

Appendix E

2021 Traffic Operations Reports



HCM Unsignalized Intersection Capacity Analysis
1: Fifth Line & 5 Side Road

Scenario 1 - AM Peak Hour
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	11	644	12	24	180	3	4	21	20	39	49	27
Future Volume (Veh/h)	11	644	12	24	180	3	4	21	20	39	49	27
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	11	671	13	25	188	3	4	22	21	41	51	28
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	191			684			992	940	678	971	946	190
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	191			684			992	940	678	971	946	190
tC, single (s)	4.2			4.2			7.3	6.7	6.3	7.2	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.3			2.3			3.7	4.2	3.4	3.6	4.0	3.3
p0 queue free %	99			97			98	91	95	79	80	97
cM capacity (veh/h)	1342			877			162	238	439	195	250	857
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	695	216	47	120								
Volume Left	11	25	4	41								
Volume Right	13	3	21	28								
cSH	1342	877	285	268								
Volume to Capacity	0.01	0.03	0.17	0.45								
Queue Length 95th (m)	0.2	0.7	4.7	17.4								
Control Delay (s)	0.2	1.3	20.1	28.8								
Lane LOS	A	A	C	D								
Approach Delay (s)	0.2	1.3	20.1	28.8								
Approach LOS			C	D								
Intersection Summary												
Average Delay			4.5									
Intersection Capacity Utilization			56.4%		ICU Level of Service				B			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

2: Sixth Line & 5 Side Road

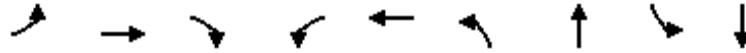
Scenario 1 - AM Peak Hour
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	8	678	1	9	192	3	1	10	32	21	18	17
Future Volume (Veh/h)	8	678	1	9	192	3	1	10	32	21	18	17
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	8	706	1	9	200	3	1	10	33	22	19	18
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	203			707			970	944	706	980	942	202
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	203			707			970	944	706	980	942	202
tC, single (s)	4.2			4.1			7.1	6.5	6.4	7.2	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.0	3.4	3.6	4.0	3.3
p0 queue free %	99			99			100	96	92	89	93	98
cM capacity (veh/h)	1306			901			214	260	413	195	261	844
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	715	212	44	59								
Volume Left	8	9	1	22								
Volume Right	1	3	33	18								
cSH	1306	901	358	285								
Volume to Capacity	0.01	0.01	0.12	0.21								
Queue Length 95th (m)	0.1	0.2	3.3	6.1								
Control Delay (s)	0.2	0.5	16.5	20.9								
Lane LOS	A	A	C	C								
Approach Delay (s)	0.2	0.5	16.5	20.9								
Approach LOS			C	C								
Intersection Summary												
Average Delay			2.1									
Intersection Capacity Utilization			55.0%		ICU Level of Service				B			
Analysis Period (min)			15									

Queues
3: Trafalgar Rd & 5 Side Road

Scenario 1 - AM Peak Hour
Premier Gateway



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	54	376	311	77	145	26	414	30	1093
v/c Ratio	0.14	0.62	0.48	0.36	0.25	0.11	0.32	0.07	0.75
Control Delay	18.0	25.0	8.6	23.8	18.0	11.0	15.6	10.4	23.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.0	25.0	8.6	23.8	18.0	11.0	15.6	10.4	23.5
Queue Length 50th (m)	4.5	37.6	7.4	7.0	12.1	1.5	15.1	1.8	53.2
Queue Length 95th (m)	13.9	76.5	29.2	20.9	29.2	6.2	39.5	6.9	#137.6
Internal Link Dist (m)		593.5			641.2		240.1		238.0
Turn Bay Length (m)	40.0		40.0	40.0		40.0		50.0	
Base Capacity (vph)	567	887	843	317	861	240	1282	436	1455
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.42	0.37	0.24	0.17	0.11	0.32	0.07	0.75

