Queues

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	277	2168	321	1457	495	98	147	196	22	22	22
v/c Ratio	0.89	0.68	0.90	0.51	0.44	0.28	0.77	0.38	0.31	0.30	0.06
Control Delay	102.0	23.3	104.9	20.5	4.3	75.1	102.7	8.1	94.0	93.2	0.3
Queue Delay	0.0	0.0	0.0	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	102.0	23.3	104.9	20.9	4.5	75.1	102.7	8.1	94.0	93.2	0.3
Queue Length 50th (ft)	320	570	199	281	42	56	172	0	27	27	0
Queue Length 95th (ft)	#473	723	#294	485	127	85	247	67	63	63	0
Internal Link Dist (ft)		580		548			436			396	
Turn Bay Length (ft)	450		375		350	225		250	200		
Base Capacity (vph)	331	3187	356	2859	1254	610	331	514	252	259	387
Starvation Cap Reductn	0	0	0	715	219	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.84	0.68	0.90	0.68	0.48	0.16	0.44	0.38	0.09	0.08	0.06

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

1: SW 12th Avenue & Hillsboro Bvd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	255	1830	165	295	1340	455	90	135	180	30	10	20
Future Volume (vph)	255	1830	165	295	1340	455	90	135	180	30	10	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.0	6.0	6.0	6.5	6.0	6.0	6.5
Lane Util. Factor	1.00	0.91		0.97	0.91	1.00	0.97	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.98	1.00
Satd. Flow (prot)	1770	5022		3433	5085	1583	3433	1863	1583	1681	1726	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.98	1.00
Satd. Flow (perm)	1770	5022		3433	5085	1583	3433	1863	1583	1681	1726	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)	277	1989	179	321	1457	495	98	147	196	33	11	22
RTOR Reduction (vph)	0	4	0	0	0	107	0	0	158	0	0	17
Lane Group Flow (vph)	277	2164	0	321	1457	388	98	147	38	22	22	5
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA	pm+ov	Split	NA	pm+ov
Protected Phases	1	6		5	2	3	4	4	5	3	3	1
Permitted Phases						2			4			3
Actuated Green, G (s)	29.5	112.0		16.7	99.2	106.9	18.6	18.6	35.3	7.7	7.7	37.2
Effective Green, g (s)	31.5	114.0		18.7	101.2	110.9	18.6	18.6	35.3	7.7	7.7	37.2
Actuated g/C Ratio	0.18	0.63		0.10	0.56	0.62	0.10	0.10	0.20	0.04	0.04	0.21
Clearance Time (s)	6.5	6.5		6.5	6.5	6.0	6.0	6.0	6.5	6.0	6.0	6.5
Vehicle Extension (s)	1.5	3.0		2.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0	1.5
Lane Grp Cap (vph)	309	3180		356	2858	975	354	192	310	71	73	327
v/s Ratio Prot	c0.16	c0.43		0.09	0.29	c0.02	0.03	c0.08	0.01	0.01	0.01	0.00
v/s Ratio Perm						0.22			0.01			0.00
v/c Ratio	0.90	0.68		0.90	0.51	0.40	0.28	0.77	0.12	0.31	0.30	0.01
Uniform Delay, d1	72.7	21.3		79.7	24.2	17.6	74.5	78.6	59.6	83.6	83.5	56.8
Progression Factor	1.00	1.00		1.01	0.79	0.45	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	26.0	1.2		22.1	0.6	0.1	0.2	15.0	0.1	0.9	0.8	0.0
Delay (s)	98.6	22.5		102.6	19.6	8.0	74.6	93.6	59.7	84.5	84.4	56.8
Level of Service	F	C		F	B	A	E	F	E	F	F	E
Approach Delay (s)		31.1			28.8			74.3			75.2	
Approach LOS		C			C			E			E	

Intersection Summary			
HCM 2000 Control Delay	34.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	73.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Queues

Lane Group	EBT	EBR	WBT	SBL2	SBR
Lane Group Flow (vph)	1413	779	1505	542	742
v/c Ratio	0.28	0.49	0.51	0.83	0.72
Control Delay	0.1	2.7	16.8	62.1	52.1
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	0.1	2.7	16.8	62.1	52.1
Queue Length 50th (ft)	0	38	411	581	427
Queue Length 95th (ft)	0	62	483	653	448
Internal Link Dist (ft)	548		319		
Turn Bay Length (ft)		150			
Base Capacity (vph)	5085	1583	2947	889	1401
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	0.28	0.49	0.51	0.61	0.53

Intersection Summary

HCM Signalized Intersection Capacity Analysis

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR
Lane Configurations		↑↑↑	↱		↑↑↑		↰		↱↱		
Traffic Volume (vph)	0	1300	740	0	1385	0	515	0	705	0	0
Future Volume (vph)	0	1300	740	0	1385	0	515	0	705	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0	2.0		4.5		4.5		4.5		
Lane Util. Factor		0.91	1.00		0.91		1.00		0.88		
Frt		1.00	0.85		1.00		1.00		0.85		
Flt Protected		1.00	1.00		1.00		0.95		1.00		
Satd. Flow (prot)		5085	1583		5085		1770		2787		
Flt Permitted		1.00	1.00		1.00		0.95		1.00		
Satd. Flow (perm)		5085	1583		5085		1770		2787		
Peak-hour factor, PHF	0.92	0.92	0.95	0.92	0.92	0.92	0.95	0.92	0.95	0.92	0.92
Adj. Flow (vph)	0	1413	779	0	1505	0	542	0	742	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1413	779	0	1505	0	542	0	742	0	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type		NA	Perm		NA		Prot		Prot		
Protected Phases		Free!			2		8!		3		
Permitted Phases			Free								
Actuated Green, G (s)		180.0	180.0		102.3		64.7		64.7		
Effective Green, g (s)		180.0	180.0		104.3		66.7		66.7		
Actuated g/C Ratio		1.00	1.00		0.58		0.37		0.37		
Clearance Time (s)					6.5		6.5		6.5		
Vehicle Extension (s)					3.0		2.5		2.5		
Lane Grp Cap (vph)		5085	1583		2946		655		1032		
v/s Ratio Prot		0.28			0.30		c0.31		0.27		
v/s Ratio Perm			c0.49								
v/c Ratio		0.28	0.49		0.51		0.83		0.72		
Uniform Delay, d1		0.0	0.0		22.6		51.4		48.6		
Progression Factor		1.00	1.00		0.68		1.00		1.00		
Incremental Delay, d2		0.1	0.8		0.6		8.3		2.3		
Delay (s)		0.1	0.8		15.9		59.7		50.9		
Level of Service		A	A		B		E		D		
Approach Delay (s)		0.4			15.9			54.6		0.0	
Approach LOS		A			B			D		A	

Intersection Summary			
HCM 2000 Control Delay	19.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	58.9%	ICU Level of Service	B
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

Lane Group	EBT	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	1364	1549	772	641	758
v/c Ratio	0.47	0.54	0.49	0.36	0.73
Control Delay	9.8	12.2	2.1	21.1	27.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	9.8	12.2	2.1	21.1	27.3
Queue Length 50th (ft)	104	323	16	92	194
Queue Length 95th (ft)	232	m245	m3	110	242
Internal Link Dist (ft)	286	371			
Turn Bay Length (ft)			250	350	350
Base Capacity (vph)	2886	2886	1568	2106	1205
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	0.47	0.54	0.49	0.30	0.63

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1255	0	0	1425	710	590	0	720	0	0	0
Future Volume (vph)	0	1255	0	0	1425	710	590	0	720	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5	2.0	2.0		2.0			
Lane Util. Factor		0.91			0.91	1.00	0.94		0.88			
Frt		1.00			1.00	0.85	1.00		0.85			
Flt Protected		1.00			1.00	1.00	0.95		1.00			
Satd. Flow (prot)		5085			5085	1568	4990		2787			
Flt Permitted		1.00			1.00	1.00	0.95		1.00			
Satd. Flow (perm)		5085			5085	1568	4990		2787			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.92	0.92	0.92
Adj. Flow (vph)	0	1364	0	0	1549	772	641	0	758	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	32	0	0	0
Lane Group Flow (vph)	0	1364	0	0	1549	772	641	0	726	0	0	0
Heavy Vehicles (%)	3%	2%	2%	2%	2%	3%	2%	3%	2%	3%	3%	3%
Turn Type		NA			NA	Free	Prot		Prot			
Protected Phases		6			2		4		4			
Permitted Phases						Free						
Actuated Green, G (s)		49.1			49.1	90.0	30.4		30.4			
Effective Green, g (s)		51.1			51.1	90.0	32.4		32.4			
Actuated g/C Ratio		0.57			0.57	1.00	0.36		0.36			
Clearance Time (s)		6.5			6.5		4.0		4.0			
Vehicle Extension (s)		3.0			3.0		3.0		3.0			
Lane Grp Cap (vph)		2887			2887	1568	1796		1003			
v/s Ratio Prot		0.27			c0.30		0.13		c0.26			
v/s Ratio Perm						0.49						
v/c Ratio		0.47			0.54	0.49	0.36		0.72			
Uniform Delay, d1		11.5			12.1	0.0	21.1		24.9			
Progression Factor		0.77			0.92	1.00	1.00		1.00			
Incremental Delay, d2		0.5			0.5	0.7	0.1		2.6			
Delay (s)		9.3			11.6	0.7	21.3		27.5			
Level of Service		A			B	A	C		C			
Approach Delay (s)		9.3			8.0			24.7			0.0	
Approach LOS		A			A			C			A	

Intersection Summary			
HCM 2000 Control Delay	12.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	6.5
Intersection Capacity Utilization	56.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Queues

4: SW Natura Boulevard/Fairway Drive & Hillsboro Bvd

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	315	1717	114	76	1815	87	435	87	147	33	5	71
v/c Ratio	0.83	0.54	0.11	0.60	0.61	0.09	1.33	0.26	0.37	0.40	0.08	0.39
Control Delay	86.1	16.5	2.1	100.5	25.5	0.6	218.5	67.4	11.2	75.0	87.0	6.3
Queue Delay	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 Delay	86.1	16.5	2.1	100.5	25.5	0.6	218.5	67.4	11.2	75.0	87.0	6.3
Queue Length 50th (ft)	200	281	4	88	499	0	~601	91	0	31	6	0
Queue Length 95th (ft)	#263	358	29	150	545	5	#828	151	68	66	22	0
Internal Link Dist (ft)		660			631			513			403	
Turn Bay Length (ft)	300		150	100		200	125					340
Base Capacity (vph)	390	3167	1035	149	2965	977	326	641	641	82	393	439
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.54	0.11	0.51	0.61	0.09	1.33	0.14	0.23	0.40	0.01	0.16

Intersection Summary

~ 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.

HCM Signalized Intersection Capacity Analysis

4: SW Natura Boulevard/Fairway Drive & Hillsboro Bvd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	290	1580	105	70	1670	80	400	80	135	30	5	65
Future Volume (vph)	290	1580	105	70	1670	80	400	80	135	30	5	65
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	1770	5085	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.41	1.00	1.00	0.70	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	1770	5085	1583	767	1863	1583	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)	315	1717	114	76	1815	87	435	87	147	33	5	71
RTOR Reduction (vph)	0	0	44	0	0	37	0	0	121	0	0	68
Lane Group Flow (vph)	315	1717	70	76	1815	50	435	87	26	33	5	3
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases			6			2	4		4	8		8
Actuated Green, G (s)	18.0	109.0	109.0	10.8	101.8	101.8	41.2	32.0	32.0	10.4	7.2	7.2
Effective Green, g (s)	20.0	111.0	111.0	12.8	103.8	103.8	41.2	32.0	32.0	10.4	7.2	7.2
Actuated g/C Ratio	0.11	0.62	0.62	0.07	0.58	0.58	0.23	0.18	0.18	0.06	0.04	0.04
Clearance Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	2.0	3.0	3.0	1.5	3.0	3.0	1.5	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	381	3135	976	125	2932	912	331	331	281	83	74	63
v/s Ratio Prot	c0.09	0.34		0.04	c0.36		c0.20	0.05		0.01	0.00	
v/s Ratio Perm			0.04			0.03	c0.10		0.02	0.02		0.00
v/c Ratio	0.83	0.55	0.07	0.61	0.62	0.06	1.31	0.26	0.09	0.40	0.07	0.05
Uniform Delay, d1	78.3	20.0	13.8	81.2	25.1	16.7	66.8	63.8	61.9	81.4	83.2	83.1
Progression Factor	0.89	0.81	1.46	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	11.5	0.6	0.1	5.6	1.0	0.1	161.3	0.2	0.1	1.1	0.1	0.1
Delay (s)	81.5	16.8	20.4	86.8	26.1	16.8	228.1	64.0	61.9	82.6	83.3	83.2
Level of Service	F	B	C	F	C	B	F	E	E	F	F	F
Approach Delay (s)		26.4			28.0			170.2			83.0	
Approach LOS		C			C			F			F	

