417	398	1998					1041		480
v/s Ratio Prot		c0.24		c0.21	0.30					0.04		c0.29
v/s Ratio Perm			0.32									
v/c Ratio		0.76	0.32	0.89	0.50					0.14		0.93
Uniform Delay, d1		40.6	0.0	48.1	15.4					31.8		43.0
Progression Factor		1.00	1.00	0.38	0.15					1.00		1.00
Incremental Delay, d2		5.7	0.6	18.4	0.5					0.1		23.9
Delay (s)		46.2	0.6	36.9	2.7					31.9		67.0
Level of Service		D	A	D	A					C		E
Approach Delay (s)		28.9			11.7			0.0			59.4	
Approach LOS		C			B			A			E	

Intersection Summary			
HCM 2000 Control Delay	28.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	76.3%	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)	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
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)	603	310	0	0	606	633	571	0	212	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	113	0	0	0
Lane Group Flow (vph)	603	310	0	0	606	633	571	0	99	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)	46.0	75.0			23.0	130.0	43.0		43.0			
Effective Green, g (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			
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)	580	1893			608	1538	547		490			
v/s Ratio Prot	c0.37	0.09			c0.18		c0.34		0.07			
v/s Ratio Perm						0.41						
v/c Ratio	1.04	0.16			1.00	0.41	1.04		0.20			
Uniform Delay, d1	42.0	12.8			53.5	0.0	43.5		31.2			
Progression Factor	0.26	0.20			1.00	1.00	1.00		1.00			
Incremental Delay, d2	41.6	0.2			35.7	0.8	50.4		0.2			
Delay (s)	52.6	2.7			89.2	0.8	93.9		31.4			
Level of Service	D	A			F	A	F		C			
Approach Delay (s)		35.7			44.0			77.0			0.0	
Approach LOS		D			D			E			A	

Intersection Summary			
HCM 2000 Control Delay	50.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.03		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	76.3%	ICU Level of Service	D
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	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
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		1.00		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		1900		1770	3539		1770	3529	
Flt Permitted		1.00	1.00		1.00		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1863	1583		1900		1770	3539		1770	3529	
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	163	0	4	0	65	446	0	5	1120	22
RTOR Reduction (vph)	0	0	59	0	0	0	0	0	0	0	1	0
Lane Group Flow (vph)	0	11	104	0	4	0	65	446	0	5	1141	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)		1.3	45.3		1.3		6.3	50.8		0.8	45.3	
Effective Green, g (s)		1.3	45.3		1.3		6.3	50.8		0.8	45.3	
Actuated g/C Ratio		0.02	0.64		0.02		0.09	0.72		0.01	0.64	
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)		34	1011		34		157	2535		19	2254	
v/s Ratio Prot					0.00		c0.04	c0.13		0.00	c0.32	
v/s Ratio Perm		c0.01	0.07									
v/c Ratio		0.32	0.10		0.12		0.41	0.18		0.26	0.51	
Uniform Delay, d1		34.4	4.9		34.2		30.6	3.3		34.8	6.8	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		5.5	0.0		1.5		1.8	0.0		7.3	0.2	
Delay (s)		39.8	5.0		35.8		32.3	3.3		42.0	7.0	
Level of Service		D	A		D		C	A		D	A	
Approach Delay (s)		7.2			35.8			7.0			7.2	
Approach LOS		A			D			A			A	

Intersection Summary			
HCM 2000 Control Delay	7.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	70.9	Sum of lost time (s)	18.0
Intersection Capacity Utilization	61.4%	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	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
Total Lost time (s)		6.0			6.0			6.0			6.0	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		1.00			0.99			0.97			1.00	
Flt Protected		0.99			0.96			1.00			1.00	
Satd. Flow (prot)		1847			1741			1703			1807	
Flt Permitted		0.91			0.68			1.00			0.98	
Satd. Flow (perm)		1694			1233			1703			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	83	0	365	0	42	0	404	124	17	634	0
RTOR Reduction (vph)	0	0	0	0	23	0	0	13	0	0	0	0
Lane Group Flow (vph)	0	100	0	0	384	0	0	515	0	0	651	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)		28.5			28.5			36.1			36.1	
Effective Green, g (s)		28.5			28.5			36.1			36.1	
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)		630			458			802			836	
v/s Ratio Prot								0.30				
v/s Ratio Perm		0.06			c0.31						c0.37	
v/c Ratio		0.16			0.84			0.64			0.78	
Uniform Delay, d1		16.0			22.0			15.4			16.9	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.1			12.7			1.8			4.6	
Delay (s)		16.2			34.7			17.1			21.5	
Level of Service		B			C			B			C	
Approach Delay (s)		16.2			34.7			17.1			21.5	
Approach LOS		B			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	23.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	76.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	80.6%	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)	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
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	0.95		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	1687		1703	1696		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	1687		1703	1696		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)	73	229	62	21	362	202	176	235	24	66	286	22
RTOR Reduction (vph)	0	10	0	0	22	0	0	4	0	0	0	18
Lane Group Flow (vph)	73	282	0	21	542	0	176	255	0	66	286	4
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)	3.7	33.6		1.9	31.8		10.3	19.8		7.4	16.9	16.9
Effective Green, g (s)	3.7	33.6		1.9	31.8		10.3	19.8		7.4	16.9	16.9
Actuated g/C Ratio	0.04	0.39		0.02	0.37		0.12	0.23		0.09	0.19	0.19
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)	70	653		37	622		204	407		145	349	297
v/s Ratio Prot	c0.04	0.17		0.01	c0.32		c0.10	c0.14		0.04	c0.16	
v/s Ratio Perm												0.00
v/c Ratio	1.04	0.43		0.57	0.87		0.86	0.63		0.46	0.82	0.01
Uniform Delay, d1	41.5	19.5		42.0	25.5		37.5	30.1		37.7	33.4	28.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	119.9	0.5		18.4	12.7		29.2	3.0		2.3	13.9	0.0
Delay (s)	161.4	20.0		60.4	38.3		66.7	33.1		40.0	47.4	28.2
Level of Service	F	B		E	D		E	C		D	D	C
Approach Delay (s)		48.3			39.0			46.7			44.9	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	44.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	86.7	Sum of lost time (s)	24.0
Intersection Capacity Utilization	75.4%	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)	200	10	5	50	300	310
Future Volume (vph)	200	10	5	50	300	310
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			0.996		
Satd. Flow (prot)	1719	1538	0	1820	1863	1583
Flt Permitted	0.950			0.996		
Satd. Flow (perm)	1719	1538	0	1820	1863	1583
Link Speed (mph)	30			30	30	
Link Distance (ft)	322			309	295	
Travel Time (s)	7.3			7.0	6.7	
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)	225	11	5	55	323	333
Shared Lane Traffic (%)						
Lane Group Flow (vph)	225	11	0	60	323	333
Sign Control	Stop			Stop	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 33.5%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Intersection Delay, s/veh	12.4
Intersection LOS	B

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	200	10	5	50	300	310
Future Vol, veh/h	200	10	5	50	300	310
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	225	11	5	55	323	333
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	14	9.6	12.1
HCM LOS	B	A	B

Lane	NBLn1	EBLn1	EBLn2	SBLn1	SBLn2
Vol Left, %	9%	100%	0%	0%	0%
Vol Thru, %	91%	0%	0%	100%	0%
Vol Right, %	0%	0%	100%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	55	200	10	300	310
LT Vol	5	200	0	0	0
Through Vol	50	0	0	300	0
RT Vol	0	0	10	0	310
Lane Flow Rate	60	225	11	323	333
Geometry Grp	4	7	7	7	7
Degree of Util (X)	0.1	0.422	0.017	0.483	0.434
Departure Headway (Hd)	5.946	6.76	5.548	5.388	4.683
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	605	535	649	665	760
Service Time	3.962	4.463	3.251	3.17	2.465
HCM Lane V/C Ratio	0.099	0.421	0.017	0.486	0.438
HCM Control Delay	9.6	14.3	8.3	13.2	11.1
HCM Lane LOS	A	B	A	B	B
HCM 95th-tile Q	0.3	2.1	0.1	2.6	2.2

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	10	0	0	250	610	10
Future Volume (vph)	10	0	0	250	610	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)	1008	0	0	1827	1789	0
Flt Permitted	0.950					
Satd. Flow (perm)	1008	0	0	1827	1789	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	263	635	10
Shared Lane Traffic (%)						
Lane Group Flow (vph)	23	0	0	263	645	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 42.7%		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	250	610	10
Future Vol, veh/h	10	0	0	250	610	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	44	44	95	95	96	96
Heavy Vehicles, %	79	79	4	4	6	6
Mvmt Flow	23	0	0	263	635	10

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	903	640	645	0	-	0
Stage 1	640	-	-	-	-	-
Stage 2	263	-	-	-	-	-
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	228	362	931	-	-	-
Stage 1	404	-	-	-	-	-
Stage 2	632	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	228	362	931	-	-	-
Mov Cap-2 Maneuver	228	-	-	-	-	-
Stage 1	404	-	-	-	-	-
Stage 2	632	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	22.5	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	931	-	228	-	-
HCM Lane V/C Ratio	-	-	0.1	-	-
HCM Control Delay (s)	0	-	22.5	-	-
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	210	0	0	360	10	5	20	140	120	10	0
Future Volume (vph)	50	210	0	0	360	10	5	20	140	120	10	0
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					0.996			0.886				
Flt Protected		0.991						0.998			0.956	
Satd. Flow (prot)	0	1760	0	0	1802	0	0	1647	0	0	1816	0
Flt Permitted		0.991						0.998			0.956	
Satd. Flow (perm)	0	1760	0	0	1802	0	0	1647	0	0	1816	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	236	0	0	375	10	8	31	215	179	15	0
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	292	0	0	385	0	0	254	0	0	194	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	19.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↕			↕			↕			↕	
Traffic Vol, veh/h	50	210	0	0	360	10	5	20	140	120	10	0
Future Vol, veh/h	50	210	0	0	360	10	5	20	140	120	10	0
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	236	0	0	375	10	8	31	215	179	15	0

Major/Minor	Major1			Major2			Minor2			Minor1		
Conflicting Flow All	385	0	0	236	0	0	736	728	380	744	733	236
Stage 1	-	-	-	-	-	-	380	380	-	348	348	-
Stage 2	-	-	-	-	-	-	356	348	-	396	385	-
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	1147	-	-	1314	-	-	335	350	667	333	350	808
Stage 1	-	-	-	-	-	-	642	614	-	672	638	-
Stage 2	-	-	-	-	-	-	661	634	-	633	614	-
Platoon blocked, %		-	-		-	-						
Mov Cap-1 Maneuver	1147	-	-	1314	-	-	310	330	667	200	330	808
Mov Cap-2 Maneuver	-	-	-	-	-	-	310	330	-	200	330	-
Stage 1	-	-	-	-	-	-	606	614	-	634	602	-
Stage 2	-	-	-	-	-	-	609	598	-	407	614	-

Approach	EB	WB	SE	NW
HCM Control Delay, s	1.6	0	11.8	96.5
HCM LOS			B	F

Minor Lane/Major Mvmt	NWLn1	EBL	EBT	EBR	WBL	WBT	WBR	SELn1
Capacity (veh/h)	206	1147	-	-	1314	-	-	786
HCM Lane V/C Ratio	0.942	0.049	-	-	-	-	-	0.323
HCM Control Delay (s)	96.5	8.3	0	-	0	-	-	11.8
HCM Lane LOS	F	A	A	-	A	-	-	B
HCM 95th %tile Q(veh)	7.8	0.2	-	-	0	-	-	1.4

Movement	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
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	238	143	475	253	0	35	192	23	40	227	601
RTOR Reduction (vph)	0	0	95	0	0	0	0	0	0	0	0	237
Lane Group Flow (vph)	24	238	48	475	253	0	35	192	23	40	227	364
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)	14.2	30.5	30.5	16.3	32.6		3.6	15.0	90.0	4.2	15.6	37.9
Effective Green, g (s)	14.2	30.5	30.5	16.3	32.6		3.6	15.0	90.0	4.2	15.6	37.9
Actuated g/C Ratio	0.16	0.34	0.34	0.18	0.36		0.04	0.17	1.00	0.05	0.17	0.42
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	1176	526	604	1245		70	307	1568	81	319	660
v/s Ratio Prot	0.01	0.07		c0.14	c0.07		0.02	0.10		c0.02	c0.12	0.23
v/s Ratio Perm			0.03						c0.01			
v/c Ratio	0.09	0.20	0.09	0.79	0.20		0.50	0.63	0.01	0.49	0.71	0.55
Uniform Delay, d1	32.4	21.1	20.3	35.2	19.8		42.3	34.9	0.0	41.9	35.1	19.6
Progression Factor	1.00	1.00	1.00	0.85	0.93		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	0.4	0.3	6.4	0.4		5.5	3.9	0.0	4.7	7.3	1.0
Delay (s)	33.0	21.5	20.6	36.4	18.7		47.8	38.8	0.0	46.5	42.4	20.6
Level of Service	C	C	C	D	B		D	D	A	D	D	C
Approach Delay (s)		21.9			30.3			36.5			27.5	
Approach LOS		C			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	28.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	63.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Volume (vph)	170	70	350	310	60	690
Future Volume (vph)	170	70	350	310	60	690
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					0.996
Satd. Flow (prot)	1770	1583	1845	1568	0	3525
Flt Permitted	0.950					0.996
Satd. Flow (perm)	1770	1583	1845	1568	0	3525
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)	205	84	407	360	74	852
Shared Lane Traffic (%)						
Lane Group Flow (vph)	205	84	407	360	0	926
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 58.7%		ICU Level of Service B	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	9.2

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Vol, veh/h	170	70	350	310	60	690
Future Vol, veh/h	170	70	350	310	60	690
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	205	84	407	360	74	852

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	981	407	0	0	407	0
Stage 1	407	-	-	-	-	-
Stage 2	574	-	-	-	-	-
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	261	643	-	-	1150	-
Stage 1	671	-	-	-	-	-
Stage 2	528	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	229	643	-	-	1150	-
Mov Cap-2 Maneuver	229	-	-	-	-	-
Stage 1	589	-	-	-	-	-
Stage 2	528	-	-	-	-	-

Approach	NW	NE	SW
HCM Control Delay, s	60	0	1
HCM LOS	F		

Minor Lane/Major Mvmt	NET	NER	NWLn1	NWLn2	SWL	SWT
Capacity (veh/h)	-	-	229	643	1150	-
HCM Lane V/C Ratio	-	-	0.894	0.131	0.064	-
HCM Control Delay (s)	-	-	80	11.4	8.3	0.4
HCM Lane LOS	-	-	F	B	A	A
HCM 95th %tile Q(veh)	-	-	7.4	0.5	0.2	-

Movement	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
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			3517			1805	1615		1787	1599
Flt Permitted	0.95	1.00			1.00			0.75	1.00		0.75	1.00
Satd. Flow (perm)	1687	3374			3517			1434	1615		1420	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)	12	952	0	0	739	33	10	0	10	11	0	78
RTOR Reduction (vph)	0	0	0	0	2	0	0	0	9	0	0	73
Lane Group Flow (vph)	12	952	0	0	770	0	0	10	1	0	11	5
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)	1.6	72.7			65.1			5.3	5.3		5.3	5.3
Effective Green, g (s)	1.6	72.7			65.1			5.3	5.3		5.3	5.3
Actuated g/C Ratio	0.02	0.81			0.72			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
Vehicle Extension (s)	3.0	3.0			3.0			3.0	3.0		3.0	3.0
Lane Grp Cap (vph)	29	2725			2543			84	95		83	94
v/s Ratio Prot	0.01	c0.28			0.22							
v/s Ratio Perm								0.01	0.00		c0.01	0.00
v/c Ratio	0.41	0.35			0.30			0.12	0.01		0.13	0.05
Uniform Delay, d1	43.7	2.3			4.4			40.1	39.9		40.2	40.0
Progression Factor	1.17	0.94			1.23			1.00	1.00		1.00	1.00
Incremental Delay, d2	8.1	0.3			0.1			0.6	0.0		0.7	0.2
Delay (s)	59.4	2.5			5.5			40.8	39.9		40.9	40.2
Level of Service	E	A			A			D	D		D	D
Approach Delay (s)		3.2			5.5			40.3			40.3	
Approach LOS		A			A			D			D	

Intersection Summary			
HCM 2000 Control Delay	6.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	45.2%	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)	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
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	1.00	1.00	0.97	0.95		1.00	0.95	0.88	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.99		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)	1703	1792	1524	3367	3429		1805	3610	2842	1752	3505	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)	1703	1792	1524	3367	3429		1805	3610	2842	1752	3505	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)	48	169	120	649	237	21	149	746	1090	22	467	156
RTOR Reduction (vph)	0	0	79	0	7	0	0	0	338	0	0	107
Lane Group Flow (vph)	48	169	41	649	251	0	149	746	752	22	467	49
Heavy Vehicles (%)	6%	6%	6%	4%	4%	4%	0%	0%	0%	3%	3%	3%
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
Actuated Green, G (s)	8.8	14.0	25.0	21.6	26.8		11.0	28.0	49.6	2.4	19.4	28.2
Effective Green, g (s)	8.8	14.0	25.0	21.6	26.8		11.0	28.0	49.6	2.4	19.4	28.2
Actuated g/C Ratio	0.10	0.16	0.28	0.24	0.30		0.12	0.31	0.55	0.03	0.22	0.31
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)	166	278	524	808	1021		220	1123	1755	46	755	595
v/s Ratio Prot	0.03	c0.09	0.01	c0.19	0.07		c0.08	c0.21	0.10	0.01	0.13	0.01
v/s Ratio Perm			0.02						0.16			0.02
v/c Ratio	0.29	0.61	0.08	0.80	0.25		0.68	0.66	0.43	0.48	0.62	0.08
Uniform Delay, d1	37.7	35.4	24.0	32.2	23.9		37.8	26.9	11.9	43.2	32.0	21.8
Progression Factor	1.00	1.00	1.00	1.00	0.89		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	9.5	0.1	5.7	0.1		8.0	1.5	0.2	7.6	1.5	0.1
Delay (s)	38.7	45.0	24.1	38.0	21.5		45.8	28.4	12.0	50.8	33.5	21.8
Level of Service	D	D	C	D	C		D	C	B	D	C	C
Approach Delay (s)		36.6			33.3			20.7			31.2	
Approach LOS		D			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	26.8	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	63.3%	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)	20	190	310	10	40	40
Future Volume (vph)	20	190	310	10	40	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	140			0	0	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			0.996		0.932	
Flt Protected	0.950				0.976	
Satd. Flow (prot)	1687	1776	1820	0	1630	0
Flt Permitted	0.950				0.976	
Satd. Flow (perm)	1687	1776	1820	0	1630	0
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)	24	226	348	11	48	48
Shared Lane Traffic (%)						
Lane Group Flow (vph)	24	226	359	0	96	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 28.3%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	20	190	310	10	40	40
Future Vol, veh/h	20	190	310	10	40	40
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	140	-	-	-	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	24	226	348	11	48	48