Intersection Summary			
HCM 2000 Control Delay	48.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	81.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Phasings
1: S Military Trail & SR 869/SW 10th Street

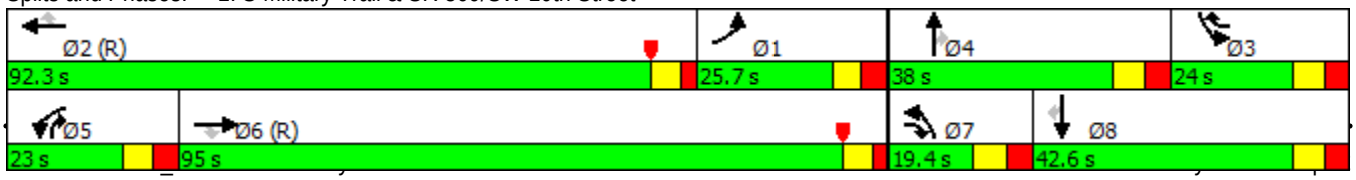
06/04/2021

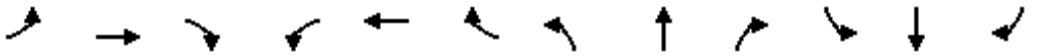
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	315	2220	100	305	1395	300	185	800	580	440	550	285
Future Volume (vph)	315	2220	100	305	1395	300	185	800	580	440	550	285
Lane Group Flow (vph)	342	2413	109	332	1516	326	201	870	630	478	598	310
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	
Permitted Phases			6			2			4			8
Detector Phase	1	6	7	5	2	3	7	4	5	3	8	8
Switch Phase												
Minimum Initial (s)	5.0	15.0	5.0	5.0	15.0	5.0	5.0	6.0	5.0	5.0	6.0	6.0
Minimum Split (s)	12.5	21.0	12.9	12.5	21.0	12.9	12.9	13.9	12.5	12.9	13.9	13.9
Total Split (s)	25.7	95.0	19.4	23.0	92.3	24.0	19.4	38.0	23.0	24.0	42.6	42.6
Total Split (%)	14.3%	52.8%	10.8%	12.8%	51.3%	13.3%	10.8%	21.1%	12.8%	13.3%	23.7%	23.7%
Yellow Time (s)	4.0	4.0	4.4	4.0	4.0	4.4	4.4	4.4	4.0	4.4	4.4	4.4
All-Red Time (s)	3.5	2.0	3.5	3.5	2.0	3.5	3.5	3.5	3.5	3.5	3.5	3.5
Lost Time Adjust (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
Total Lost Time (s)	5.5	4.0	5.9	5.5	4.0	5.9	5.9	5.9	5.5	5.9	5.9	5.9
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lead	Lead	Lead	Lag	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Min	None	None	C-Min	None	None	None	None	None	None	None
v/c Ratio	0.81	1.35	0.11	1.00	0.89	0.33	0.79	1.38	1.21	1.39	0.83	0.64
Control Delay	91.8	196.7	1.7	138.7	44.7	17.2	102.9	231.1	144.9	244.7	79.3	29.8
Queue Delay	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 Delay	91.8	196.7	1.7	138.7	44.7	17.2	102.9	231.1	144.9	244.7	79.3	29.8
Queue Length 50th (ft)	209	~1954	0	213	475	133	122	~713	~614	~385	361	123
Queue Length 95th (ft)	#298	#2062	21	#324	567	211	#184	#852	#871	#507	437	241
Internal Link Dist (ft)		620			1082			569			457	
Turn Bay Length (ft)	550		500	550		500	300		300	650		650
Base Capacity (vph)	424	1789	1003	333	1736	1002	257	631	520	345	723	481
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.81	1.35	0.11	1.00	0.87	0.33	0.78	1.38	1.21	1.39	0.83	0.64

Intersection Summary

Cycle Length: 180
Actuated Cycle Length: 180
Offset: 162 (90%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ 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: 1: S Military Trail & SR 869/SW 10th Street





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	315	2220	100	305	1395	300	185	800	580	440	550	285
Future Volume (vph)	315	2220	100	305	1395	300	185	800	580	440	550	285
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	4.0	5.9	5.5	4.0	5.9	5.9	5.9	5.5	5.9	5.9	5.9
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	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)	342	2413	109	332	1516	326	201	870	630	478	598	310
RTOR Reduction (vph)	0	0	46	0	0	52	0	0	81	0	0	158
Lane Group Flow (vph)	342	2413	63	332	1516	274	201	870	549	478	598	152
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	
Permitted Phases			6			2			4			8
Actuated Green, G (s)	20.2	89.0	100.4	15.5	84.3	100.4	11.4	30.1	45.6	16.1	34.8	34.8
Effective Green, g (s)	22.2	91.0	104.4	17.5	86.3	104.4	13.4	32.1	49.6	18.1	36.8	36.8
Actuated g/C Ratio	0.12	0.51	0.58	0.10	0.48	0.58	0.07	0.18	0.28	0.10	0.20	0.20
Clearance Time (s)	7.5	6.0	7.9	7.5	6.0	7.9	7.9	7.9	7.5	7.9	7.9	7.9
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0	2.0	3.0	3.0
Lane Grp Cap (vph)	423	1789	918	333	1696	970	255	631	436	345	723	323
v/s Ratio Prot	0.10	c0.68	0.01	0.10	0.43	0.03	0.06	c0.25	c0.12	c0.14	0.17	
v/s Ratio Perm			0.03			0.14			0.22			0.10
v/c Ratio	0.81	1.35	0.07	1.00	0.89	0.28	0.79	1.38	1.26	1.39	0.83	0.47
Uniform Delay, d1	76.8	44.5	16.5	81.2	42.7	19.0	81.9	74.0	65.2	81.0	68.6	63.0
Progression Factor	1.00	1.00	1.00	1.23	0.90	1.61	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	10.3	160.8	0.0	42.5	6.2	0.0	13.8	180.3	133.9	190.5	7.7	1.1
Delay (s)	87.1	205.3	16.5	142.5	44.5	30.6	95.7	254.2	199.1	271.5	76.3	64.1
Level of Service	F	F	B	F	D	C	F	F	F	F	E	E
Approach Delay (s)		184.0			57.4			215.1			140.9	
Approach LOS		F			E			F			F	

Intersection Summary			
HCM 2000 Control Delay	149.3	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.35		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	21.3
Intersection Capacity Utilization	122.7%	ICU Level of Service	H
Analysis Period (min)	15		

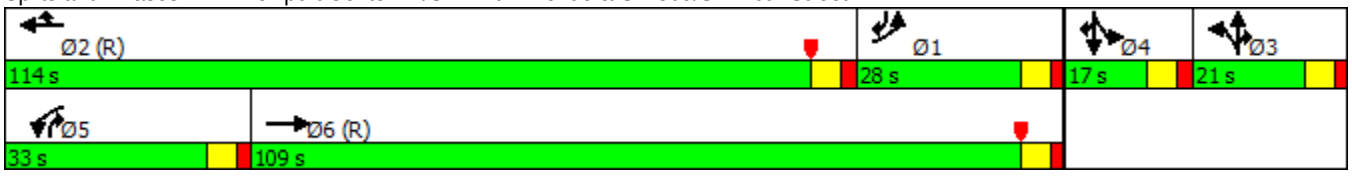
c Critical Lane Group

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR
Lane Configurations										
Traffic Volume (vph)	280	2465	360	1870	330	50	10	95	10	80
Future Volume (vph)	280	2465	360	1870	330	50	10	95	10	80
Lane Group Flow (vph)	304	3217	391	2033	359	32	33	103	49	87
Turn Type	Prot	NA	Prot	NA	Prot	Split	NA	pt+ov	NA	pt+ov
Protected Phases	1	6	5	2	2	3	3	3 5	4	4 1
Permitted Phases										
Detector Phase	1	6	5	2	2	3	3	3 5	4	4 1
Switch Phase										
Minimum Initial (s)	4.0	7.0	4.0	15.0	15.0	15.0	15.0		7.0	
Minimum Split (s)	10.0	13.0	10.0	21.0	21.0	21.0	21.0		13.0	
Total Split (s)	28.0	109.0	33.0	114.0	114.0	21.0	21.0		17.0	
Total Split (%)	15.6%	60.6%	18.3%	63.3%	63.3%	11.7%	11.7%		9.4%	
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)	-2.0	-2.0	-2.0	-2.0	-2.0	0.0	0.0		0.0	
Total Lost Time (s)	4.0	4.0	4.0	4.0	4.0	6.0	6.0		6.0	
Lead/Lag	Lag	Lag	Lead	Lead	Lead	Lag	Lag		Lead	
Lead-Lag Optimize?										
Recall Mode	None	C-Min	None	C-Min	C-Min	Min	Min		Min	
v/c Ratio	0.51	0.85	0.78	0.70	0.35	0.23	0.23	0.22	0.57	0.15
Control Delay	53.2	14.9	87.7	26.6	4.0	81.6	81.6	12.6	107.3	9.2
Queue Delay	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	53.2	14.9	87.7	26.7	4.0	81.6	81.6	12.6	107.3	9.2
Queue Length 50th (ft)	163	497	230	534	56	37	38	11	57	0
Queue Length 95th (ft)	m125	m271	m267	m513	m28	81	82	63	108	26
Internal Link Dist (ft)		818		925			695		185	
Turn Bay Length (ft)	700		750		750			150		
Base Capacity (vph)	591	3799	553	3107	1070	140	142	488	97	593
Starvation Cap Reductn	0	0	0	211	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.51	0.85	0.71	0.70	0.34	0.23	0.23	0.21	0.51	0.15

Intersection Summary

Cycle Length: 180
Actuated Cycle Length: 180
Offset: 12 (7%), Referenced to phase 2:WBT and 6:EBT, Start of Yellow
Natural Cycle: 110
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 2: Newport Center Dr/SW 12th Avenue & SR 869/SW 10th Street



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	280	2465	495	360	1870	330	50	10	95	35	10	80
Future Volume (vph)	280	2465	495	360	1870	330	50	10	95	35	10	80
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	6.0	6.0	6.0		6.0	6.0
Lane Util. Factor	0.97	0.86		0.97	0.91	1.00	0.95	0.95	1.00		1.00	0.88
Frt	1.00	0.97		1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	0.97	1.00		0.96	1.00
Satd. Flow (prot)	3367	6247		3433	5085	1524	1681	1713	1583		1599	2030
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	0.97	1.00		0.96	1.00
Satd. Flow (perm)	3367	6247		3433	5085	1524	1681	1713	1583		1599	2030
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)	304	2679	538	391	2033	359	54	11	103	38	11	87
RTOR Reduction (vph)	0	19	0	0	0	152	0	0	68	0	0	65
Lane Group Flow (vph)	304	3198	0	391	2033	207	32	33	35	0	49	22
Heavy Vehicles (%)	4%	2%	2%	2%	2%	6%	2%	2%	2%	18%	2%	40%
Turn Type	Prot	NA		Prot	NA	Prot	Split	NA	pt+ov	Split	NA	pt+ov
Protected Phases	1	6		5	2	2	3	3	3 5	4	4	4 1
Permitted Phases												
Actuated Green, G (s)	29.6	106.9		24.3	101.6	101.6	15.0	15.0	45.3		9.8	45.4
Effective Green, g (s)	31.6	108.9		26.3	103.6	103.6	15.0	15.0	45.3		9.8	45.4
Actuated g/C Ratio	0.18	0.61		0.15	0.58	0.58	0.08	0.08	0.25		0.05	0.25
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0			6.0	
Vehicle Extension (s)	1.5	3.0		2.5	3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)	591	3779		501	2926	877	140	142	398		87	512
v/s Ratio Prot	0.09	c0.51		c0.11	0.40	0.14	0.02	c0.02	0.02		c0.03	0.01
v/s Ratio Perm												
v/c Ratio	0.51	0.85		0.78	0.69	0.24	0.23	0.23	0.09		0.56	0.04
Uniform Delay, d1	67.2	28.8		74.1	27.0	18.8	77.1	77.1	51.5		83.0	50.9
Progression Factor	0.76	0.50		1.08	0.96	2.62	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	0.0	0.2		5.2	1.0	0.4	0.8	0.8	0.1		8.1	0.0
Delay (s)	51.3	14.7		85.0	26.8	49.6	77.9	78.0	51.6		91.1	50.9
Level of Service	D	B		F	C	D	E	E	D		F	D
Approach Delay (s)		17.8			37.9			61.8			65.4	
Approach LOS		B			D			E			E	

Intersection Summary			
HCM 2000 Control Delay	28.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	78.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Phasings
3: SR 869/SW 10th Street & I-95 SB Off-Ramp