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	359	0	-	0	628	354
Stage 1	-	-	-	-	354	-
Stage 2	-	-	-	-	274	-
Critical Hdwy	4.17	-	-	-	6.46	6.26
Critical Hdwy Stg 1	-	-	-	-	5.46	-
Critical Hdwy Stg 2	-	-	-	-	5.46	-
Follow-up Hdwy	2.263	-	-	-	3.554	3.354
Pot Cap-1 Maneuver	1172	-	-	-	440	681
Stage 1	-	-	-	-	702	-
Stage 2	-	-	-	-	763	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1172	-	-	-	431	681
Mov Cap-2 Maneuver	-	-	-	-	431	-
Stage 1	-	-	-	-	688	-
Stage 2	-	-	-	-	763	-

Approach	EB	WB	SB
HCM Control Delay, s	0.8	0	13.3
HCM LOS			B

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1172	-	-	-	528
HCM Lane V/C Ratio	0.02	-	-	-	0.183
HCM Control Delay (s)	8.1	-	-	-	13.3
HCM Lane LOS	A	-	-	-	B
HCM 95th %tile Q(veh)	0.1	-	-	-	0.7

Lane Group	WBL2	WBL	WBR	WBR2	NBL	NBT	NBR	NBR2	SBL2	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	170	360	20	20	110	110	10	10	110	140	40
Future Volume (vph)	10	170	360	20	20	110	110	10	10	110	140	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		0.908				0.935					0.982	
Flt Protected		0.984				0.996					0.980	
Satd. Flow (prot)	0	1648	0	0	0	1718	0	0	0	0	1709	0
Flt Permitted		0.984				0.996					0.980	
Satd. Flow (perm)	0	1648	0	0	0	1718	0	0	0	0	1709	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	187	396	22	23	128	128	12	13	138	175	50
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	616	0	0	0	291	0	0	0	0	376	0
Sign Control		Yield				Yield					Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization 100.5%		ICU Level of Service G	
Analysis Period (min) 15			

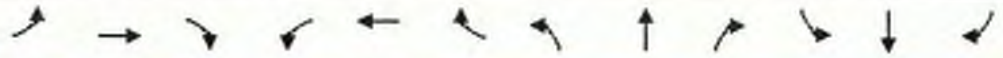
Lane Group	NEL	NET	NER	NER2	SWL2	SWL	SWT	SWR
Lane Configurations		↔					↔	
Traffic Volume (vph)	50	60	110	100	5	30	120	10
Future Volume (vph)	50	60	110	100	5	30	120	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		150			150		0
Storage Lanes	0		0			0		0
Taper Length (ft)	25					25		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.911					0.992	
Flt Protected		0.992					0.990	
Satd. Flow (prot)	0	1590	0	0	0	0	1744	0
Flt Permitted		0.992					0.990	
Satd. Flow (perm)	0	1590	0	0	0	0	1744	0
Link Speed (mph)		30					30	
Link Distance (ft)		400					530	
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	100	183	167	6	36	145	12
Shared Lane Traffic (%)								
Lane Group Flow (vph)	0	533	0	0	0	0	199	0
Sign Control		Yield					Yield	

Intersection Summary

Intersection	
Intersection Delay, s/veh	14.9
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	616	291	376	533	199
Demand Flow Rate, veh/h	635	300	403	576	213
Vehicles Circulating, veh/h	500	564	428	405	858
Vehicles Exiting, veh/h	364	417	643	426	277
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	21.4	9.7	10.1	14.4	12.5
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	635	300	403	576	213
Cap Entry Lane, veh/h	829	776	892	913	575
Entry HV Adj Factor	0.970	0.971	0.933	0.925	0.932
Flow Entry, veh/h	616	291	376	533	198
Cap Entry, veh/h	803	753	832	845	536
V/C Ratio	0.766	0.386	0.452	0.631	0.370
Control Delay, s/veh	21.4	9.7	10.1	14.4	12.5
LOS	C	A	B	B	B
95th %tile Queue, veh	7	2	2	5	2



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	20	200	10	40	50	375	150	5	10	90	20
Future Volume (vph)	10	20	200	10	40	50	375	150	5	10	90	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			0.999			0.978	
Flt Protected		0.984			0.995			0.966			0.996	
Satd. Flow (prot)	0	1731	1495	0	1678	0	0	1780	0	0	1780	0
Flt Permitted		0.984			0.995			0.966			0.996	
Satd. Flow (perm)	0	1731	1495	0	1678	0	0	1780	0	0	1780	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		162			453			475			436	
Travel Time (s)		3.7			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	244	14	57	71	500	200	7	14	127	28
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	36	244	0	142	0	0	707	0	0	169	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 54.7%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	30.7

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱		✣			✣			✣	
Traffic Vol, veh/h	10	20	200	10	40	50	375	150	5	10	90	20
Future Vol, veh/h	10	20	200	10	40	50	375	150	5	10	90	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	244	14	57	71	500	200	7	14	127	28

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1437	1376	141	1507	1387	204	155	0	0	207	0	0
Stage 1	169	169	-	1204	1204	-	-	-	-	-	-	-
Stage 2	1268	1207	-	303	183	-	-	-	-	-	-	-
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	891	98	141	829	1419	-	-	1352	-	-
Stage 1	819	747	-	222	254	-	-	-	-	-	-	-
Stage 2	201	250	-	700	743	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	32	84	891	39	84	829	1419	-	-	1352	-	-
Mov Cap-2 Maneuver	32	84	-	39	84	-	-	-	-	-	-	-
Stage 1	493	739	-	134	153	-	-	-	-	-	-	-
Stage 2	69	151	-	486	735	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	30	188.1	6.3	0.6
HCM LOS	D	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1419	-	-	54	891	126	1352	-	-
HCM Lane V/C Ratio	0.352	-	-	0.678	0.274	1.134	0.01	-	-
HCM Control Delay (s)	8.9	0	-	159.1	10.6	188.1	7.7	0	-
HCM Lane LOS	A	A	-	F	B	F	A	A	-
HCM 95th %tile Q(veh)	1.6	-	-	2.8	1.1	8.4	0	-	-

Movement	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
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	0.95		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	1770		1787	1835	
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	1770		1787	1835	
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	25	49	123	15	206	103	83	423	83
RTOR Reduction (vph)	0	15	0	0	0	73	0	23	0	0	9	0
Lane Group Flow (vph)	37	70	0	25	49	50	15	286	0	83	497	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)	4.8	22.0		3.2	20.4	32.8	6.4	23.8		7.0	24.4	
Effective Green, g (s)	4.8	22.0		3.2	20.4	32.8	6.4	23.8		7.0	24.4	
Actuated g/C Ratio	0.06	0.28		0.04	0.25	0.41	0.08	0.30		0.09	0.30	
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)	105	485		69	465	636	141	526		156	559	
v/s Ratio Prot	c0.02	c0.04		0.01	0.03	0.03	0.01	0.16		c0.05	c0.27	
v/s Ratio Perm												
v/c Ratio	0.35	0.14		0.36	0.11	0.08	0.11	0.54		0.53	0.89	
Uniform Delay, d1	36.1	21.9		37.4	22.8	14.4	34.1	23.5		34.9	26.5	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.0	0.1		3.2	0.5	0.1	0.3	1.2		3.5	15.8	
Delay (s)	38.1	22.0		40.6	23.3	14.4	34.5	24.7		38.4	42.3	
Level of Service	D	C		D	C	B	C	C		D	D	
Approach Delay (s)		26.9			20.0			25.1			41.8	
Approach LOS		C			B			C			D	

Intersection Summary			
HCM 2000 Control Delay	32.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	51.3%	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)	510	10	20	70	140	600
Future Volume (vph)	510	10	20	70	140	600
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		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)	1771		1626	1712	1863	1583
Flt Permitted	0.95		0.63	1.00	1.00	1.00
Satd. Flow (perm)	1771		1078	1712	1863	1583
Peak-hour factor, PHF	0.94	0.94	0.91	0.91	0.82	0.82
Adj. Flow (vph)	543	11	22	77	171	732
RTOR Reduction (vph)	1	0	0	0	0	180
Lane Group Flow (vph)	553	0	22	77	171	552
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)	30.6		32.3	30.6	29.7	60.3
Effective Green, g (s)	30.6		32.3	30.6	29.7	60.3
Actuated g/C Ratio	0.38		0.40	0.38	0.37	0.75
Clearance Time (s)	6.0		6.0			
Vehicle Extension (s)	3.0		3.0			
Lane Grp Cap (vph)	677		446	654	691	1311
v/s Ratio Prot	c0.31		c0.00	0.04	0.09	c0.23
v/s Ratio Perm			0.02			0.11
v/c Ratio	0.82		0.05	0.12	0.25	0.42
Uniform Delay, d1	22.2		14.4	16.0	17.4	3.6
Progression Factor	1.00		1.00	1.00	1.12	0.87
Incremental Delay, d2	7.6		0.0	0.1	0.2	0.2
Delay (s)	29.8		14.5	16.1	19.6	3.3
Level of Service	C		B	B	B	A
Approach Delay (s)	29.8			15.7	6.4	
Approach LOS	C			B	A	

Intersection Summary			
HCM 2000 Control Delay	15.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	55.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	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
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)	1207	0	0	0	1883	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1207	0	0	0	1883	0
Turn Type	Prot				Prot	
Protected Phases	2				4	
Permitted Phases						
Actuated Green, G (s)	31.0				47.0	
Effective Green, g (s)	31.0				47.0	
Actuated g/C Ratio	0.34				0.52	
Clearance Time (s)	6.0				6.0	
Vehicle Extension (s)	3.0				3.0	
Lane Grp Cap (vph)	1182				1792	
v/s Ratio Prot	c0.35				c0.55	
v/s Ratio Perm						
v/c Ratio	1.02				1.05	
Uniform Delay, d1	29.5				21.5	
Progression Factor	0.53				1.00	
Incremental Delay, d2	28.7				36.0	
Delay (s)	44.3				57.5	
Level of Service	D				E	
Approach Delay (s)	44.3		0.0			57.5
Approach LOS	D		A			E

Intersection Summary			
HCM 2000 Control Delay	52.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	143.4%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	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
Total Lost time (s)		6.0			6.0	6.0			6.0	6.0
Lane Util. Factor		0.95			0.95	0.88			1.00	0.95
Frt		1.00			1.00	0.85			0.85	0.85
Flt Protected		1.00			1.00	1.00			1.00	1.00
Satd. Flow (prot)		3539			3539	2787			1583	1504
Flt Permitted		1.00			1.00	1.00			1.00	1.00
Satd. Flow (perm)		3539			3539	2787			1583	1504
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	1883	0	0	1207	1282	0	0	0	920
RTOR Reduction (vph)	0	0	0	0	0	16	0	0	0	0
Lane Group Flow (vph)	0	1883	0	0	1207	1266	0	0	460	460
Turn Type	Perm	NA			NA	Perm			Prot	Prot
Protected Phases		2			2				4	4
Permitted Phases	2					2				
Actuated Green, G (s)		50.0			50.0	50.0			28.0	28.0
Effective Green, g (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
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)		1966			1966	1548			492	467
v/s Ratio Prot		c0.53			0.34				0.29	c0.31
v/s Ratio Perm						0.45				
v/c Ratio		0.96			0.61	0.82			0.93	0.99
Uniform Delay, d1		19.0			13.5	16.3			30.1	30.8
Progression Factor		1.13			1.00	1.00			1.00	1.00
Incremental Delay, d2		1.7			1.4	4.9			25.1	37.4
Delay (s)		23.1			14.9	21.2			55.2	68.2
Level of Service		C			B	C			E	E
Approach Delay (s)		23.1			18.2		0.0		61.7	
Approach LOS		C			B		A		E	

Intersection Summary			
HCM 2000 Control Delay	27.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	129.2%	ICU Level of Service	H
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)	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
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	1855		1770	1856		1770	1815		1770	1863	1583
Flt Permitted	0.29	1.00		0.42	1.00		0.71	1.00		0.71	1.00	1.00
Satd. Flow (perm)	540	1855		789	1856		1331	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)	109	413	11	11	424	11	22	54	11	11	65	109
RTOR Reduction (vph)	0	1	0	0	1	0	0	7	0	0	0	66
Lane Group Flow (vph)	109	423	0	11	434	0	22	58	0	11	65	43
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)	29.0	25.3		23.4	22.5		22.6	22.6		22.6	22.6	26.3
Effective Green, g (s)	29.0	25.3		23.4	22.5		22.6	22.6		22.6	22.6	26.3
Actuated g/C Ratio	0.43	0.38		0.35	0.34		0.34	0.34		0.34	0.34	0.39
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)	302	702		289	625		450	614		450	630	765
v/s Ratio Prot	c0.02	c0.23		0.00	c0.23			0.03			c0.03	0.00
v/s Ratio Perm	0.14			0.01			0.02			0.01		0.02
v/c Ratio	0.36	0.60		0.04	0.69		0.05	0.09		0.02	0.10	0.06
Uniform Delay, d1	12.4	16.7		14.3	19.2		14.9	15.1		14.7	15.2	12.6
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.7	1.5		0.1	3.3		0.2	0.3		0.1	0.3	0.0
Delay (s)	13.1	18.2		14.4	22.5		15.1	15.4		14.8	15.5	12.6
Level of Service	B	B		B	C		B	B		B	B	B
Approach Delay (s)		17.1			22.3			15.3			13.7	
Approach LOS		B			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	18.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	66.8	Sum of lost time (s)	18.0
Intersection Capacity Utilization	49.4%	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)	360	10	250	370	10	160
Future Volume (vph)	360	10	250	370	10	160
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	0.996					0.850
Flt Protected				0.980	0.950	
Satd. Flow (prot)	1855	0	0	1825	1770	1583
Flt Permitted				0.980	0.950	
Satd. Flow (perm)	1855	0	0	1825	1770	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)	391	11	272	402	11	174
Shared Lane Traffic (%)						
Lane Group Flow (vph)	402	0	0	674	11	174
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 66.2%		ICU Level of Service C	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	4

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	360	10	250	370	10	160
Future Vol, veh/h	360	10	250	370	10	160
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	391	11	272	402	11	174

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	402	0	1343	397
Stage 1	-	-	-	-	397	-
Stage 2	-	-	-	-	946	-
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	-	-	1157	-	168	652
Stage 1	-	-	-	-	679	-
Stage 2	-	-	-	-	377	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1157	-	117	652
Mov Cap-2 Maneuver	-	-	-	-	117	-
Stage 1	-	-	-	-	473	-
Stage 2	-	-	-	-	377	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.7	14.1
HCM LOS			B

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	117	652	-	-	1157	-
HCM Lane V/C Ratio	0.093	0.267	-	-	0.235	-
HCM Control Delay (s)	38.9	12.5	-	-	9.1	0
HCM Lane LOS	E	B	-	-	A	A
HCM 95th %tile Q(veh)	0.3	1.1	-	-	0.9	-

Movement	WBL	WBR	NBT	NBR	SBL	SBT
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
Total Lost time (s)	6.0		6.0	6.0	6.0	6.0
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)	1774		1900	1615	1805	1900
Flt Permitted	0.96		1.00	1.00	0.26	1.00
Satd. Flow (perm)	1774		1900	1615	487	1900
Peak-hour factor, PHF	0.87	0.67	0.95	0.84	0.73	0.96
Adj. Flow (vph)	103	15	568	48	14	677
RTOR Reduction (vph)	5	0	0	16	0	0
Lane Group Flow (vph)	113	0	568	32	14	677
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		47.1	47.1	16.4	46.2
Effective Green, g (s)	8.1		47.1	47.1	16.4	46.2
Actuated g/C Ratio	0.10		0.59	0.59	0.20	0.58
Clearance Time (s)	6.0				6.0	
Vehicle Extension (s)	3.0				3.0	
Lane Grp Cap (vph)	179		1118	950	113	1097
v/s Ratio Prot	c0.06		0.30		c0.00	c0.36
v/s Ratio Perm				0.02	0.02	
v/c Ratio	0.63		0.51	0.03	0.12	0.62
Uniform Delay, d1	34.5		9.7	6.9	25.9	11.1
Progression Factor	1.00		0.33	0.53	1.00	1.00
Incremental Delay, d2	6.8		0.3	0.0	0.5	1.0
Delay (s)	41.3		3.5	3.7	26.4	12.1
Level of Service	D		A	A	C	B
Approach Delay (s)	41.3		3.5			12.4
Approach LOS	D		A			B

Intersection Summary			
HCM 2000 Control Delay	11.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	49.8%	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	30	20	530	630	20
Future Volume (vph)	10	30	20	530	630	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	0.904				0.994	
Flt Protected	0.986		0.950			
Satd. Flow (prot)	1694	0	1787	1900	1871	0
Flt Permitted	0.986		0.950			
Satd. Flow (perm)	1694	0	1787	1900	1871	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	39	28	589	840	36
Shared Lane Traffic (%)						
Lane Group Flow (vph)	55	0	28	589	876	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 44.4%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	30	20	530	630	20
Future Vol, veh/h	10	30	20	530	630	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	16	39	28	589	840	36

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1503	858	876	0	-	0
Stage 1	858	-	-	-	-	-
Stage 2	645	-	-	-	-	-
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	135	359	775	-	-	-
Stage 1	419	-	-	-	-	-
Stage 2	526	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	130	359	775	-	-	-
Mov Cap-2 Maneuver	130	-	-	-	-	-
Stage 1	404	-	-	-	-	-
Stage 2	526	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	24.5	0.4	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	775	-	239	-	-
HCM Lane V/C Ratio	0.036	-	0.228	-	-
HCM Control Delay (s)	9.8	-	24.5	-	-
HCM Lane LOS	A	-	C	-	-
HCM 95th %tile Q(veh)	0.1	-	0.9	-	-

APPENDIX P-2: 2040 ALTERNATIVE B INTERSECTION CAPACITY ANALYSES – HCS PRINOUTS – PM PEAK HOUR

Movement	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	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	1269	1574	0	438	1461
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	0	1269	1574	0	438	1461
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)		64.0	64.0		74.0	74.0
Effective Green, g (s)		64.0	64.0		74.0	74.0
Actuated g/C Ratio		0.43	0.43		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)		1480	1453		952	1323
v/s Ratio Prot		0.37	c0.46		0.23	c0.54
v/s Ratio Perm						
v/c Ratio		0.86	1.08		0.46	1.10
Uniform Delay, d1		38.9	43.0		24.9	38.0
Progression Factor		0.68	0.04		1.00	1.00
Incremental Delay, d2		4.6	38.9		0.4	58.5
Delay (s)		31.0	40.7		25.3	96.5
Level of Service		C	D		C	F
Approach Delay (s)		31.0	40.7		80.1	
Approach LOS		C	D		F	

Intersection Summary			
HCM 2000 Control Delay	53.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	95.8%	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)	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
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)	1528	0	852	0	0	1213	457	0	0	337	359
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	1528	0	852	0	0	1213	457	0	0	337	359
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)	60.0		60.0			46.0	78.0			26.0	150.0
Effective Green, g (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
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)	1296		1052			1022	1787			607	1568
v/s Ratio Prot	c0.47		0.32			c0.36	0.13			c0.10	
v/s Ratio Perm											0.23
v/c Ratio	1.18		0.81			1.19	0.26			0.56	0.23
Uniform Delay, d1	45.0		39.9			52.0	19.9			56.7	0.0
Progression Factor	1.00		1.00			0.65	0.40			1.00	1.00
Incremental Delay, d2	88.8		4.7			90.7	0.2			3.6	0.3
Delay (s)	133.8		44.6			124.3	8.1			60.3	0.3
Level of Service	F		D			F	A			E	A
Approach Delay (s)		101.9		0.0			92.5			29.4	
Approach LOS		F		A			F			C	