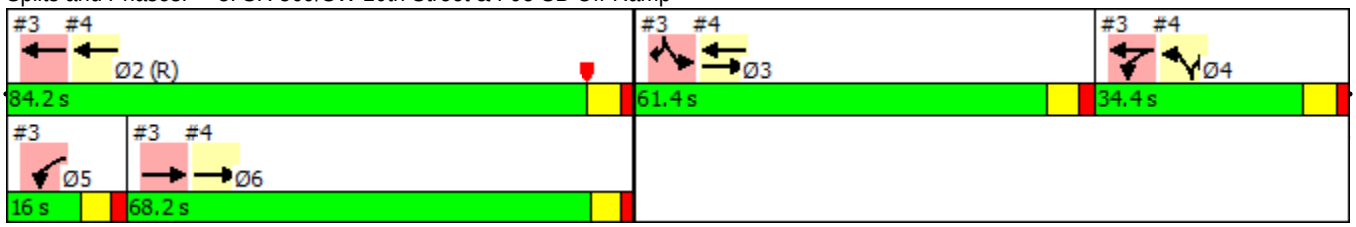
06/04/2021

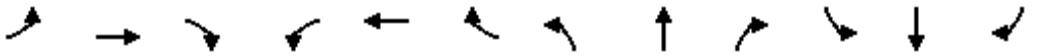
Lane Group	EBT	WBL	WBT	SBL	SBR	Ø2	Ø4	Ø5
Lane Configurations								
Traffic Volume (vph)	1960	585	1700	320	860			
Future Volume (vph)	1960	585	1700	320	860			
Lane Group Flow (vph)	2798	616	1848	337	905			
Turn Type	NA	Prot	NA	Prot	Prot			
Protected Phases	6	5 4	2 4	3	3	2	4	5
Permitted Phases								
Detector Phase	6	5 4	2 4	3	3			
Switch Phase								
Minimum Initial (s)	10.0			5.0	5.0	10.0	28.0	10.0
Minimum Split (s)	16.0			11.4	11.4	16.5	34.4	16.0
Total Split (s)	68.2			61.4	61.4	84.2	34.4	16.0
Total Split (%)	37.9%			34.1%	34.1%	47%	19%	9%
Yellow Time (s)	4.0			4.4	4.4	4.5	4.4	4.0
All-Red Time (s)	2.0			2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)	-2.0			-2.0	-2.0			
Total Lost Time (s)	4.0			4.4	4.4			
Lead/Lag	Lag			Lead	Lead		Lag	Lead
Lead-Lag Optimize?								
Recall Mode	Max			None	None	C-Max	Min	None
v/c Ratio	1.10dr	0.70	0.57	0.31	1.03			
Control Delay	64.2	81.3	8.5	47.6	95.9			
Queue Delay	0.0	0.0	0.2	0.0	0.0			
Total Delay	64.2	81.3	8.7	47.6	95.9			
Queue Length 50th (ft)	~887	335	154	156	~644			
Queue Length 95th (ft)	#931	405	197	203	#794			
Internal Link Dist (ft)	925		295					
Turn Bay Length (ft)		500		500	500			
Base Capacity (vph)	2625	884	3223	1087	882			
Starvation Cap Reductn	0	0	524	0	0			
Spillback Cap Reductn	0	0	0	0	0			
Storage Cap Reductn	0	0	0	0	0			
Reduced v/c Ratio	1.07	0.70	0.68	0.31	1.03			

Intersection Summary

Cycle Length: 180
Actuated Cycle Length: 180
Offset: 60 (33%), Referenced to phase 2:WBT, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
~ 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.
dr Defacto Right Lane. Recode with 1 though lane as a right lane.

Splits and Phases: 3: SR 869/SW 10th Street & I-95 SB Off-Ramp





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1960	635	585	1700	0	0	0	0	320	0	860
Future Volume (vph)	0	1960	635	585	1700	0	0	0	0	320	0	860
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.5					4.4		4.4
Lane Util. Factor		0.81		0.97	0.91					0.97		0.88
Frt		0.96		1.00	1.00					1.00		0.85
Flt Protected		1.00		0.95	1.00					0.95		1.00
Satd. Flow (prot)		7274		3433	5085					3433		2787
Flt Permitted		1.00		0.95	1.00					0.95		1.00
Satd. Flow (perm)		7274		3433	5085					3433		2787
Peak-hour factor, PHF	0.92	0.92	0.95	0.95	0.92	0.92	0.92	0.92	0.92	0.95	0.95	0.95
Adj. Flow (vph)	0	2130	668	616	1848	0	0	0	0	337	0	905
RTOR Reduction (vph)	0	32	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	2766	0	616	1848	0	0	0	0	337	0	905
Turn Type		NA		Prot	NA					Prot		Prot
Protected Phases		6		5 4	2 4					3		3
Permitted Phases												
Actuated Green, G (s)		62.2		44.4	112.1					55.0		55.0
Effective Green, g (s)		64.2		42.0	109.7					57.0		57.0
Actuated g/C Ratio		0.36		0.23	0.61					0.32		0.32
Clearance Time (s)		6.0								6.4		6.4
Vehicle Extension (s)		3.0								2.0		2.0
Lane Grp Cap (vph)		2594		801	3099					1087		882
v/s Ratio Prot		c0.38		c0.18	0.36					0.10		c0.32
v/s Ratio Perm												
v/c Ratio		1.10dr		0.77	0.60					0.31		1.03
Uniform Delay, d1		57.9		64.5	21.6					46.6		61.5
Progression Factor		0.51		1.27	0.41					1.00		1.00
Incremental Delay, d2		35.1		4.0	0.3					0.1		37.1
Delay (s)		64.9		85.9	9.2					46.7		98.6
Level of Service		E		F	A					D		F
Approach Delay (s)		64.9			28.3			0.0			84.5	
Approach LOS		E			C			A			F	

Intersection Summary			
HCM 2000 Control Delay	54.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	16.8
Intersection Capacity Utilization	70.3%	ICU Level of Service	C
Analysis Period (min)	15		

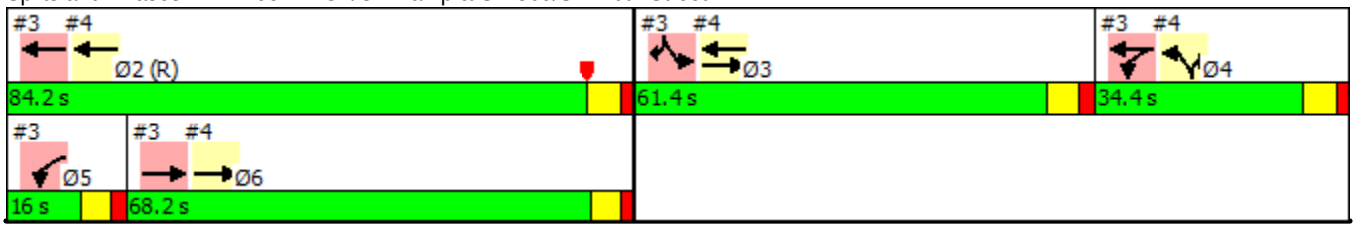
dr Defacto Right Lane. Recode with 1 though lane as a right lane.
c Critical Lane Group

Lane Group	EBT	EBR	WBT	NBL	NBR	Ø2	Ø3	Ø5	Ø6
Lane Configurations									
Traffic Volume (vph)	1090	1190	1905	650	420				
Future Volume (vph)	1090	1190	1905	650	420				
Lane Group Flow (vph)	1185	1253	2071	684	442				
Turn Type	NA	Free	NA	Prot	Prot				
Protected Phases	6 3		2 3	4	4	2	3	5	6
Permitted Phases		Free							
Detector Phase	6 3		2 3	4	4				
Switch Phase									
Minimum Initial (s)				28.0	28.0	10.0	5.0	10.0	10.0
Minimum Split (s)				34.4	34.4	16.5	11.4	16.0	16.0
Total Split (s)				34.4	34.4	84.2	61.4	16.0	68.2
Total Split (%)				19.1%	19.1%	47%	34%	9%	38%
Yellow Time (s)				4.4	4.4	4.5	4.4	4.0	4.0
All-Red Time (s)				2.0	2.0	2.0	2.0	2.0	2.0
Lost Time Adjust (s)				-2.0	-2.0				
Total Lost Time (s)				4.4	4.4				
Lead/Lag				Lag	Lag		Lead	Lead	Lag
Lead-Lag Optimize?									
Recall Mode				Min	Min	C-Max	None	None	Max
v/c Ratio	0.33	0.45	0.35	0.82	0.74				
Control Delay	0.7	3.3	6.8	81.7	79.4				
Queue Delay	0.0	0.0	0.0	0.0	0.0				
Total Delay	0.7	3.3	6.8	81.7	79.4				
Queue Length 50th (ft)	7	51	162	281	221				
Queue Length 95th (ft)	m7	m19	87	331	276				
Internal Link Dist (ft)	260		630	1225					
Turn Bay Length (ft)		700		410	430				
Base Capacity (vph)	3548	2787	5913	831	601				
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	0.33	0.45	0.35	0.82	0.74				

Intersection Summary

Cycle Length: 180
Actuated Cycle Length: 180
Offset: 60 (33%), Referenced to phase 2:WBT, Start of Yellow
Natural Cycle: 150
Control Type: Actuated-Coordinated
m Volume for 95th percentile queue is metered by upstream signal.

Splits and Phases: 4: I-95 NB On/Off-Ramp & SR 869/SW 10th Street



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1090	1190	0	1905	650	420
Future Volume (vph)	1090	1190	0	1905	650	420
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	2.0		4.5	4.4	4.4
Lane Util. Factor	0.91	0.88		0.81	0.94	0.76
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	1.00	1.00		1.00	0.95	1.00
Satd. Flow (prot)	5085	2787		7544	4990	3610
Flt Permitted	1.00	1.00		1.00	0.95	1.00
Satd. Flow (perm)	5085	2787		7544	4990	3610
Peak-hour factor, PHF	0.92	0.95	0.92	0.92	0.95	0.95
Adj. Flow (vph)	1185	1253	0	2071	684	442
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1185	1253	0	2071	684	442
Turn Type	NA	Free		NA	Prot	Prot
Protected Phases	6 3			2 3	4	4
Permitted Phases		Free				
Actuated Green, G (s)	123.2	180.0		139.2	28.0	28.0
Effective Green, g (s)	125.2	180.0		141.2	30.0	30.0
Actuated g/C Ratio	0.70	1.00		0.78	0.17	0.17
Clearance Time (s)					6.4	6.4
Vehicle Extension (s)					3.5	3.5
Lane Grp Cap (vph)	3536	2787		5917	831	601
v/s Ratio Prot	0.23			0.27	c0.14	0.12
v/s Ratio Perm		c0.45				
v/c Ratio	0.34	0.45		0.35	0.82	0.74
Uniform Delay, d1	10.9	0.0		5.8	72.4	71.2
Progression Factor	0.06	1.00		1.14	1.00	1.00
Incremental Delay, d2	0.0	0.2		0.0	6.8	4.8
Delay (s)	0.6	0.2		6.6	79.2	76.0
Level of Service	A	A		A	E	E
Approach Delay (s)	0.4			6.6	78.0	
Approach LOS	A			A	E	

Intersection Summary			
HCM 2000 Control Delay	18.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	18.8
Intersection Capacity Utilization	52.8%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Phasings
5: Research Park Boulevard/SW Natura Boulevard & SR 869/SW 10th Street

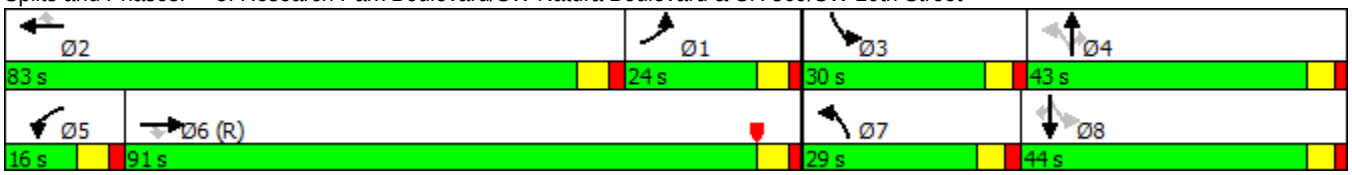
06/04/2021

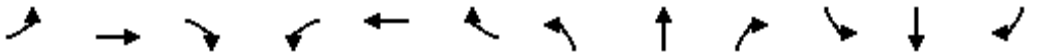
Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	190	1070	250	95	1425	80	200	130	120	220	150	280
Future Volume (vph)	190	1070	250	95	1425	80	200	130	120	220	150	280
Lane Group Flow (vph)	207	1163	272	103	1549	87	217	141	130	239	163	304
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases			6			2	4		4	8		8
Detector Phase	1	6	6	5	2	2	7	4	4	3	8	8
Switch Phase												
Minimum Initial (s)	4.0	15.0	15.0	4.0	15.0	15.0	4.0	6.0	6.0	4.0	6.0	6.0
Minimum Split (s)	10.4	21.4	21.4	10.4	21.4	21.4	9.7	11.7	11.7	9.7	11.7	11.7
Total Split (s)	24.0	91.0	91.0	16.0	83.0	83.0	29.0	43.0	43.0	30.0	44.0	44.0
Total Split (%)	13.3%	50.6%	50.6%	8.9%	46.1%	46.1%	16.1%	23.9%	23.9%	16.7%	24.4%	24.4%
Yellow Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	3.7	3.7	3.7	3.7	3.7	3.7
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)	-2.0	-2.0	-2.0	-2.0	-2.0	-2.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.4	4.4	4.4	4.4	4.4	4.4	5.7	5.7	5.7	5.7	5.7	5.7
Lead/Lag	Lag	Lag	Lag	Lead	Lead	Lead	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?												
Recall Mode	None	C-Min	C-Min	None	Min	Min	None	None	None	None	None	None
v/c Ratio	0.66	0.38	0.26	0.51	0.54	0.09	0.78	0.36	0.45	0.70	0.78	0.79
Control Delay	73.5	13.8	3.1	91.1	26.7	3.8	74.4	75.8	13.9	67.0	100.6	33.1
Queue Delay	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 Delay	73.5	13.8	3.1	91.1	26.7	3.8	74.4	75.8	13.9	67.0	100.6	33.1
Queue Length 50th (ft)	116	207	39	61	421	0	214	82	0	240	191	79
Queue Length 95th (ft)	173	176	65	97	531	31	285	116	64	315	267	194
Internal Link Dist (ft)		630			1233			1112			1327	
Turn Bay Length (ft)	300		300	200		300	260		260	170		170
Base Capacity (vph)	373	3039	1055	221	2872	933	297	733	433	363	396	521
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.38	0.26	0.47	0.54	0.09	0.73	0.19	0.30	0.66	0.41	0.58