Intersection Summary			
HCM 2000 Control Delay	88.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.06		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	95.5%	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	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
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	908	483	174	709	0	0	0	0	192	0	467
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	159
Lane Group Flow (vph)	0	908	483	174	709	0	0	0	0	192	0	308
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)		36.5	90.0	12.8	55.3					22.7		22.7
Effective Green, g (s)		36.5	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
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)		1407	1553	244	2112					849		391
v/s Ratio Prot		c0.26		c0.10	0.21					0.06		c0.20
v/s Ratio Perm			0.31									
v/c Ratio		0.65	0.31	0.71	0.34					0.23		0.79
Uniform Delay, d1		21.5	0.0	36.8	8.4					26.7		31.4
Progression Factor		1.00	1.00	0.26	0.01					1.00		1.00
Incremental Delay, d2		2.3	0.5	7.4	0.2					0.1		10.0
Delay (s)		23.8	0.5	17.0	0.3					26.8		41.4
Level of Service		C	A	B	A					C		D
Approach Delay (s)		15.7			3.6			0.0			37.2	
Approach LOS		B			A			A			D	

Intersection Summary			
HCM 2000 Control Delay	16.9	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)	18.0
Intersection Capacity Utilization	75.1%	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)	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
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)	538	511	0	0	451	440	522	0	575	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	236	0	0	0
Lane Group Flow (vph)	538	511	0	0	451	440	522	0	339	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)	27.0	50.6			17.6	90.0	27.4		27.4			
Effective Green, g (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			
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)	525	1970			685	1568	518		463			
v/s Ratio Prot	c0.31	0.15			c0.13		c0.31		0.22			
v/s Ratio Perm						0.28						
v/c Ratio	1.02	0.26			0.66	0.28	1.01		0.73			
Uniform Delay, d1	31.5	10.1			33.4	0.0	31.3		28.0			
Progression Factor	0.25	0.30			1.00	1.00	1.00		1.00			
Incremental Delay, d2	40.8	0.3			4.9	0.4	41.5		5.9			
Delay (s)	48.7	3.3			38.3	0.4	72.8		33.9			
Level of Service	D	A			D	A	E		C			
Approach Delay (s)		26.6			19.6			52.4			0.0	
Approach LOS		C			B			D			A	

Intersection Summary			
HCM 2000 Control Delay	33.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.93		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	75.1%	ICU Level of Service	D
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)	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
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	0.98	
Flt Protected		0.95	1.00		0.98		0.95	1.00		0.95	1.00	
Satd. Flow (prot)		1779	1583		1729		1770	3472		1770	3464	
Flt Permitted		0.81	1.00		0.79		0.95	1.00		0.95	1.00	
Satd. Flow (perm)		1505	1583		1408		1770	3472		1770	3464	
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)	87	5	130	40	0	40	228	902	130	5	663	109
RTOR Reduction (vph)	0	0	72	0	71	0	0	10	0	0	13	0
Lane Group Flow (vph)	0	92	58	0	9	0	228	1022	0	5	759	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)		8.3	33.1		8.3		14.8	47.1		0.8	33.1	
Effective Green, g (s)		8.3	33.1		8.3		14.8	47.1		0.8	33.1	
Actuated g/C Ratio		0.11	0.45		0.11		0.20	0.63		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)		168	706		157		353	2203		19	1545	
v/s Ratio Prot							c0.13	c0.29		0.00	0.22	
v/s Ratio Perm		c0.06	0.04		0.01							
v/c Ratio		0.55	0.08		0.06		0.65	0.46		0.26	0.49	
Uniform Delay, d1		31.2	11.8		29.5		27.3	7.0		36.4	14.6	
Progression Factor		1.00	1.00		1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2		3.6	0.1		0.2		4.0	0.2		7.3	0.2	
Delay (s)		34.8	11.9		29.6		31.3	7.2		43.7	14.8	
Level of Service		C	B		C		C	A		D	B	
Approach Delay (s)		21.4			29.6			11.5			15.0	
Approach LOS		C			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	14.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	74.2	Sum of lost time (s)	18.0
Intersection Capacity Utilization	58.4%	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	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
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			0.97			0.98			1.00	
Flt Protected		0.99			0.96			1.00			1.00	
Satd. Flow (prot)		1834			1727			1721			1806	
Flt Permitted		0.91			0.64			1.00			0.82	
Satd. Flow (perm)		1677			1157			1721			1481	
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	133	8	260	0	62	0	764	146	17	401	0
RTOR Reduction (vph)	0	2	0	0	26	0	0	8	0	0	0	0
Lane Group Flow (vph)	0	172	0	0	297	0	0	902	0	0	418	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)		24.5			24.5			48.8			48.8	
Effective Green, g (s)		24.5			24.5			48.8			48.8	
Actuated g/C Ratio		0.29			0.29			0.57			0.57	
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)		481			332			984			847	
v/s Ratio Prot								c0.52				
v/s Ratio Perm		0.10			c0.26						0.28	
v/c Ratio		0.36			0.90			0.92			0.49	
Uniform Delay, d1		24.1			29.2			16.4			10.9	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.5			25.0			12.9			0.5	
Delay (s)		24.6			54.2			29.3			11.3	
Level of Service		C			D			C			B	
Approach Delay (s)		24.6			54.2			29.3			11.3	
Approach LOS		C			D			C			B	

Intersection Summary			
HCM 2000 Control Delay	29.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	85.3	Sum of lost time (s)	12.0
Intersection Capacity Utilization	81.2%	ICU Level of Service	D
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)	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
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	0.94	
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	1820		1752	1845	1568	1787	1857		1787	1760	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1752	1820		1752	1845	1568	1787	1857		1787	1760	
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)	165	220	22	75	258	11	95	442	42	64	298	223
RTOR Reduction (vph)	0	5	0	0	0	8	0	4	0	0	30	0
Lane Group Flow (vph)	165	237	0	75	258	3	95	480	0	64	491	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)	10.5	20.5		6.9	16.9	24.5	7.6	28.9		4.7	26.0	
Effective Green, g (s)	10.5	20.5		6.9	16.9	24.5	7.6	28.9		4.7	26.0	
Actuated g/C Ratio	0.12	0.24		0.08	0.20	0.29	0.09	0.34		0.06	0.31	
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)	216	438		142	366	562	159	631		98	538	
v/s Ratio Prot	c0.09	c0.13		0.04	c0.14	0.00	c0.05	c0.26		0.04	c0.28	
v/s Ratio Perm						0.00						
v/c Ratio	0.76	0.54		0.53	0.70	0.01	0.60	0.76		0.65	0.91	
Uniform Delay, d1	36.1	28.2		37.5	31.7	21.6	37.2	25.0		39.4	28.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	14.8	1.4		3.5	6.1	0.0	5.9	8.4		14.5	19.9	
Delay (s)	50.8	29.5		41.0	37.8	21.6	43.2	33.4		53.9	48.3	
Level of Service	D	C		D	D	C	D	C		D	D	
Approach Delay (s)		38.2			38.0			35.0			48.9	
Approach LOS		D			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	40.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	87.9%	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)	460	10	5	100	200	245
Future Volume (vph)	460	10	5	100	200	245
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)	1787	1599	0	1859	1881	1599
Flt Permitted	0.950			0.998		
Satd. Flow (perm)	1787	1599	0	1859	1881	1599
Link Speed (mph)	30			30	30	
Link Distance (ft)	322			309	305	
Travel Time (s)	7.3			7.0	6.9	
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)	511	11	6	115	230	282
Shared Lane Traffic (%)						
Lane Group Flow (vph)	511	11	0	121	230	282
Sign Control	Stop			Stop	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 47.0%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Intersection Delay, s/veh	32.6
Intersection LOS	D

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	460	10	5	100	200	245
Future Vol, veh/h	460	10	5	100	200	245
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	511	11	6	115	230	282
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	55.5	12.3	14
HCM LOS	F	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	460	10	200	245
LT Vol	5	460	0	0	0
Through Vol	100	0	0	200	0
RT Vol	0	0	10	0	245
Lane Flow Rate	121	511	11	230	282
Geometry Grp	4	7	7	7	7
Degree of Util (X)	0.236	0.964	0.017	0.424	0.463
Departure Headway (Hd)	7.03	6.791	5.577	6.635	5.922
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes
Cap	507	532	640	540	605
Service Time	5.123	4.543	3.328	4.414	3.7
HCM Lane V/C Ratio	0.239	0.961	0.017	0.426	0.466
HCM Control Delay	12.3	56.5	8.4	14.3	13.8
HCM Lane LOS	B	F	A	B	B
HCM 95th-tile Q	0.9	12.7	0.1	2.1	2.4

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	10	0	0	565	445	10
Future Volume (vph)	10	0	0	565	445	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					0.997	
Flt Protected	0.950					
Satd. Flow (prot)	1703	0	0	1881	1876	0
Flt Permitted	0.950					
Satd. Flow (perm)	1703	0	0	1881	1876	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	608	517	12
Shared Lane Traffic (%)						
Lane Group Flow (vph)	20	0	0	608	529	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 46.2%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	0.4

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	10	0	0	565	445	10
Future Vol, veh/h	10	0	0	565	445	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	608	517	12

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1131	523	529	0	-	0
Stage 1	523	-	-	-	-	-
Stage 2	608	-	-	-	-	-
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	221	546	1043	-	-	-
Stage 1	587	-	-	-	-	-
Stage 2	536	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	221	546	1043	-	-	-
Mov Cap-2 Maneuver	221	-	-	-	-	-
Stage 1	587	-	-	-	-	-
Stage 2	536	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	22.9	0	0
HCM LOS	C		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	1043	-	221	-	-
HCM Lane V/C Ratio	-	-	0.09	-	-
HCM Control Delay (s)	0	-	22.9	-	-
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)	90	480	5	40	220	110	200	40	230	5	140	20
Future Volume (vph)	90	480	5	40	220	110	200	40	230	5	140	20
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			0.960			0.934			0.984	
Flt Protected		0.992			0.995			0.979			0.999	
Satd. Flow (prot)	0	1864	0	0	1779	0	0	1737	0	0	1868	0
Flt Permitted		0.992			0.995			0.979			0.999	
Satd. Flow (perm)	0	1864	0	0	1779	0	0	1737	0	0	1868	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)	96	511	5	45	250	125	299	60	343	6	171	24
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	612	0	0	420	0	0	702	0	0	201	0
Sign Control		Free			Free			Stop			Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 95.6%		ICU Level of Service F	
Analysis Period (min) 15			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SEL	SET	SER	NWL	NWT	NWR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	90	480	5	40	220	110	200	40	230	5	140	20
Future Volume (Veh/h)	90	480	5	40	220	110	200	40	230	5	140	20
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
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
Hourly flow rate (vph)	96	511	5	45	250	125	299	60	343	6	171	24
Pedestrians												
Lane Width (ft)												
Walking Speed (ft/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage veh)												
Upstream signal (ft)												
pX, platoon unblocked												
vC, conflicting volume	375			516			1218	1110	312	1138	1170	514
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	375			516			1218	1110	312	1138	1170	514
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.3
p0 queue free %	92			96			0	68	53	91	0	96
cM capacity (veh/h)	1189			1050			1	186	732	66	171	565

Direction, Lane #	EB 1	WB 1	SE 1	NW 1
Volume Total	612	420	702	201
Volume Left	96	45	299	6
Volume Right	5	125	343	24
cSH	1189	1050	2	177
Volume to Capacity	0.08	0.04	353.23	1.13
Queue Length 95th (ft)	7	3	Err	257
Control Delay (s)	2.1	1.3	Err	161.6
Lane LOS	A	A	F	F
Approach Delay (s)	2.1	1.3	Err	161.6
Approach LOS			F	F

Intersection Summary				
Average Delay	3645.3			
Intersection Capacity Utilization	95.6%	ICU Level of Service		F
Analysis Period (min)	15			

Movement	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
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)	65	348	120	585	415	0	62	375	52	47	189	658
RTOR Reduction (vph)	0	0	90	0	0	0	0	0	39	0	0	88
Lane Group Flow (vph)	65	348	30	585	415	0	63	375	13	47	189	570
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)	6.8	27.6	27.6	25.2	46.0		7.0	26.8	26.8	6.4	26.2	51.4
Effective Green, g (s)	6.8	27.6	27.6	25.2	46.0		7.0	26.8	26.8	6.4	26.2	51.4
Actuated g/C Ratio	0.06	0.25	0.25	0.23	0.42		0.06	0.24	0.24	0.06	0.24	0.47
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)	109	887	397	786	1479		112	453	385	103	448	834
v/s Ratio Prot	0.04	c0.10		c0.17	0.12		c0.04	c0.20		0.03	0.10	c0.16
v/s Ratio Perm			0.02						0.01			0.20
v/c Ratio	0.60	0.39	0.08	0.74	0.28		0.56	0.83	0.03	0.46	0.42	0.68
Uniform Delay, d1	50.3	34.2	31.5	39.4	21.1		50.0	39.4	31.7	50.1	35.5	22.9
Progression Factor	1.00	1.00	1.00	1.27	1.16		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	8.5	1.3	0.4	3.6	0.1		6.3	11.8	0.0	3.2	0.6	2.3
Delay (s)	58.7	35.5	31.8	53.5	24.5		56.3	51.2	31.8	53.3	36.1	25.3
Level of Service	E	D	C	D	C		E	D	C	D	D	C
Approach Delay (s)		37.5			41.5			49.8			29.0	
Approach LOS		D			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	38.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	110.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	70.2%	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)	140	100	550	520	80	710
Future Volume (vph)	140	100	550	520	80	710
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	180	150		0	180	
Storage Lanes	1	0		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					0.995
Satd. Flow (prot)	1787	1599	1881	1599	0	3556
Flt Permitted	0.950					0.995
Satd. Flow (perm)	1787	1599	1881	1599	0	3556
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)	163	116	573	542	94	835
Shared Lane Traffic (%)						
Lane Group Flow (vph)	163	116	573	542	0	929
Sign Control	Stop		Free			Free

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 68.7%		ICU Level of Service C	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	10.1

Movement	NWL	NWR	NET	NER	SWL	SWT
Lane Configurations						
Traffic Vol, veh/h	140	100	550	520	80	710
Future Vol, veh/h	140	100	550	520	80	710
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	-	-
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	163	116	573	542	94	835

Major/Minor	Minor1		Major1		Major2	
Conflicting Flow All	1179	573	0	0	573	0
Stage 1	573	-	-	-	-	-
Stage 2	606	-	-	-	-	-
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	198	520	-	-	1004	-
Stage 1	565	-	-	-	-	-
Stage 2	510	-	-	-	-	-
Platoon blocked, %			-	-		-
Mov Cap-1 Maneuver	163	520	-	-	1004	-
Mov Cap-2 Maneuver	163	-	-	-	-	-
Stage 1	466	-	-	-	-	-
Stage 2	510	-	-	-	-	-

Approach	NW	NE	SW
HCM Control Delay, s	79.5	0	1.4
HCM LOS	F		

Minor Lane/Major Mvmt	NET	NER	NWLn1	NWLn2	SWL	SWT
Capacity (veh/h)	-	-	163	520	1004	-
HCM Lane V/C Ratio	-	-	0.999	0.224	0.094	-
HCM Control Delay (s)	-	-	126.4	13.9	9	0.6
HCM Lane LOS	-	-	F	B	A	A
HCM 95th %tile Q(veh)	-	-	7.8	0.8	0.3	-

Movement	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
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	3530			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	3530			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)	165	1222	5	21	937	84	17	11	17	12	12	75
RTOR Reduction (vph)	0	0	0	0	4	0	0	0	16	0	0	71
Lane Group Flow (vph)	165	1227	0	21	1017	0	0	28	1	0	26	4
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)	15.4	82.4		3.2	70.2			6.4	6.4		6.4	6.4
Effective Green, g (s)	15.4	82.4		3.2	70.2			6.4	6.4		6.4	6.4
Actuated g/C Ratio	0.14	0.75		0.03	0.64			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)	250	2675		51	2252			88	93		90	93
v/s Ratio Prot	c0.09	c0.34		0.01	0.29							
v/s Ratio Perm								c0.02	0.00		0.02	0.00
v/c Ratio	0.66	0.46		0.41	0.45			0.32	0.01		0.29	0.05
Uniform Delay, d1	44.8	5.3		52.5	10.1			49.7	48.8		49.6	48.9
Progression Factor	0.99	1.15		1.02	0.98			1.00	1.00		1.00	1.00
Incremental Delay, d2	5.3	0.5		4.4	0.5			2.1	0.0		1.8	0.2
Delay (s)	49.8	6.5		58.0	10.5			51.8	48.9		51.4	49.1
Level of Service	D	A		E	B			D	D		D	D
Approach Delay (s)		11.7			11.5			50.7			49.7	
Approach LOS		B			B			D			D	

Intersection Summary			
HCM 2000 Control Delay	13.8	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	60.1%	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)	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
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
Lane Util. Factor	1.00	1.00	1.00	0.97	0.95		1.00	0.95	0.88	1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.99		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)	1787	1881	1599	3433	3506		1805	3610	2842	1805	3610	1615
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)	1787	1881	1599	3433	3506		1805	3610	2842	1805	3610	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)	60	214	167	911	333	22	167	821	1205	35	616	209
RTOR Reduction (vph)	0	0	107	0	4	0	0	0	329	0	0	132
Lane Group Flow (vph)	60	214	60	911	351	0	167	821	876	35	616	77
Heavy Vehicles (%)	1%	1%	1%	2%	2%	2%	0%	0%	0%	0%	0%	0%
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
Actuated Green, G (s)	16.0	17.2	31.1	32.0	33.2		13.9	33.1	65.1	5.2	24.4	40.4
Effective Green, g (s)	16.0	17.2	31.1	32.0	33.2		13.9	33.1	65.1	5.2	24.4	40.4
Actuated g/C Ratio	0.15	0.16	0.28	0.29	0.30		0.13	0.30	0.59	0.05	0.22	0.37
Clearance Time (s)	6.0	6.0	4.5	6.0	6.0		4.5	6.0	6.0	4.5	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)	259	294	452	998	1058		228	1086	1836	85	800	681
v/s Ratio Prot	0.03	c0.11	0.02	c0.27	0.10		c0.09	c0.23	0.14	0.02	0.17	0.02
v/s Ratio Perm			0.02						0.17			0.03
v/c Ratio	0.23	0.73	0.13	0.91	0.33		0.73	0.76	0.48	0.41	0.77	0.11
Uniform Delay, d1	41.6	44.2	29.4	37.7	29.8		46.3	34.8	12.8	50.9	40.2	23.0
Progression Factor	1.00	1.00	1.00	0.97	1.40		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.1	14.6	0.1	11.9	0.2		11.5	3.0	0.2	3.2	4.6	0.1
Delay (s)	43.6	58.8	29.5	48.3	41.8		57.7	37.8	13.0	54.1	44.8	23.0
Level of Service	D	E	C	D	D		E	D	B	D	D	C
Approach Delay (s)		45.7			46.5			25.7			39.9	
Approach LOS		D			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	35.6	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)	22.5
Intersection Capacity Utilization	73.5%	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)	40	290	370	40	40	30
Future Volume (vph)	40	290	370	40	40	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (ft)	140			0	0	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			0.987		0.942	
Flt Protected	0.950				0.972	
Satd. Flow (prot)	1770	1863	1839	0	1689	0
Flt Permitted	0.950				0.972	
Satd. Flow (perm)	1770	1863	1839	0	1689	0
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)	44	319	411	44	53	40
Shared Lane Traffic (%)						
Lane Group Flow (vph)	44	319	455	0	93	0
Sign Control		Free	Free		Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 39.3%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	2.1