Intersection Summary

Cycle Length: 180
Actuated Cycle Length: 180
Offset: 112 (62%), Referenced to phase 6:EBT, Start of Yellow
Natural Cycle: 65
Control Type: Actuated-Coordinated

Splits and Phases: 5: Research Park Boulevard/SW Natura Boulevard & SR 869/SW 10th Street





Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	190	1070	250	95	1425	80	200	130	120	220	150	280
Future Volume (vph)	190	1070	250	95	1425	80	200	130	120	220	150	280
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.4	4.4	4.4	4.4	4.4	5.7	5.7	5.7	5.7	5.7	5.7
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	1770	3539	1583	1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.34	1.00	1.00	0.60	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	628	3539	1583	1126	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)	207	1163	272	103	1549	87	217	141	130	239	163	304
RTOR Reduction (vph)	0	0	110	0	0	38	0	0	116	0	0	208
Lane Group Flow (vph)	207	1163	162	103	1549	49	217	141	14	239	163	96
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases			6			2	4		4	8		8
Actuated Green, G (s)	14.5	105.5	105.5	8.6	99.6	99.6	41.1	19.8	19.8	42.3	20.4	20.4
Effective Green, g (s)	16.5	107.5	107.5	10.6	101.6	101.6	41.1	19.8	19.8	42.3	20.4	20.4
Actuated g/C Ratio	0.09	0.60	0.60	0.06	0.56	0.56	0.23	0.11	0.11	0.23	0.11	0.11
Clearance Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	5.7	5.7	5.7	5.7	5.7	5.7
Vehicle Extension (s)	1.5	3.0	3.0	1.5	3.0	3.0	1.5	2.0	2.0	1.5	2.0	2.0
Lane Grp Cap (vph)	314	3036	945	202	2870	893	278	389	174	342	211	179
v/s Ratio Prot	c0.06	0.23		0.03	c0.30		c0.09	0.04		0.08	c0.09	
v/s Ratio Perm			0.10			0.03	0.09		0.01	0.08		0.06
v/c Ratio	0.66	0.38	0.17	0.51	0.54	0.05	0.78	0.36	0.08	0.70	0.77	0.53
Uniform Delay, d1	79.0	18.9	16.3	82.2	24.6	17.6	61.4	74.2	71.9	60.9	77.5	75.3
Progression Factor	0.81	0.67	1.29	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.5	0.3	0.4	0.7	0.2	0.0	12.3	0.2	0.1	5.0	14.7	1.5
Delay (s)	67.5	13.1	21.4	82.9	24.8	17.6	73.7	74.5	72.0	65.9	92.2	76.9
Level of Service	E	B	C	F	C	B	E	E	E	E	F	E
Approach Delay (s)		21.3			27.8			73.5			76.7	
Approach LOS		C			C			E			E	

Intersection Summary			
HCM 2000 Control Delay	37.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	20.2
Intersection Capacity Utilization	69.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	2299	152	1821	147	190
v/c Ratio	0.54	0.64	0.48	0.68	0.53
Control Delay	17.1	62.0	1.6	65.1	11.8
Queue Delay	0.0	1.4	0.1	0.0	0.0
Total Delay	17.1	63.4	1.7	65.1	11.8
Queue Length 50th (ft)	257	84	27	111	0
Queue Length 95th (ft)	325	#155	27	170	64
Internal Link Dist (ft)	575		175	531	
Turn Bay Length (ft)					
Base Capacity (vph)	4265	236	3824	545	619
Starvation Cap Reductn	0	18	458	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.54	0.70	0.54	0.27	0.31

Intersection Summary

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

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2010	105	140	1675	135	175
Future Volume (vph)	2010	105	140	1675	135	175
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0	6.0	9.0	9.0
Lane Util. Factor	0.81		1.00	0.91	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	7488		1770	5085	1770	1583
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	7488		1770	5085	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2185	114	152	1821	147	190
RTOR Reduction (vph)	5	0	0	0	0	167
Lane Group Flow (vph)	2294	0	152	1821	147	23
Turn Type	NA		Prot	NA	Prot	Perm
Protected Phases	2 3		1	1 2 3	4	
Permitted Phases					4	4
Actuated Green, G (s)	66.2		14.0	88.2	14.8	14.8
Effective Green, g (s)	68.2		16.0	90.2	14.8	14.8
Actuated g/C Ratio	0.57		0.13	0.75	0.12	0.12
Clearance Time (s)			8.0		9.0	9.0
Vehicle Extension (s)			1.5		2.0	2.0
Lane Grp Cap (vph)	4255		236	3822	218	195
v/s Ratio Prot	c0.31		c0.09	0.36	c0.08	
v/s Ratio Perm						0.01
v/c Ratio	0.54		0.64	0.48	0.67	0.12
Uniform Delay, d1	16.1		49.3	5.8	50.3	46.8
Progression Factor	1.00		1.00	0.20	1.00	1.00
Incremental Delay, d2	0.1		4.1	0.0	6.3	0.1
Delay (s)	16.2		53.6	1.2	56.6	46.9
Level of Service	B		D	A	E	D
Approach Delay (s)	16.2			5.2	51.1	
Approach LOS	B			A	D	

Intersection Summary			
HCM 2000 Control Delay	14.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.0
Intersection Capacity Utilization	57.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	92	2283	1810	82	250	163
v/c Ratio	0.70	0.47	0.45	0.08	0.59	0.49
Control Delay	63.6	2.4	9.8	1.4	55.0	13.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.6	2.4	9.8	1.4	55.0	13.2
Queue Length 50th (ft)	70	26	182	2	95	5
Queue Length 95th (ft)	#153	43	251	m5	130	64
Internal Link Dist (ft)		175	1004		271	
Turn Bay Length (ft)				450		
Base Capacity (vph)	132	4818	4017	1023	1058	595
Starvation Cap Reductn	0	529	0	0	0	0
Spillback Cap Reductn	0	0	14	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.70	0.53	0.45	0.08	0.24	0.27

Intersection Summary

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.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	85	2100	1665	75	230	150
Future Volume (vph)	85	2100	1665	75	230	150
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	9.0	9.0
Lane Util. Factor	1.00	0.86	0.86	1.00	0.97	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	6408	6408	1583	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	6408	6408	1583	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	92	2283	1810	82	250	163
RTOR Reduction (vph)	0	0	0	31	0	137
Lane Group Flow (vph)	92	2283	1810	51	250	26
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	3	1 2 3	1 2		4	
Permitted Phases				1 2		4
Actuated Green, G (s)	7.0	88.2	73.2	73.2	14.8	14.8
Effective Green, g (s)	9.0	90.2	75.2	75.2	14.8	14.8
Actuated g/C Ratio	0.08	0.75	0.63	0.63	0.12	0.12
Clearance Time (s)	8.0				9.0	9.0
Vehicle Extension (s)	1.5				2.0	2.0
Lane Grp Cap (vph)	132	4816	4015	992	423	195
v/s Ratio Prot	c0.05	c0.36	0.28		c0.07	
v/s Ratio Perm				0.03		0.02
v/c Ratio	0.70	0.47	0.45	0.05	0.59	0.13
Uniform Delay, d1	54.2	5.7	11.7	8.6	49.7	46.9
Progression Factor	0.72	0.34	0.78	0.55	1.00	1.00
Incremental Delay, d2	10.6	0.0	0.0	0.0	1.5	0.1
Delay (s)	49.6	2.0	9.1	4.8	51.2	47.0
Level of Service	D	A	A	A	D	D
Approach Delay (s)		3.8	8.9		49.6	
Approach LOS		A	A		D	

Intersection Summary			
HCM 2000 Control Delay	9.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.0
Intersection Capacity Utilization	52.9%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	EBR	WBT	SBL2	SBR
Lane Group Flow (vph)	1554	947	1391	442	484
v/c Ratio	0.43	0.60	0.48	0.52	0.70
Control Delay	5.3	7.8	7.1	21.9	26.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	5.3	7.8	7.1	21.9	26.7
Queue Length 50th (ft)	74	244	109	70	89
Queue Length 95th (ft)	124	360	144	108	138
Internal Link Dist (ft)	1004		259		
Turn Bay Length (ft)		250			
Base Capacity (vph)	3650	1583	2897	886	719
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.43	0.60	0.48	0.50	0.67

Intersection Summary

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR
Lane Configurations											
Traffic Volume (vph)	0	1430	900	0	1280	0	420	0	460	0	0
Future Volume (vph)	0	1430	900	0	1280	0	420	0	460	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	2.0		5.5		5.5		5.5		
Lane Util. Factor		0.86	1.00		0.91		0.97		0.88		
Frt		1.00	0.85		1.00		1.00		0.85		
Flt Protected		1.00	1.00		1.00		0.95		1.00		
Satd. Flow (prot)		6408	1583		5085		3433		2787		
Flt Permitted		1.00	1.00		1.00		0.95		1.00		
Satd. Flow (perm)		6408	1583		5085		3433		2787		
Peak-hour factor, PHF	0.92	0.92	0.95	0.92	0.92	0.92	0.95	0.92	0.95	0.92	0.92
Adj. Flow (vph)	0	1554	947	0	1391	0	442	0	484	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1554	947	0	1391	0	442	0	484	0	0
Turn Type		NA	Free		NA		Prot		Prot		
Protected Phases		6			2		3		3		
Permitted Phases			Free								
Actuated Green, G (s)		32.2	60.0		32.2		12.8		12.8		
Effective Green, g (s)		34.2	60.0		34.2		14.8		14.8		
Actuated g/C Ratio		0.57	1.00		0.57		0.25		0.25		
Clearance Time (s)		7.5			7.5		7.5		7.5		
Vehicle Extension (s)		3.0			3.0		2.5		2.5		
Lane Grp Cap (vph)		3652	1583		2898		846		687		
v/s Ratio Prot		0.24			0.27		0.13		0.17		
v/s Ratio Perm			c0.60								
v/c Ratio		0.43	0.60		0.48		0.52		0.70		
Uniform Delay, d1		7.3	0.0		7.6		19.5		20.6		
Progression Factor		0.67	1.00		0.85		1.00		1.00		
Incremental Delay, d2		0.3	1.5		0.5		0.4		3.1		
Delay (s)		5.2	1.5		6.9		20.0		23.7		
Level of Service		A	A		A		B		C		
Approach Delay (s)		3.8			6.9			21.9		0.0	
Approach LOS		A			A			C		A	

Intersection Summary			
HCM 2000 Control Delay	8.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	58.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBT	WBR	NBL2	NBR
Lane Group Flow (vph)	1130	1848	463	495	358
v/c Ratio	0.38	0.62	0.29	0.63	0.56
Control Delay	5.2	4.7	0.2	24.7	24.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	5.2	4.7	0.2	24.7	24.0
Queue Length 50th (ft)	81	90	0	81	64
Queue Length 95th (ft)	56	m145	m0	124	104
Internal Link Dist (ft)	270	1155			
Turn Bay Length (ft)			250		
Base Capacity (vph)	2984	2984	1583	829	673
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	0.38	0.62	0.29	0.60	0.53