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Vol, veh/h	40	290	370	40	40	30
Future Vol, veh/h	40	290	370	40	40	30
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	140	-	-	-	0	-
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	44	319	411	44	53	40

Major/Minor	Major1		Major2		Minor2	
Conflicting Flow All	455	0	-	0	840	433
Stage 1	-	-	-	-	433	-
Stage 2	-	-	-	-	407	-
Critical Hdwy	4.12	-	-	-	6.43	6.23
Critical Hdwy Stg 1	-	-	-	-	5.43	-
Critical Hdwy Stg 2	-	-	-	-	5.43	-
Follow-up Hdwy	2.218	-	-	-	3.527	3.327
Pot Cap-1 Maneuver	1106	-	-	-	334	621
Stage 1	-	-	-	-	652	-
Stage 2	-	-	-	-	670	-
Platoon blocked, %		-	-	-		
Mov Cap-1 Maneuver	1106	-	-	-	321	621
Mov Cap-2 Maneuver	-	-	-	-	321	-
Stage 1	-	-	-	-	626	-
Stage 2	-	-	-	-	670	-

Approach	EB	WB	SB
HCM Control Delay, s	1	0	16.5
HCM LOS			C

Minor Lane/Major Mvmt	EBL	EBT	WBT	WBR	SBLn1
Capacity (veh/h)	1106	-	-	-	405
HCM Lane V/C Ratio	0.04	-	-	-	0.23
HCM Control Delay (s)	8.4	-	-	-	16.5
HCM Lane LOS	A	-	-	-	C
HCM 95th %tile Q(veh)	0.1	-	-	-	0.9

Lane Group	WBL2	WBL	WBR	WBR2	NBL	NBT	NBR	NBR2	SBL2	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	170	360	20	20	110	110	10	10	110	140	40
Future Volume (vph)	10	170	360	20	20	110	110	10	10	110	140	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		0.908				0.935					0.982	
Flt Protected		0.984				0.996					0.980	
Satd. Flow (prot)	0	1648	0	0	0	1718	0	0	0	0	1709	0
Flt Permitted		0.984				0.996					0.980	
Satd. Flow (perm)	0	1648	0	0	0	1718	0	0	0	0	1709	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	187	396	22	23	128	128	12	13	138	175	50
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	616	0	0	0	291	0	0	0	0	376	0
Sign Control		Yield				Yield					Yield	

Intersection Summary			
Area Type:	Other		
Control Type: Roundabout			
Intersection Capacity Utilization 100.5%		ICU Level of Service G	
Analysis Period (min) 15			

Intersection	
Intersection Delay, s/veh	21.1
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	550	309	642	589	143
Demand Flow Rate, veh/h	555	316	648	595	146
Vehicles Circulating, veh/h	507	923	429	677	789
Vehicles Exiting, veh/h	732	349	506	400	273
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	16.4	19.0	17.8	33.1	9.0
Approach LOS	C	C	C	D	A

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	555	316	648	595	146
Cap Entry Lane, veh/h	823	538	891	692	617
Entry HV Adj Factor	0.991	0.979	0.990	0.991	0.980
Flow Entry, veh/h	550	309	642	589	143
Cap Entry, veh/h	815	527	882	685	605
V/C Ratio	0.675	0.587	0.727	0.860	0.237
Control Delay, s/veh	16.4	19.0	17.8	33.1	9.0
LOS	C	C	C	D	A
95th %tile Queue, veh	5	4	7	10	1

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	10	40	470	10	30	20	300	140	10	25	110	10
Future Volume (vph)	10	40	470	10	30	20	300	140	10	25	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		0.956			0.997			0.991	
Flt Protected		0.990			0.992			0.968			0.992	
Satd. Flow (prot)	0	1844	1583	0	1802	0	0	1816	0	0	1849	0
Flt Permitted		0.990			0.992			0.968			0.992	
Satd. Flow (perm)	0	1844	1583	0	1802	0	0	1816	0	0	1849	0
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		152			453			475			436	
Travel Time (s)		3.5			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	45	534	12	37	24	323	151	11	27	121	11
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	56	534	0	73	0	0	485	0	0	159	0
Sign Control		Stop			Stop			Free			Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 50.1%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	12.6

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↰	↱		✣			✣			✣	
Traffic Vol, veh/h	10	40	470	10	30	20	300	140	10	25	110	10
Future Vol, veh/h	10	40	470	10	30	20	300	140	10	25	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	45	534	12	37	24	323	151	11	27	121	11

Major/Minor	Minor2			Minor1			Major1			Major2		
Conflicting Flow All	1014	989	127	1273	989	157	132	0	0	162	0	0
Stage 1	181	181	-	803	803	-	-	-	-	-	-	-
Stage 2	833	808	-	470	186	-	-	-	-	-	-	-
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	217	247	923	146	249	894	1459	-	-	1423	-	-
Stage 1	821	750	-	380	399	-	-	-	-	-	-	-
Stage 2	363	394	-	578	750	-	-	-	-	-	-	-
Platoon blocked, %								-	-		-	-
Mov Cap-1 Maneuver	144	183	923	40	185	894	1459	-	-	1423	-	-
Mov Cap-2 Maneuver	144	183	-	40	185	-	-	-	-	-	-	-
Stage 1	621	734	-	288	302	-	-	-	-	-	-	-
Stage 2	235	298	-	224	734	-	-	-	-	-	-	-

Approach	EB	WB	NB	SB
HCM Control Delay, s	16.1	57.3	5.4	1.3
HCM LOS	C	F		

Minor Lane/Major Mvmt	NBL	NBT	NBR	EBLn1	EBLn2	WBLn1	SBL	SBT	SBR
Capacity (veh/h)	1459	-	-	174	923	138	1423	-	-
HCM Lane V/C Ratio	0.221	-	-	0.327	0.579	0.53	0.019	-	-
HCM Control Delay (s)	8.2	0	-	35.4	14.1	57.3	7.6	0	-
HCM Lane LOS	A	A	-	E	B	F	A	A	-
HCM 95th %tile Q(veh)	0.8	-	-	1.3	3.8	2.6	0.1	-	-

Movement	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
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	1.00	0.85	1.00	0.98		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)	1770	1801		1787	1881	1599	1805	1860		1805	1845	
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1770	1801		1787	1881	1599	1805	1860		1805	1845	
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	20	84	63	21	34	483	79	22	226	54
RTOR Reduction (vph)	0	11	0	0	0	12	0	7	0	0	11	0
Lane Group Flow (vph)	30	80	0	84	63	9	34	555	0	22	269	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)	3.2	19.3		6.6	22.7	33.5	4.8	26.9		3.2	25.3	
Effective Green, g (s)	3.2	19.3		6.6	22.7	33.5	4.8	26.9		3.2	25.3	
Actuated g/C Ratio	0.04	0.24		0.08	0.28	0.42	0.06	0.34		0.04	0.32	
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)	70	434		147	533	669	108	625		72	583	
v/s Ratio Prot	0.02	c0.04		c0.05	c0.03	0.01	c0.02	c0.30		0.01	0.15	
v/s Ratio Perm												
v/c Ratio	0.43	0.18		0.57	0.12	0.01	0.31	0.89		0.31	0.46	
Uniform Delay, d1	37.5	24.1		35.3	21.2	13.6	36.0	25.1		37.3	21.9	
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.2	0.2		5.3	0.5	0.0	1.7	14.3		2.4	0.6	
Delay (s)	41.7	24.3		40.6	21.7	13.6	37.7	39.4		39.7	22.5	
Level of Service	D	C		D	C	B	D	D		D	C	
Approach Delay (s)		28.6			30.1			39.3			23.7	
Approach LOS		C			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	33.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	48.0%	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)	660	10	40	140	100	720
Future Volume (vph)	660	10	40	140	100	720
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		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)	1789		1770	1863	1845	1568
Flt Permitted	0.95		0.65	1.00	1.00	1.00
Satd. Flow (perm)	1789		1217	1863	1845	1568
Peak-hour factor, PHF	0.90	0.90	0.87	0.87	0.89	0.89
Adj. Flow (vph)	733	11	46	161	112	809
RTOR Reduction (vph)	1	0	0	0	0	168
Lane Group Flow (vph)	743	0	46	161	112	641
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)	40.1		44.2	41.3	39.4	79.5
Effective Green, g (s)	40.1		44.2	41.3	39.4	79.5
Actuated g/C Ratio	0.40		0.44	0.41	0.39	0.79
Clearance Time (s)	6.0		6.0			
Vehicle Extension (s)	3.0		3.0			
Lane Grp Cap (vph)	714		551	766	724	1335
v/s Ratio Prot	c0.42		c0.00	0.09	0.06	c0.26
v/s Ratio Perm			0.03			0.15
v/c Ratio	1.04		0.08	0.21	0.15	0.48
Uniform Delay, d1	30.2		16.2	19.0	19.7	3.5
Progression Factor	1.00		1.00	1.00	1.13	3.12
Incremental Delay, d2	44.9		0.1	0.1	0.1	0.2
Delay (s)	75.0		16.2	19.2	22.3	11.2
Level of Service	E		B	B	C	B
Approach Delay (s)	75.0			18.5	12.5	
Approach LOS	E			B	B	

Intersection Summary			
HCM 2000 Control Delay	38.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	100.4	Sum of lost time (s)	24.0
Intersection Capacity Utilization	58.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	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
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)	1074	0	0	0	1676	0
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1074	0	0	0	1676	0
Turn Type	Prot				Prot	
Protected Phases	2				4	
Permitted Phases						
Actuated Green, G (s)	27.0				41.0	
Effective Green, g (s)	27.0				41.0	
Actuated g/C Ratio	0.34				0.51	
Clearance Time (s)	6.0				6.0	
Vehicle Extension (s)	3.0				3.0	
Lane Grp Cap (vph)	1158				1759	
v/s Ratio Prot	c0.31				c0.49	
v/s Ratio Perm						
v/c Ratio	0.93				0.95	
Uniform Delay, d1	25.6				18.6	
Progression Factor	1.13				1.00	
Incremental Delay, d2	11.9				12.1	
Delay (s)	40.7				30.7	
Level of Service	D				C	
Approach Delay (s)	40.7		0.0			30.7
Approach LOS	D		A			C

Intersection Summary			
HCM 2000 Control Delay	34.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.94		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	129.3%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	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
Total Lost time (s)		6.0			6.0	6.0			6.0	6.0
Lane Util. Factor		0.95			0.95	0.88			1.00	0.95
Frt		1.00			1.00	0.85			0.85	0.85
Flt Protected		1.00			1.00	1.00			1.00	1.00
Satd. Flow (prot)		3539			3539	2787			1583	1504
Flt Permitted		1.00			1.00	1.00			1.00	1.00
Satd. Flow (perm)		3539			3539	2787			1583	1504
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	1676	0	0	1074	1144	0	0	0	819
RTOR Reduction (vph)	0	0	0	0	0	30	0	0	0	0
Lane Group Flow (vph)	0	1676	0	0	1074	1114	0	0	410	409
Turn Type	Perm	NA			NA	Perm			Prot	Prot
Protected Phases		2			2				4	4
Permitted Phases	2					2				
Actuated Green, G (s)		42.0			42.0	42.0			26.0	26.0
Effective Green, g (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
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)		1857			1857	1463			514	488
v/s Ratio Prot		c0.47			0.30				0.26	c0.27
v/s Ratio Perm						0.40				
v/c Ratio		0.90			0.58	0.76			0.80	0.84
Uniform Delay, d1		17.2			13.0	15.0			24.6	25.0
Progression Factor		0.04			1.00	1.00			1.00	1.00
Incremental Delay, d2		2.7			1.3	3.8			12.2	15.7
Delay (s)		3.4			14.3	18.8			36.8	40.8
Level of Service		A			B	B			D	D
Approach Delay (s)		3.4			16.6		0.0		38.8	
Approach LOS		A			B		A		D	

Intersection Summary			
HCM 2000 Control Delay	15.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	115.2%	ICU Level of Service	H
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)	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
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	1857		1770	1857		1770	1827		1770	1863	1583
Flt Permitted	0.20	1.00		0.33	1.00		0.71	1.00		0.70	1.00	1.00
Satd. Flow (perm)	369	1857		619	1857		1318	1827		1305	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)	141	533	11	11	543	11	22	76	11	11	76	141
RTOR Reduction (vph)	0	1	0	0	1	0	0	8	0	0	0	89
Lane Group Flow (vph)	141	543	0	11	553	0	22	79	0	11	76	52
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)	36.8	31.8		28.8	27.8		22.0	22.0		22.0	22.0	27.0
Effective Green, g (s)	36.8	31.8		28.8	27.8		22.0	22.0		22.0	22.0	27.0
Actuated g/C Ratio	0.51	0.44		0.40	0.38		0.30	0.30		0.30	0.30	0.37
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)	282	811		260	709		398	552		394	562	717
v/s Ratio Prot	c0.03	c0.29		0.00	c0.30			c0.04			0.04	0.01
v/s Ratio Perm	0.22			0.02			0.02			0.01		0.03
v/c Ratio	0.50	0.67		0.04	0.78		0.06	0.14		0.03	0.14	0.07
Uniform Delay, d1	12.3	16.3		13.8	19.8		18.0	18.5		17.9	18.5	14.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.4	4.4		0.1	5.4		0.3	0.5		0.0	0.1	0.0
Delay (s)	13.7	20.7		13.9	25.2		18.3	19.1		17.9	18.6	14.9
Level of Service	B	C		B	C		B	B		B	B	B
Approach Delay (s)		19.3			25.0			18.9			16.2	
Approach LOS		B			C			B			B	

Intersection Summary			
HCM 2000 Control Delay	20.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	72.8	Sum of lost time (s)	18.0
Intersection Capacity Utilization	56.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	460	0	290	470	0	210
Future Volume (vph)	460	0	290	470	0	210
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				0.981		
Satd. Flow (prot)	1863	0	0	1827	1863	1583
Flt Permitted				0.981		
Satd. Flow (perm)	1863	0	0	1827	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)	500	0	315	511	0	228
Shared Lane Traffic (%)						
Lane Group Flow (vph)	500	0	0	826	0	228
Sign Control	Free			Free	Stop	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 71.7%		ICU Level of Service C	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	4.2

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	460	0	290	470	0	210
Future Vol, veh/h	460	0	290	470	0	210
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	500	0	315	511	0	228

Major/Minor	Major1		Major2		Minor1	
Conflicting Flow All	0	0	500	0	1641	500
Stage 1	-	-	-	-	500	-
Stage 2	-	-	-	-	1141	-
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	-	-	1064	-	110	571
Stage 1	-	-	-	-	609	-
Stage 2	-	-	-	-	305	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	1064	-	65	571
Mov Cap-2 Maneuver	-	-	-	-	65	-
Stage 1	-	-	-	-	357	-
Stage 2	-	-	-	-	305	-

Approach	EB	WB	NB
HCM Control Delay, s	0	3.7	15.4
HCM LOS			C

Minor Lane/Major Mvmt	NBLn1	NBLn2	EBT	EBR	WBL	WBT
Capacity (veh/h)	-	571	-	-	1064	-
HCM Lane V/C Ratio	-	0.4	-	-	0.296	-
HCM Control Delay (s)	0	15.4	-	-	9.8	0
HCM Lane LOS	A	C	-	-	A	A
HCM 95th %tile Q(veh)	-	1.9	-	-	1.2	-

Movement	WBL	WBR	NBT	NBR	SBL	SBT
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
Total Lost time (s)	6.0		6.0	6.0	6.0	6.0
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)	1772		1900	1615	1805	1900
Flt Permitted	0.96		1.00	1.00	0.22	1.00
Satd. Flow (perm)	1772		1900	1615	414	1900
Peak-hour factor, PHF	0.87	0.67	0.95	0.84	0.73	0.96
Adj. Flow (vph)	92	15	674	190	14	771
RTOR Reduction (vph)	6	0	0	41	0	0
Lane Group Flow (vph)	101	0	674	149	14	771
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)	8.0		67.4	67.4	26.4	65.5
Effective Green, g (s)	8.0		67.4	67.4	26.4	65.5
Actuated g/C Ratio	0.08		0.67	0.67	0.26	0.65
Clearance Time (s)	6.0				6.0	
Vehicle Extension (s)	3.0				3.0	
Lane Grp Cap (vph)	141		1275	1084	122	1239
v/s Ratio Prot	c0.06		0.35		c0.00	c0.41
v/s Ratio Perm				0.09	0.03	
v/c Ratio	0.72		0.53	0.14	0.11	0.62
Uniform Delay, d1	45.1		8.4	6.0	28.2	10.2
Progression Factor	1.00		0.23	0.31	1.00	1.00
Incremental Delay, d2	16.1		0.2	0.0	0.4	1.0
Delay (s)	61.2		2.2	1.9	28.6	11.2
Level of Service	E		A	A	C	B
Approach Delay (s)	61.2		2.1			11.5
Approach LOS	E		A			B

Intersection Summary			
HCM 2000 Control Delay	9.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	100.4	Sum of lost time (s)	24.0
Intersection Capacity Utilization	54.0%	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	40	610	720	10
Future Volume (vph)	5	30	40	610	720	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	0.888				0.998	
Flt Protected	0.992		0.950			
Satd. Flow (prot)	1674	0	1787	1900	1878	0
Flt Permitted	0.992		0.950			
Satd. Flow (perm)	1674	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)	8	39	56	678	960	18
Shared Lane Traffic (%)						
Lane Group Flow (vph)	47	0	56	678	978	0
Sign Control	Stop			Free	Free	

Intersection Summary			
Area Type:	Other		
Control Type: Unsignalized			
Intersection Capacity Utilization 48.5%		ICU Level of Service A	
Analysis Period (min) 15			

Intersection	
Int Delay, s/veh	1

Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Vol, veh/h	5	30	40	610	720	10
Future Vol, veh/h	5	30	40	610	720	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	8	39	56	678	960	18

Major/Minor	Minor2		Major1		Major2	
Conflicting Flow All	1759	969	978	0	-	0
Stage 1	969	-	-	-	-	-
Stage 2	790	-	-	-	-	-
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	94	310	710	-	-	-
Stage 1	371	-	-	-	-	-
Stage 2	451	-	-	-	-	-
Platoon blocked, %				-	-	-
Mov Cap-1 Maneuver	87	310	710	-	-	-
Mov Cap-2 Maneuver	87	-	-	-	-	-
Stage 1	342	-	-	-	-	-
Stage 2	451	-	-	-	-	-

Approach	EB	NB	SB
HCM Control Delay, s	26.1	0.8	0
HCM LOS	D		

Minor Lane/Major Mvmt	NBL	NBT	EBLn1	SBT	SBR
Capacity (veh/h)	710	-	217	-	-
HCM Lane V/C Ratio	0.079	-	0.216	-	-
HCM Control Delay (s)	10.5	-	26.1	-	-
HCM Lane LOS	B	-	D	-	-
HCM 95th %tile Q(veh)	0.3	-	0.8	-	-