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBR	SEL	SER
Lane Configurations											
Traffic Volume (vph)	0	1040	0	0	1700	440	470	0	340	0	0
Future Volume (vph)	0	1040	0	0	1700	440	470	0	340	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5	2.0	5.5		5.5		
Lane Util. Factor		0.91			0.91	1.00	0.97		0.88		
Frt		1.00			1.00	0.85	1.00		0.85		
Flt Protected		1.00			1.00	1.00	0.95		1.00		
Satd. Flow (prot)		5085			5085	1583	3433		2787		
Flt Permitted		1.00			1.00	1.00	0.95		1.00		
Satd. Flow (perm)		5085			5085	1583	3433		2787		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.95	0.95	0.92	0.95	0.92	0.92
Adj. Flow (vph)	0	1130	0	0	1848	463	495	0	358	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1130	0	0	1848	463	495	0	358	0	0
Turn Type		NA			NA	Free	Prot		Prot		
Protected Phases		6			2		4		4		
Permitted Phases						Free					
Actuated Green, G (s)		33.2			33.2	60.0	11.8		11.8		
Effective Green, g (s)		35.2			35.2	60.0	13.8		13.8		
Actuated g/C Ratio		0.59			0.59	1.00	0.23		0.23		
Clearance Time (s)		7.5			7.5		7.5		7.5		
Vehicle Extension (s)		3.0			3.0		2.5		2.5		
Lane Grp Cap (vph)		2983			2983	1583	789		641		
v/s Ratio Prot		0.22			c0.36		c0.14		0.13		
v/s Ratio Perm						0.29					
v/c Ratio		0.38			0.62	0.29	0.63		0.56		
Uniform Delay, d1		6.6			8.1	0.0	20.8		20.4		
Progression Factor		0.72			0.51	1.00	1.00		1.00		
Incremental Delay, d2		0.3			0.5	0.2	1.4		0.8		
Delay (s)		5.1			4.6	0.2	22.1		21.3		
Level of Service		A			A	A	C		C		
Approach Delay (s)		5.1			3.7			21.8		0.0	
Approach LOS		A			A			C		A	

Intersection Summary			
HCM 2000 Control Delay	7.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	53.5%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Queues

5: NE 3rd Ave & Sample Road

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	386	1114	49	1669	212	217	65	92	212	516
v/c Ratio	0.91	0.48	0.43	0.87	0.66	0.44	0.12	0.29	0.43	0.97
Control Delay	70.8	17.7	66.2	40.1	42.8	39.6	0.5	29.2	39.4	63.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.8	17.7	66.2	40.1	42.8	39.6	0.5	29.2	39.4	63.9
Queue Length 50th (ft)	147	203	37	437	117	138	0	47	135	293
Queue Length 95th (ft)	#243	263	79	505	183	214	0	86	209	#517
Internal Link Dist (ft)		1155		834		912			742	
Turn Bay Length (ft)	550		490		250		225	200		
Base Capacity (vph)	425	2311	116	1927	323	507	543	320	507	543
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.91	0.48	0.42	0.87	0.66	0.43	0.12	0.29	0.42	0.95

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	355	910	115	45	1470	65	195	200	60	85	195	475
Future Volume (vph)	355	910	115	45	1470	65	195	200	60	85	195	475
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	0.91		1.00	0.91		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3400	4951		1752	5004		1752	1845	1568	1752	1845	1568
Flt Permitted	0.95	1.00		0.95	1.00		0.51	1.00	1.00	0.50	1.00	1.00
Satd. Flow (perm)	3400	4951		1752	5004		945	1845	1568	930	1845	1568
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)	386	989	125	49	1598	71	212	217	65	92	212	516
RTOR Reduction (vph)	0	13	0	0	4	0	0	0	48	0	0	114
Lane Group Flow (vph)	386	1101	0	49	1665	0	212	217	17	92	212	402
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type	Prot	NA		Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases							4		4	8		8
Actuated Green, G (s)	13.0	52.3		4.8	44.1		36.9	31.9	31.9	36.9	31.9	31.9
Effective Green, g (s)	15.0	54.3		6.8	46.1		36.9	31.9	31.9	36.9	31.9	31.9
Actuated g/C Ratio	0.12	0.45		0.06	0.38		0.31	0.27	0.27	0.31	0.27	0.27
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	1.5	3.0		1.5	3.0		1.5	2.0	2.0	1.5	2.0	2.0
Lane Grp Cap (vph)	425	2240		99	1922		324	490	416	320	490	416
v/s Ratio Prot	c0.11	0.22		0.03	c0.33		c0.03	0.12		0.01	0.11	
v/s Ratio Perm							0.17		0.01	0.08		c0.26
v/c Ratio	0.91	0.49		0.49	0.87		0.65	0.44	0.04	0.29	0.43	0.97
Uniform Delay, d1	51.8	23.1		54.9	34.1		36.5	36.7	32.7	30.5	36.5	43.5
Progression Factor	0.88	0.75		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	21.1	0.7		1.4	5.6		3.6	0.2	0.0	0.2	0.2	35.0
Delay (s)	66.7	18.0		56.4	39.7		40.0	36.9	32.7	30.7	36.8	78.5
Level of Service	E	B		E	D		D	D	C	C	D	E
Approach Delay (s)		30.6			40.1			37.7			62.4	
Approach LOS		C			D			D			E	

Intersection Summary			
HCM 2000 Control Delay	40.7	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	84.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Queues

Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	43	2059	250	2234	54	223	11	332	268	276	337
v/c Ratio	0.42	0.86	1.25	0.93	0.05	0.64	0.06	0.89	0.83	0.84	0.67
Control Delay	67.2	33.8	192.0	26.5	0.1	60.0	47.6	59.8	68.4	69.0	17.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	67.2	33.8	192.0	26.5	0.1	60.0	47.6	59.8	68.4	69.0	17.9
Queue Length 50th (ft)	33	517	~128	510	0	87	8	192	208	215	69
Queue Length 95th (ft)	72	#701	m#213	#785	m0	124	26	#324	306	313	146
Internal Link Dist (ft)		580		548			436			396	
Turn Bay Length (ft)	450		375		350	225		250	200		
Base Capacity (vph)	103	2391	200	2410	1213	915	496	375	378	385	506
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.86	1.25	0.93	0.04	0.24	0.02	0.89	0.71	0.72	0.67

Intersection Summary

~ 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.

HCM Signalized Intersection Capacity Analysis

1: SW 12th Avenue & Hillsboro Bvd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	1765	130	230	2055	50	205	10	305	410	90	310
Future Volume (vph)	40	1765	130	230	2055	50	205	10	305	410	90	310
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5		4.5	4.5	4.0	6.0	6.0	6.5	6.0	6.0	6.5
Lane Util. Factor	1.00	0.91		0.97	0.91	1.00	0.97	1.00	1.00	0.95	0.95	1.00
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	1.00
Satd. Flow (prot)	1770	5033		3433	5085	1583	3433	1863	1583	1681	1714	1583
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00	0.95	0.97	1.00
Satd. Flow (perm)	1770	5033		3433	5085	1583	3433	1863	1583	1681	1714	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)	43	1918	141	250	2234	54	223	11	332	446	98	337
RTOR Reduction (vph)	0	5	0	0	0	17	0	0	74	0	0	144
Lane Group Flow (vph)	43	2054	0	250	2234	37	223	11	258	268	276	193
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA		Prot	NA	pm+ov	Split	NA	pm+ov	Split	NA	pm+ov
Protected Phases	1	6		5	2	3	4	4	5	3	3	1
Permitted Phases						2			4			3
Actuated Green, G (s)	5.0	54.9		5.0	54.9	77.8	12.2	12.2	17.2	22.9	22.9	27.9
Effective Green, g (s)	7.0	56.9		7.0	56.9	81.8	12.2	12.2	17.2	22.9	22.9	27.9
Actuated g/C Ratio	0.06	0.47		0.06	0.47	0.68	0.10	0.10	0.14	0.19	0.19	0.23
Clearance Time (s)	6.5	6.5		6.5	6.5	6.0	6.0	6.0	6.5	6.0	6.0	6.5
Vehicle Extension (s)	1.5	3.0		2.0	3.0	2.0	2.0	2.0	2.0	2.0	2.0	1.5
Lane Grp Cap (vph)	103	2386		200	2411	1079	349	189	226	320	327	368
v/s Ratio Prot	0.02	0.41		c0.07	c0.44	0.01	0.06	0.01	c0.05	0.16	c0.16	0.02
v/s Ratio Perm						0.02			0.12			0.10
v/c Ratio	0.42	0.86		1.25	0.93	0.03	0.64	0.06	1.14	0.84	0.84	0.52
Uniform Delay, d1	54.5	28.0		56.5	29.6	6.2	51.8	48.7	51.4	46.8	46.8	40.2
Progression Factor	1.00	1.00		1.19	0.62	0.02	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	4.4		139.8	6.0	0.0	2.8	0.0	103.8	16.4	17.1	0.6
Delay (s)	55.5	32.4		207.0	24.2	0.1	54.6	48.8	155.2	63.2	63.9	40.9
Level of Service	E	C		F	C	A	D	D	F	E	E	D
Approach Delay (s)		32.9			41.7			113.5			54.9	
Approach LOS		C			D			F			D	

Intersection Summary			
HCM 2000 Control Delay	47.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.98		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	83.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Queues

Lane Group	EBT	EBR	WBT	SBL2	SBR
Lane Group Flow (vph)	1924	747	1978	574	542
v/c Ratio	0.38	0.47	0.72	0.85	0.51
Control Delay	0.1	0.7	18.3	45.9	29.5
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	0.1	0.7	18.3	45.9	29.5
Queue Length 50th (ft)	0	0	246	395	177
Queue Length 95th (ft)	0	m0	530	499	213
Internal Link Dist (ft)	548		319		
Turn Bay Length (ft)		150			
Base Capacity (vph)	5085	1583	2757	789	1242
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	0.38	0.47	0.72	0.73	0.44

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR
Lane Configurations		↑↑↑	↱		↑↑↑		↰		↱↱		
Traffic Volume (vph)	0	1770	710	0	1820	0	545	0	515	0	0
Future Volume (vph)	0	1770	710	0	1820	0	545	0	515	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		2.0	2.0		4.5		4.5		4.5		
Lane Util. Factor		0.91	1.00		0.91		1.00		0.88		
Frt		1.00	0.85		1.00		1.00		0.85		
Flt Protected		1.00	1.00		1.00		0.95		1.00		
Satd. Flow (prot)		5085	1583		5085		1770		2787		
Flt Permitted		1.00	1.00		1.00		0.95		1.00		
Satd. Flow (perm)		5085	1583		5085		1770		2787		
Peak-hour factor, PHF	0.92	0.92	0.95	0.92	0.92	0.92	0.95	0.92	0.95	0.92	0.92
Adj. Flow (vph)	0	1924	747	0	1978	0	574	0	542	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1924	747	0	1978	0	574	0	542	0	0
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type		NA	Perm		NA		Prot		Prot		
Protected Phases		Free!			2		8!		3		
Permitted Phases			Free								
Actuated Green, G (s)		120.0	120.0		63.1		43.9		43.9		
Effective Green, g (s)		120.0	120.0		65.1		45.9		45.9		
Actuated g/C Ratio		1.00	1.00		0.54		0.38		0.38		
Clearance Time (s)					6.5		6.5		6.5		
Vehicle Extension (s)					3.0		2.5		2.5		
Lane Grp Cap (vph)		5085	1583		2758		677		1066		
v/s Ratio Prot		0.38			c0.39		c0.32		0.19		
v/s Ratio Perm			0.47								
v/c Ratio		0.38	0.47		0.72		0.85		0.51		
Uniform Delay, d1		0.0	0.0		20.6		33.9		28.4		
Progression Factor		1.00	1.00		0.78		1.00		1.00		
Incremental Delay, d2		0.1	0.5		1.2		9.5		0.3		
Delay (s)		0.1	0.5		17.2		43.4		28.7		
Level of Service		A	A		B		D		C		
Approach Delay (s)		0.2			17.2			36.2		0.0	
Approach LOS		A			B			D		A	

Intersection Summary			
HCM 2000 Control Delay	13.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	60.7%	ICU Level of Service	B
Analysis Period (min)	15		

! Phase conflict between lane groups.

c Critical Lane Group

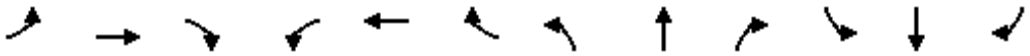
Queues

Lane Group	EBT	WBT	WBR	NBL	NBR
Lane Group Flow (vph)	1832	2152	696	685	716
v/c Ratio	0.62	0.73	0.44	0.44	0.79
Control Delay	10.8	9.5	0.6	17.6	24.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	10.8	9.5	0.6	17.6	24.9
Queue Length 50th (ft)	190	175	0	68	119
Queue Length 95th (ft)	190	m258	m0	96	#193
Internal Link Dist (ft)	286	371			
Turn Bay Length (ft)			250	350	350
Base Capacity (vph)	2960	2960	1568	1580	926
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	0.62	0.73	0.44	0.43	0.77

Intersection Summary

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.



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1685	0	0	1980	640	630	0	680	0	0	0
Future Volume (vph)	0	1685	0	0	1980	640	630	0	680	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5	2.0	2.0		2.0			
Lane Util. Factor		0.91			0.91	1.00	0.94		0.88			
Frt		1.00			1.00	0.85	1.00		0.85			
Flt Protected		1.00			1.00	1.00	0.95		1.00			
Satd. Flow (prot)		5085			5085	1568	4990		2787			
Flt Permitted		1.00			1.00	1.00	0.95		1.00			
Satd. Flow (perm)		5085			5085	1568	4990		2787			
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.95	0.92	0.92	0.92
Adj. Flow (vph)	0	1832	0	0	2152	696	685	0	716	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	44	0	0	0
Lane Group Flow (vph)	0	1832	0	0	2152	696	685	0	672	0	0	0
Heavy Vehicles (%)	3%	2%	2%	2%	2%	3%	2%	3%	2%	3%	3%	3%
Turn Type		NA			NA	Free	Prot		Prot			
Protected Phases		6			2		4		4			
Permitted Phases						Free						
Actuated Green, G (s)		32.9			32.9	60.0	16.6		16.6			
Effective Green, g (s)		34.9			34.9	60.0	18.6		18.6			
Actuated g/C Ratio		0.58			0.58	1.00	0.31		0.31			
Clearance Time (s)		6.5			6.5		4.0		4.0			
Vehicle Extension (s)		3.0			3.0		3.0		3.0			
Lane Grp Cap (vph)		2957			2957	1568	1546		863			
v/s Ratio Prot		0.36			c0.42		0.14		c0.24			
v/s Ratio Perm						0.44						
v/c Ratio		0.62			0.73	0.44	0.44		0.78			
Uniform Delay, d1		8.2			9.1	0.0	16.6		18.8			
Progression Factor		1.18			0.92	1.00	1.00		1.00			
Incremental Delay, d2		0.9			1.0	0.6	0.2		4.5			
Delay (s)		10.6			9.3	0.6	16.8		23.3			
Level of Service		B			A	A	B		C			
Approach Delay (s)		10.6			7.2			20.1			0.0	
Approach LOS		B			A			C			A	

Intersection Summary			
HCM 2000 Control Delay	11.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	6.5
Intersection Capacity Utilization	63.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Queues

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	87	2207	277	130	2250	33	288	11	125	120	54	310
v/c Ratio	0.43	0.77	0.29	1.01	0.76	0.03	1.14	0.04	0.36	0.44	0.19	0.85
Control Delay	63.1	16.7	4.6	136.9	22.5	0.1	141.6	39.3	7.1	42.1	42.4	46.3
Queue Delay	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 Delay	63.1	16.7	4.6	136.9	22.5	0.1	141.6	39.3	7.1	42.1	42.4	46.3
Queue Length 50th (ft)	33	387	33	~103	455	0	~238	7	0	77	37	129
Queue Length 95th (ft)	m50	521	m103	#234	638	0	#294	23	36	116	68	215
Internal Link Dist (ft)		660			631			513			403	
Turn Bay Length (ft)	300		150	100		200	125					340
Base Capacity (vph)	200	2876	956	129	2952	978	253	574	588	275	589	600
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.77	0.29	1.01	0.76	0.03	1.14	0.02	0.21	0.44	0.09	0.52

Intersection Summary

~ 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.

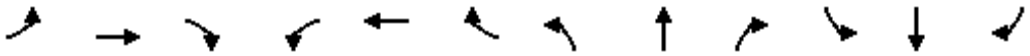
HCM Signalized Intersection Capacity Analysis

4: SW Natura Boulevard/Fairway Drive & Hillsboro Bvd

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	80	2030	255	120	2070	30	265	10	115	110	50	285
Future Volume (vph)	80	2030	255	120	2070	30	265	10	115	110	50	285
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	0.91	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	1770	5085	1583	1770	1863	1583	1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.72	1.00	1.00	0.71	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	1770	5085	1583	1345	1863	1583	1321	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)	87	2207	277	130	2250	33	288	11	125	120	54	310
RTOR Reduction (vph)	0	0	61	0	0	14	0	0	107	0	0	123
Lane Group Flow (vph)	87	2207	216	130	2250	19	288	11	18	120	54	187
Heavy Vehicles (%)	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases			6			2	4		4	8		8
Actuated Green, G (s)	5.0	65.9	65.9	6.8	67.7	67.7	21.3	17.3	17.3	23.3	18.3	18.3
Effective Green, g (s)	7.0	67.9	67.9	8.8	69.7	69.7	21.3	17.3	17.3	23.3	18.3	18.3
Actuated g/C Ratio	0.06	0.57	0.57	0.07	0.58	0.58	0.18	0.14	0.14	0.19	0.15	0.15
Clearance Time (s)	6.5	6.5	6.5	6.5	6.5	6.5	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	2.0	3.0	3.0	1.5	3.0	3.0	1.5	2.0	2.0	2.0	2.0	2.0
Lane Grp Cap (vph)	200	2877	895	129	2953	919	252	268	228	275	284	241
v/s Ratio Prot	0.03	0.43		c0.07	c0.44		c0.04	0.01		0.02	0.03	
v/s Ratio Perm			0.14			0.01	c0.16		0.01	0.07		0.12
v/c Ratio	0.43	0.77	0.24	1.01	0.76	0.02	1.14	0.04	0.08	0.44	0.19	0.78
Uniform Delay, d1	54.6	20.0	13.1	55.6	18.9	10.7	48.8	44.2	44.5	42.1	44.4	48.9
Progression Factor	1.06	0.69	0.54	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	1.5	0.5	81.3	1.9	0.0	100.7	0.0	0.1	0.4	0.1	13.3
Delay (s)	58.0	15.4	7.5	136.9	20.8	10.7	149.6	44.2	44.5	42.5	44.5	62.2
Level of Service	E	B	A	F	C	B	F	D	D	D	D	E
Approach Delay (s)		16.0			26.9			115.9			55.3	
Approach LOS		B			C			F			E	

Intersection Summary			
HCM 2000 Control Delay	30.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	86.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Queues



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	375	1848	207	418	2397	500	152	658	332	245	897	495
v/c Ratio	1.19	1.01	0.22	1.01	1.24	0.48	1.13	1.06	0.59	1.01	1.23	1.12
Control Delay	179.2	66.9	12.0	102.3	148.3	16.0	187.2	122.1	44.6	140.6	171.8	123.9
Queue Delay	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 Delay	179.2	66.9	12.0	102.3	148.3	16.0	187.2	122.1	44.6	140.6	171.8	123.9
Queue Length 50th (ft)	~274	~1204	70	~269	~1834	210	~106	~448	265	~156	~685	~528
Queue Length 95th (ft)	#387	#1332	119	m#328	#1946	m263	#190	#582	379	#255	#824	#771
Internal Link Dist (ft)		620			1082			569			457	
Turn Bay Length (ft)	550		500	550		500	300		300	650		650
Base Capacity (vph)	314	1824	945	413	1926	1035	135	619	564	242	729	441
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.19	1.01	0.22	1.01	1.24	0.48	1.13	1.06	0.59	1.01	1.23	1.12

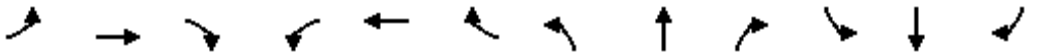
Intersection Summary

~ 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.

HCM Signalized Intersection Capacity Analysis

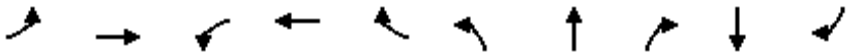


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	345	1700	190	385	2205	460	140	605	305	225	825	455
Future Volume (vph)	345	1700	190	385	2205	460	140	605	305	225	825	455
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.5	4.0	5.9	5.5	4.0	5.9	5.9	5.9	5.5	5.9	5.9	5.9
Lane Util. Factor	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	3539	1583	3433	3539	1583	3433	3539	1583	3433	3539	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)	375	1848	207	418	2397	500	152	658	332	245	897	495
RTOR Reduction (vph)	0	0	33	0	0	29	0	0	46	0	0	115
Lane Group Flow (vph)	375	1848	174	418	2397	471	152	658	286	245	897	380
Turn Type	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	pm+ov	Prot	NA	Perm
Protected Phases	1	6	7	5	2	3	7	4	5	3	8	
Permitted Phases			6			2			4			8
Actuated Green, G (s)	14.5	90.8	95.9	19.7	96.0	106.7	5.1	29.5	49.2	10.7	35.1	35.1
Effective Green, g (s)	16.5	92.8	99.9	21.7	98.0	110.7	7.1	31.5	53.2	12.7	37.1	37.1
Actuated g/C Ratio	0.09	0.52	0.56	0.12	0.54	0.62	0.04	0.18	0.30	0.07	0.21	0.21
Clearance Time (s)	7.5	6.0	7.9	7.5	6.0	7.9	7.9	7.9	7.5	7.9	7.9	7.9
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0	2.0	2.0	3.0	2.0	2.0	3.0	3.0
Lane Grp Cap (vph)	314	1824	878	413	1926	973	135	619	467	242	729	326
v/s Ratio Prot	0.11	0.52	0.01	c0.12	c0.68	0.03	0.04	0.19	0.07	c0.07	c0.25	
v/s Ratio Perm			0.10			0.26			0.11			0.24
v/c Ratio	1.19	1.01	0.20	1.01	1.24	0.48	1.13	1.06	0.61	1.01	1.23	1.17
Uniform Delay, d1	81.8	43.6	20.0	79.2	41.0	19.0	86.5	74.2	54.5	83.7	71.5	71.5
Progression Factor	1.00	1.00	1.00	0.91	1.01	1.06	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	114.4	24.4	0.0	33.0	112.2	0.1	115.3	54.1	1.7	61.1	115.5	102.6
Delay (s)	196.1	68.0	20.1	104.7	153.5	20.3	201.7	128.3	56.2	144.7	187.0	174.1
Level of Service	F	E	C	F	F	C	F	F	E	F	F	F
Approach Delay (s)		83.7			127.3			117.1			176.7	
Approach LOS		F			F			F			F	

Intersection Summary			
HCM 2000 Control Delay	123.0	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.25		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	21.3
Intersection Capacity Utilization	115.5%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Queues



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	76	2348	109	2598	87	178	175	418	103	375
v/c Ratio	0.68	0.69	0.57	0.92	0.10	0.59	0.58	0.88	0.56	0.88
Control Delay	79.5	18.7	94.5	32.2	2.7	76.3	75.7	69.9	87.3	75.7
Queue Delay	0.0	0.0	0.0	0.4	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	79.5	18.7	94.5	32.6	2.7	76.3	75.7	69.9	87.3	75.7
Queue Length 50th (ft)	45	296	64	912	2	205	201	387	117	192
Queue Length 95th (ft)	m49	m297	m84	m1032	m12	300	295	#579	188	#290
Internal Link Dist (ft)		818		925			695		185	
Turn Bay Length (ft)	700		750		750			150		
Base Capacity (vph)	112	3413	190	2832	889	308	309	470	189	435
Starvation Cap Reductn	0	0	0	41	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.68	0.69	0.57	0.93	0.10	0.58	0.57	0.89	0.54	0.86

Intersection Summary

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.

HCM Signalized Intersection Capacity Analysis

2: Newport Center Dr/SW 12th Avenue & SR 869/SW 10th Street

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	70	2095	65	100	2390	80	315	10	385	90	5	345
Future Volume (vph)	70	2095	65	100	2390	80	315	10	385	90	5	345
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0		4.0	4.0	4.0	6.0	6.0	6.0		6.0	6.0
Lane Util. Factor	0.97	0.86		0.97	0.91	1.00	0.95	0.95	1.00		1.00	0.88
Frt	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85		1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	0.96	1.00		0.95	1.00
Satd. Flow (prot)	3367	6379		3433	5085	1524	1681	1690	1583		1547	2030
Flt Permitted	0.95	1.00		0.95	1.00	1.00	0.95	0.96	1.00		0.95	1.00
Satd. Flow (perm)	3367	6379		3433	5085	1524	1681	1690	1583		1547	2030
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)	76	2277	71	109	2598	87	342	11	418	98	5	375
RTOR Reduction (vph)	0	2	0	0	0	39	0	0	68	0	0	75
Lane Group Flow (vph)	76	2346	0	109	2598	48	178	175	350	0	103	300
Heavy Vehicles (%)	4%	2%	2%	2%	2%	6%	2%	2%	2%	18%	2%	40%
Turn Type	Prot	NA		Prot	NA	Prot	Split	NA	pt+ov	Split	NA	pt+ov
Protected Phases	1	6		5	2	2	3	3	3 5	4	4	4 1
Permitted Phases												
Actuated Green, G (s)	4.0	94.3		8.0	98.3	98.3	32.4	32.4	46.4		21.3	31.3
Effective Green, g (s)	6.0	96.3		10.0	100.3	100.3	32.4	32.4	46.4		21.3	31.3
Actuated g/C Ratio	0.03	0.53		0.06	0.56	0.56	0.18	0.18	0.26		0.12	0.17
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0			6.0	
Vehicle Extension (s)	1.5	3.0		2.5	3.0	3.0	3.0	3.0			3.0	
Lane Grp Cap (vph)	112	3412		190	2833	849	302	304	408		183	352
v/s Ratio Prot	0.02	0.37		0.03	c0.51	0.03	0.11	0.10	c0.22		0.07	c0.15
v/s Ratio Perm												
v/c Ratio	0.68	0.69		0.57	0.92	0.06	0.59	0.58	0.86		0.56	0.85
Uniform Delay, d1	86.0	30.8		82.9	36.1	18.2	67.7	67.5	63.7		75.0	72.1
Progression Factor	0.81	0.59		1.04	0.77	0.90	1.00	1.00	1.00		1.00	1.00
Incremental Delay, d2	4.0	0.4		2.1	3.9	0.1	2.9	2.6	16.3		3.9	17.7
Delay (s)	73.7	18.5		88.6	31.7	16.4	70.6	70.1	79.9		78.9	89.8
Level of Service	E	B		F	C	B	E	E	E		E	F
Approach Delay (s)		20.2			33.4			75.6			87.4	
Approach LOS		C			C			E			F	

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)	180.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	84.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBT	WBL	WBT	SBL	SBR
Lane Group Flow (vph)	2771	605	1674	232	1084
v/c Ratio	1.21dr	0.72	0.54	0.20	1.16
Control Delay	110.4	50.2	9.3	43.1	133.7
Queue Delay	0.0	0.0	0.2	0.0	0.0
Total Delay	110.4	50.2	9.6	43.1	133.7
Queue Length 50th (ft)	~933	219	175	101	~853
Queue Length 95th (ft)	#976	286	174	138	#1005
Internal Link Dist (ft)	925		295		
Turn Bay Length (ft)		500		500	500
Base Capacity (vph)	2413	839	3121	1155	938
Starvation Cap Reductn	0	0	624	0	0
Spillback Cap Reductn	0	0	305	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	1.15	0.72	0.67	0.20	1.16

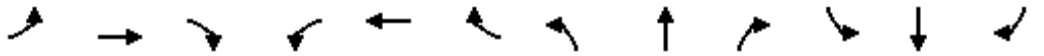
Intersection Summary

~ 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.

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

HCM Signalized Intersection Capacity Analysis



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	1925	645	575	1540	0	0	0	0	220	0	1030
Future Volume (vph)	0	1925	645	575	1540	0	0	0	0	220	0	1030
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.0		4.0	4.5					4.4		4.4
Lane Util. Factor		0.81		0.97	0.91					0.97		0.88
Frt		0.96		1.00	1.00					1.00		0.85
Flt Protected		1.00		0.95	1.00					0.95		1.00
Satd. Flow (prot)		7267		3433	5085					3433		2787
Flt Permitted		1.00		0.95	1.00					0.95		1.00
Satd. Flow (perm)		7267		3433	5085					3433		2787
Peak-hour factor, PHF	0.92	0.92	0.95	0.95	0.92	0.92	0.92	0.92	0.92	0.95	0.95	0.95
Adj. Flow (vph)	0	2092	679	605	1674	0	0	0	0	232	0	1084
RTOR Reduction (vph)	0	32	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	2739	0	605	1674	0	0	0	0	232	0	1084
Turn Type		NA		Prot	NA					Prot		Prot
Protected Phases		6		5 4	2 4					3		3
Permitted Phases												
Actuated Green, G (s)		57.0		39.6	108.5					58.6		58.6
Effective Green, g (s)		59.0		43.6	106.1					60.6		60.6
Actuated g/C Ratio		0.33		0.24	0.59					0.34		0.34
Clearance Time (s)		6.0								6.4		6.4
Vehicle Extension (s)		3.0								2.0		2.0
Lane Grp Cap (vph)		2381		831	2997					1155		938
v/s Ratio Prot		c0.38		c0.18	0.33					0.07		c0.39
v/s Ratio Perm												
v/c Ratio		1.21dr		0.73	0.56					0.20		1.16
Uniform Delay, d1		60.5		62.7	22.6					42.5		59.7
Progression Factor		0.74		1.22	0.43					1.00		1.00
Incremental Delay, d2		71.4		2.9	0.2					0.0		82.2
Delay (s)		116.0		79.2	10.0					42.5		141.9
Level of Service		F		E	B					D		F
Approach Delay (s)		116.0			28.4			0.0			124.4	
Approach LOS		F			C			A			F	

Intersection Summary			
HCM 2000 Control Delay	86.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	16.8
Intersection Capacity Utilization	73.2%	ICU Level of Service	D
Analysis Period (min)	15		

dr Defacto Right Lane. Recode with 1 though lane as a right lane.

c Critical Lane Group

Lane Group	EBT	EBR	WBT	NBL	NBR
Lane Group Flow (vph)	1397	905	1886	716	653
v/c Ratio	0.41	0.32	0.32	0.82	1.03
Control Delay	3.8	0.3	5.8	80.0	114.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	3.8	0.3	5.8	80.0	114.3
Queue Length 50th (ft)	117	0	133	293	~360
Queue Length 95th (ft)	m105	m0	59	345	#471
Internal Link Dist (ft)	260		630	1225	
Turn Bay Length (ft)		700		410	430
Base Capacity (vph)	3390	2787	5846	876	633
Starvation Cap Reductn	244	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.44	0.32	0.32	0.82	1.03

Intersection Summary

~ 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.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	1285	860	0	1735	680	620
Future Volume (vph)	1285	860	0	1735	680	620
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	2.0		4.5	4.4	4.4
Lane Util. Factor	0.91	0.88		0.81	0.94	0.76
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	1.00	1.00		1.00	0.95	1.00
Satd. Flow (prot)	5085	2787		7544	4990	3610
Flt Permitted	1.00	1.00		1.00	0.95	1.00
Satd. Flow (perm)	5085	2787		7544	4990	3610
Peak-hour factor, PHF	0.92	0.95	0.92	0.92	0.95	0.95
Adj. Flow (vph)	1397	905	0	1886	716	653
RTOR Reduction (vph)	0	0	0	0	0	0
Lane Group Flow (vph)	1397	905	0	1886	716	653
Turn Type	NA	Free		NA	Prot	Prot
Protected Phases	6 3			2 3	4	4
Permitted Phases		Free				
Actuated Green, G (s)	115.6	180.0		137.6	29.6	29.6
Effective Green, g (s)	119.6	180.0		139.6	31.6	31.6
Actuated g/C Ratio	0.66	1.00		0.78	0.18	0.18
Clearance Time (s)					6.4	6.4
Vehicle Extension (s)					3.5	3.5
Lane Grp Cap (vph)	3378	2787		5850	876	633
v/s Ratio Prot	c0.27			0.25	0.14	c0.18
v/s Ratio Perm		c0.32				
v/c Ratio	0.41	0.32		0.32	0.82	1.03
Uniform Delay, d1	14.0	0.0		6.0	71.4	74.2
Progression Factor	0.48	1.00		0.94	1.00	1.00
Incremental Delay, d2	0.0	0.0		0.0	6.1	44.1
Delay (s)	6.8	0.0		5.7	77.5	118.3
Level of Service	A	A		A	E	F
Approach Delay (s)	4.1			5.7	97.0	
Approach LOS	A			A	F	

Intersection Summary			
HCM 2000 Control Delay	27.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	18.8
Intersection Capacity Utilization	55.2%	ICU Level of Service	B
Analysis Period (min)	15		

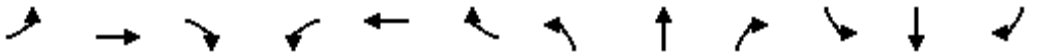
c Critical Lane Group

Queues

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	277	1554	239	207	1250	120	266	98	120	239	245	370
v/c Ratio	0.76	0.62	0.27	0.70	0.52	0.15	0.82	0.14	0.29	0.61	0.81	0.86
Control Delay	98.9	25.5	4.9	93.2	35.7	4.9	64.6	56.6	9.3	52.6	92.6	50.5
Queue Delay	0.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	98.9	25.8	4.9	93.2	35.7	4.9	64.6	56.6	9.3	52.6	92.6	50.5
Queue Length 50th (ft)	177	364	12	124	387	0	241	50	0	213	284	202
Queue Length 95th (ft)	m187	m385	m48	173	488	43	300	73	55	269	365	320
Internal Link Dist (ft)		630			1233			1112			1327	
Turn Bay Length (ft)	300		300	200		300	260		260	170		170
Base Capacity (vph)	400	2514	875	316	2407	814	343	1008	536	397	437	531
Starvation Cap Reductn	0	319	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	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	0
Reduced v/c Ratio	0.69	0.71	0.27	0.66	0.52	0.15	0.78	0.10	0.22	0.60	0.56	0.70

Intersection Summary

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



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	255	1430	220	190	1150	110	245	90	110	220	225	340
Future Volume (vph)	255	1430	220	190	1150	110	245	90	110	220	225	340
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.4	4.4	4.4	4.4	4.4	4.4	5.7	5.7	5.7	5.7	5.7	5.7
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.95	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5085	1583	3433	5085	1583	1770	3539	1583	1770	1863	1583
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.19	1.00	1.00	0.69	1.00	1.00
Satd. Flow (perm)	3433	5085	1583	3433	5085	1583	361	3539	1583	1286	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)	277	1554	239	207	1250	120	266	98	120	239	245	370
RTOR Reduction (vph)	0	0	93	0	0	63	0	0	95	0	0	174
Lane Group Flow (vph)	277	1554	146	207	1250	57	266	98	25	239	245	196
Turn Type	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases			6			2	4		4	8		8
Actuated Green, G (s)	17.2	86.9	86.9	13.5	83.2	83.2	61.1	36.8	36.8	47.8	29.2	29.2
Effective Green, g (s)	19.2	88.9	88.9	15.5	85.2	85.2	61.1	36.8	36.8	47.8	29.2	29.2
Actuated g/C Ratio	0.11	0.49	0.49	0.09	0.47	0.47	0.34	0.20	0.20	0.27	0.16	0.16
Clearance Time (s)	6.4	6.4	6.4	6.4	6.4	6.4	5.7	5.7	5.7	5.7	5.7	5.7
Vehicle Extension (s)	1.5	3.0	3.0	1.5	3.0	3.0	1.5	2.0	2.0	1.5	2.0	2.0
Lane Grp Cap (vph)	366	2511	781	295	2406	749	327	723	323	391	302	256
v/s Ratio Prot	c0.08	c0.31		0.06	0.25		c0.12	0.03		0.06	0.13	
v/s Ratio Perm			0.09			0.04	c0.16		0.02	0.10		0.12
v/c Ratio	0.76	0.62	0.19	0.70	0.52	0.08	0.81	0.14	0.08	0.61	0.81	0.76
Uniform Delay, d1	78.1	33.2	25.4	80.0	33.1	25.9	48.3	58.6	57.9	56.2	72.7	72.1
Progression Factor	1.12	0.70	0.54	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.3	0.9	0.4	6.0	0.8	0.2	13.6	0.0	0.0	2.0	14.4	11.5
Delay (s)	94.1	24.3	14.2	86.0	33.9	26.1	61.9	58.6	57.9	58.2	87.2	83.6
Level of Service	F	C	B	F	C	C	E	E	E	E	F	F
Approach Delay (s)		32.5			40.2			60.2			77.5	
Approach LOS		C			D			E			E	

Intersection Summary			
HCM 2000 Control Delay	45.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	180.0	Sum of lost time (s)	20.2
Intersection Capacity Utilization	75.3%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBT	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	2544	261	2288	114	120
v/c Ratio	0.58	1.04	0.58	0.63	0.45
Control Delay	16.9	119.3	2.1	66.6	13.7
Queue Delay	0.0	20.3	0.1	0.0	0.0
Total Delay	16.9	139.7	2.3	66.6	13.7
Queue Length 50th (ft)	290	~191	48	86	0
Queue Length 95th (ft)	355	#380	30	142	54
Internal Link Dist (ft)	575		175	531	
Turn Bay Length (ft)					
Base Capacity (vph)	4365	250	3929	545	571
Starvation Cap Reductn	0	24	541	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.58	1.15	0.68	0.21	0.21

Intersection Summary

~ 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.

Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	2260	80	240	2105	105	110
Future Volume (vph)	2260	80	240	2105	105	110
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0		6.0	6.0	9.0	9.0
Lane Util. Factor	0.81		1.00	0.91	1.00	1.00
Frt	0.99		1.00	1.00	1.00	0.85
Flt Protected	1.00		0.95	1.00	0.95	1.00
Satd. Flow (prot)	7505		1770	5085	1770	1583
Flt Permitted	1.00		0.95	1.00	0.95	1.00
Satd. Flow (perm)	7505		1770	5085	1770	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	2457	87	261	2288	114	120
RTOR Reduction (vph)	3	0	0	0	0	108
Lane Group Flow (vph)	2541	0	261	2288	114	12
Turn Type	NA		Prot	NA	Prot	Perm
Protected Phases	2 3		1	1 2 3	4	
Permitted Phases					4	4
Actuated Green, G (s)	67.7		15.0	90.7	12.3	12.3
Effective Green, g (s)	69.7		17.0	92.7	12.3	12.3
Actuated g/C Ratio	0.58		0.14	0.77	0.10	0.10
Clearance Time (s)			8.0		9.0	9.0
Vehicle Extension (s)			1.5		2.0	2.0
Lane Grp Cap (vph)	4359		250	3928	181	162
v/s Ratio Prot	c0.34		c0.15	c0.45	c0.06	
v/s Ratio Perm						0.01
v/c Ratio	0.58		1.04	0.58	0.63	0.08
Uniform Delay, d1	15.9		51.5	5.6	51.7	48.7
Progression Factor	1.00		1.14	0.27	1.00	1.00
Incremental Delay, d2	0.1		63.7	0.1	4.9	0.1
Delay (s)	16.1		122.2	1.6	56.5	48.8
Level of Service	B		F	A	E	D
Approach Delay (s)	16.1			14.0	52.6	
Approach LOS	B			B	D	

Intersection Summary			
HCM 2000 Control Delay	16.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.0
Intersection Capacity Utilization	63.9%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	179	2397	2391	272	185	158
v/c Ratio	1.10	0.48	0.59	0.25	0.53	0.52
Control Delay	134.3	2.0	10.6	0.9	55.9	13.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.1
Total Delay	134.3	2.0	10.6	0.9	55.9	13.8
Queue Length 50th (ft)	~158	23	283	1	71	0
Queue Length 95th (ft)	#309	35	382	m6	104	61
Internal Link Dist (ft)		175	1004		271	
Turn Bay Length (ft)				450		
Base Capacity (vph)	162	4952	4044	1099	1058	597
Starvation Cap Reductn	0	589	0	0	0	0
Spillback Cap Reductn	0	0	156	0	0	57
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	1.10	0.55	0.61	0.25	0.17	0.29

Intersection Summary

~ 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.

Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	165	2205	2200	250	170	145
Future Volume (vph)	165	2205	2200	250	170	145
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	9.0	9.0
Lane Util. Factor	1.00	0.86	0.86	1.00	0.97	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	6408	6408	1583	3433	1583
Flt Permitted	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	1770	6408	6408	1583	3433	1583
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	179	2397	2391	272	185	158
RTOR Reduction (vph)	0	0	0	100	0	142
Lane Group Flow (vph)	179	2397	2391	172	185	16
Turn Type	Prot	NA	NA	Perm	Prot	Perm
Protected Phases	3	1 2 3	1 2		4	
Permitted Phases				1 2		4
Actuated Green, G (s)	9.0	90.7	73.7	73.7	12.3	12.3
Effective Green, g (s)	11.0	92.7	75.7	75.7	12.3	12.3
Actuated g/C Ratio	0.09	0.77	0.63	0.63	0.10	0.10
Clearance Time (s)	8.0				9.0	9.0
Vehicle Extension (s)	1.5				2.0	2.0
Lane Grp Cap (vph)	162	4950	4042	998	351	162
v/s Ratio Prot	c0.10	0.37	c0.37		c0.05	
v/s Ratio Perm				0.11		0.01
v/c Ratio	1.10	0.48	0.59	0.17	0.53	0.10
Uniform Delay, d1	54.5	5.0	13.0	9.2	51.1	48.8
Progression Factor	0.72	0.32	0.75	0.40	1.00	1.00
Incremental Delay, d2	95.4	0.0	0.1	0.0	0.7	0.1
Delay (s)	134.4	1.6	9.9	3.7	51.8	48.9
Level of Service	F	A	A	A	D	D
Approach Delay (s)		10.9	9.3		50.5	
Approach LOS		B	A		D	

Intersection Summary			
HCM 2000 Control Delay	12.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	27.0
Intersection Capacity Utilization	63.5%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Queues

Lane Group	EBT	EBR	WBT	SBL2	SBR
Lane Group Flow (vph)	1908	653	1957	484	684
v/c Ratio	0.54	0.41	0.69	0.54	0.94
Control Delay	6.4	1.5	8.8	21.7	45.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	6.4	1.5	8.8	21.7	45.7
Queue Length 50th (ft)	102	6	123	77	137
Queue Length 95th (ft)	187	37	167	118	#243
Internal Link Dist (ft)	1004		259		
Turn Bay Length (ft)		250			
Base Capacity (vph)	3556	1583	2822	898	729
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	0.54	0.41	0.69	0.54	0.94

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	SBL2	SBL	SBR	NWL	NWR
Lane Configurations		↑↑↑↑	↱		↑↑↑		↰↰		↱↱		
Traffic Volume (vph)	0	1755	620	0	1800	0	460	0	650	0	0
Future Volume (vph)	0	1755	620	0	1800	0	460	0	650	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5	2.0		5.5		5.5		5.5		
Lane Util. Factor		0.86	1.00		0.91		0.97		0.88		
Frt		1.00	0.85		1.00		1.00		0.85		
Flt Protected		1.00	1.00		1.00		0.95		1.00		
Satd. Flow (prot)		6408	1583		5085		3433		2787		
Flt Permitted		1.00	1.00		1.00		0.95		1.00		
Satd. Flow (perm)		6408	1583		5085		3433		2787		
Peak-hour factor, PHF	0.92	0.92	0.95	0.92	0.92	0.92	0.95	0.92	0.95	0.92	0.92
Adj. Flow (vph)	0	1908	653	0	1957	0	484	0	684	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1908	653	0	1957	0	484	0	684	0	0
Turn Type		NA	Free		NA		Prot		Prot		
Protected Phases		6			2		3		3		
Permitted Phases			Free								
Actuated Green, G (s)		31.3	60.0		31.3		13.7		13.7		
Effective Green, g (s)		33.3	60.0		33.3		15.7		15.7		
Actuated g/C Ratio		0.55	1.00		0.55		0.26		0.26		
Clearance Time (s)		7.5			7.5		7.5		7.5		
Vehicle Extension (s)		3.0			3.0		2.5		2.5		
Lane Grp Cap (vph)		3556	1583		2822		898		729		
v/s Ratio Prot		0.30			c0.38		0.14		c0.25		
v/s Ratio Perm			0.41								
v/c Ratio		0.54	0.41		0.69		0.54		0.94		
Uniform Delay, d1		8.5	0.0		9.7		19.0		21.7		
Progression Factor		0.69	1.00		0.79		1.00		1.00		
Incremental Delay, d2		0.5	0.7		1.1		0.5		19.6		
Delay (s)		6.4	0.7		8.7		19.5		41.2		
Level of Service		A	A		A		B		D		
Approach Delay (s)		4.9			8.7			32.2		0.0	
Approach LOS		A			A			C		A	

Intersection Summary			
HCM 2000 Control Delay	11.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	66.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Queues

Lane Group	EBT	WBT	WBR	NBL2	NBR
Lane Group Flow (vph)	1723	1717	358	1074	579
v/c Ratio	0.65	0.65	0.23	0.80	0.53
Control Delay	16.5	11.6	0.2	37.4	29.6
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	16.5	11.6	0.2	37.4	29.6
Queue Length 50th (ft)	352	139	0	372	192
Queue Length 95th (ft)	358	m147	m0	416	230
Internal Link Dist (ft)	270	1155			
Turn Bay Length (ft)			250		
Base Capacity (vph)	2638	2638	1583	1530	1242
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	0.65	0.65	0.23	0.70	0.47

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL2	NBL	NBR	SEL	SER
Lane Configurations											
Traffic Volume (vph)	0	1585	0	0	1580	340	1020	0	550	0	0
Future Volume (vph)	0	1585	0	0	1580	340	1020	0	550	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		5.5			5.5	2.0	5.5		5.5		
Lane Util. Factor		0.91			0.91	1.00	0.97		0.88		
Frt		1.00			1.00	0.85	1.00		0.85		
Flt Protected		1.00			1.00	1.00	0.95		1.00		
Satd. Flow (prot)		5085			5085	1583	3433		2787		
Flt Permitted		1.00			1.00	1.00	0.95		1.00		
Satd. Flow (perm)		5085			5085	1583	3433		2787		
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.95	0.95	0.92	0.95	0.92	0.92
Adj. Flow (vph)	0	1723	0	0	1717	358	1074	0	579	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	1723	0	0	1717	358	1074	0	579	0	0
Turn Type		NA			NA	Free	Prot		Prot		
Protected Phases		6			2		4		4		
Permitted Phases						Free					
Actuated Green, G (s)		60.3			60.3	120.0	44.7		44.7		
Effective Green, g (s)		62.3			62.3	120.0	46.7		46.7		
Actuated g/C Ratio		0.52			0.52	1.00	0.39		0.39		
Clearance Time (s)		7.5			7.5		7.5		7.5		
Vehicle Extension (s)		3.0			3.0		2.5		2.5		
Lane Grp Cap (vph)		2639			2639	1583	1336		1084		
v/s Ratio Prot		c0.34			0.34		c0.31		0.21		
v/s Ratio Perm						0.23					
v/c Ratio		0.65			0.65	0.23	0.80		0.53		
Uniform Delay, d1		21.0			20.9	0.0	32.6		28.3		
Progression Factor		0.70			0.49	1.00	1.00		1.00		
Incremental Delay, d2		1.1			0.8	0.2	3.5		0.4		
Delay (s)		15.8			11.1	0.2	36.1		28.7		
Level of Service		B			B	A	D		C		
Approach Delay (s)		15.8			9.2			33.5		0.0	
Approach LOS		B			A			C		A	

Intersection Summary			
HCM 2000 Control Delay	18.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	11.0
Intersection Capacity Utilization	59.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Queues

5: NE 3rd Ave & Sample Road

Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	467	1854	98	1604	228	326	98	71	255	375
v/c Ratio	0.92	0.76	0.75	0.78	0.99	0.77	0.19	0.40	0.71	0.78
Control Delay	71.4	25.8	88.0	34.4	94.3	56.0	0.8	35.6	55.5	29.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.4	25.8	88.0	34.4	94.3	56.0	0.8	35.6	55.5	29.8
Queue Length 50th (ft)	197	258	76	386	141	243	0	40	186	118
Queue Length 95th (ft)	#290	420	#165	#537	#248	321	0	68	254	217
Internal Link Dist (ft)		1155		834		912			742	
Turn Bay Length (ft)	550		490		250		225	200		
Base Capacity (vph)	510	2436	131	2068	231	522	600	180	492	578
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.92	0.76	0.75	0.78	0.99	0.62	0.16	0.39	0.52	0.65

Intersection Summary

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

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	430	1525	180	90	1365	110	210	300	90	65	235	345
Future Volume (vph)	430	1525	180	90	1365	110	210	300	90	65	235	345
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		5.0	5.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	0.97	0.91		1.00	0.91		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	0.98		1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00		0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3400	4956		1752	4979		1752	1845	1568	1752	1845	1568
Flt Permitted	0.95	1.00		0.95	1.00		0.32	1.00	1.00	0.30	1.00	1.00
Satd. Flow (perm)	3400	4956		1752	4979		594	1845	1568	553	1845	1568
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)	467	1658	196	98	1484	120	228	326	98	71	255	375
RTOR Reduction (vph)	0	11	0	0	7	0	0	0	76	0	0	173
Lane Group Flow (vph)	467	1843	0	98	1597	0	228	326	22	71	255	202
Heavy Vehicles (%)	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%	3%
Turn Type	Prot	NA		Prot	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	1	6		5	2		7	4		3	8	
Permitted Phases							4		4	8		8
Actuated Green, G (s)	16.0	55.6		6.9	46.5		34.5	27.5	27.5	28.5	24.5	24.5
Effective Green, g (s)	18.0	57.6		8.9	48.5		34.5	27.5	27.5	28.5	24.5	24.5
Actuated g/C Ratio	0.15	0.48		0.07	0.40		0.29	0.23	0.23	0.24	0.20	0.20
Clearance Time (s)	7.0	7.0		7.0	7.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	1.5	3.0		1.5	3.0		1.5	2.0	2.0	1.5	2.0	2.0
Lane Grp Cap (vph)	510	2378		129	2012		238	422	359	171	376	320
v/s Ratio Prot	c0.14	c0.37		0.06	0.32		c0.06	0.18		0.01	0.14	
v/s Ratio Perm							c0.22		0.01	0.08		0.13
v/c Ratio	0.92	0.78		0.76	0.79		0.96	0.77	0.06	0.42	0.68	0.63
Uniform Delay, d1	50.3	25.8		54.5	31.4		41.7	43.3	36.2	36.9	44.1	43.6
Progression Factor	1.02	0.92		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	17.6	2.0		20.1	3.3		45.8	7.8	0.0	0.6	3.8	2.8
Delay (s)	68.6	25.7		74.6	34.7		87.6	51.1	36.2	37.5	47.9	46.4
Level of Service	E	C		E	C		F	D	D	D	D	D
Approach Delay (s)		34.4			37.0			61.6			46.0	
Approach LOS		C			D			E			D	

Intersection Summary			
HCM 2000 Control Delay	40.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	120.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	83.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			