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

3: Trafalgar Rd & 5 Side Road

Scenario 1 - AM Peak Hour

Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	368	305	75	133	9	25	359	47	29	1026	45
Future Volume (vph)	53	368	305	75	133	9	25	359	47	29	1026	45
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4	6.4	6.4	6.4		4.0	6.0		4.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1703	1863	1524	1656	1803		1456	2906		1378	3315	
Flt Permitted	0.66	1.00	1.00	0.38	1.00		0.15	1.00		0.51	1.00	
Satd. Flow (perm)	1191	1863	1524	666	1803		224	2906		739	3315	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	54	376	311	77	136	9	26	366	48	30	1047	46
RTOR Reduction (vph)	0	0	154	0	3	0	0	10	0	0	3	0
Lane Group Flow (vph)	54	376	157	77	142	0	26	404	0	30	1090	0
Heavy Vehicles (%)	6%	2%	6%	9%	1%	56%	24%	23%	15%	31%	8%	13%
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	22.5	22.5	22.5	22.5	22.5		32.6	30.3		32.6	30.3	
Effective Green, g (s)	22.5	22.5	22.5	22.5	22.5		32.6	30.3		32.6	30.3	
Actuated g/C Ratio	0.31	0.31	0.31	0.31	0.31		0.46	0.42		0.46	0.42	
Clearance Time (s)	6.4	6.4	6.4	6.4	6.4		4.0	6.0		4.0	6.0	
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0		3.0	5.0		3.0	5.0	
Lane Grp Cap (vph)	374	586	479	209	567		141	1231		357	1404	
v/s Ratio Prot		c0.20			0.08		c0.01	0.14		0.00	c0.33	
v/s Ratio Perm	0.05		0.10	0.12			0.08			0.04		
v/c Ratio	0.14	0.64	0.33	0.37	0.25		0.18	0.33		0.08	0.78	
Uniform Delay, d1	17.6	21.0	18.7	19.0	18.2		12.1	13.8		10.8	17.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	3.3	0.8	2.3	0.5		0.6	0.7		0.1	4.3	
Delay (s)	18.0	24.3	19.6	21.3	18.7		12.7	14.5		10.9	21.9	
Level of Service	B	C	B	C	B		B	B		B	C	
Approach Delay (s)		21.9			19.6			14.4			21.7	
Approach LOS		C			B			B			C	

















Intersection Summary

HCM 2000 Control Delay	20.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	71.5	Sum of lost time (s)	16.4
Intersection Capacity Utilization	77.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
4: Eighth Line & 5 Side Road

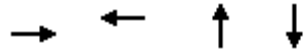
Scenario 1 - AM Peak Hour

Premier Gateway

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	26	395	10	40	134	13	1	93	27	70	457	72
Future Volume (vph)	26	395	10	40	134	13	1	93	27	70	457	72
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	27	411	10	42	140	14	1	97	28	73	476	75
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	448	196	126	624								
Volume Left (vph)	27	42	1	73								
Volume Right (vph)	10	14	28	75								
Hadj (s)	0.04	0.11	-0.04	-0.02								
Departure Headway (s)	6.8	7.5	7.6	6.5								
Degree Utilization, x	0.84	0.41	0.27	1.13								
Capacity (veh/h)	522	445	423	540								
Control Delay (s)	36.4	15.7	13.4	104.3								
Approach Delay (s)	36.4	15.7	13.4	104.3								
Approach LOS	E	C	B	F								
Intersection Summary												
Delay			61.8									
Level of Service			F									
Intersection Capacity Utilization			70.1%	ICU Level of Service	C							
Analysis Period (min)			15									

Queues

5: Ninth Line & 5 Side Road



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	502	168	223	759
v/c Ratio	0.81	0.27	0.15	0.61
Control Delay	32.0	16.5	11.5	17.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	32.0	16.5	11.5	17.3
Queue Length 50th (m)	62.0	15.8	8.2	38.5
Queue Length 95th (m)	96.4	28.7	17.7	70.5
Internal Link Dist (m)	556.9	434.3	3096.2	305.9
Turn Bay Length (m)				
Base Capacity (vph)	853	860	1454	1248
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.59	0.20	0.15	0.61

Intersection Summary

HCM Signalized Intersection Capacity Analysis

5: Ninth Line & 5 Side Road

Scenario 1 - AM Peak Hour
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	26	431	20	1	145	13	5	194	13	278	415	28
Future Volume (vph)	26	431	20	1	145	13	5	194	13	278	415	28
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			6.0			6.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frt		0.99			0.99			0.99			0.99	
Flt Protected		1.00			1.00			1.00			0.98	
Satd. Flow (prot)		1807			1781			3193			3399	
Flt Permitted		0.98			1.00			0.94			0.75	
Satd. Flow (perm)		1771			1777			3006			2585	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	27	454	21	1	153	14	5	204	14	293	437	29
RTOR Reduction (vph)	0	2	0	0	5	0	0	6	0	0	3	0
Lane Group Flow (vph)	0	500		0	163	0	0	217	0	0	756	0
Heavy Vehicles (%)	8%	4%	5%	0%	6%	0%	40%	12%	0%	0%	6%	4%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		24.8			24.8			34.3			34.3	
Effective Green, g (s)		24.8			24.8			34.3			34.3	
Actuated g/C Ratio		0.35			0.35			0.48			0.48	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.5			3.5			5.5			5.5	
Lane Grp Cap (vph)		617			619			1450			1247	
v/s Ratio Prot												
v/s Ratio Perm		c0.28			0.09			0.07			c0.29	
v/c Ratio		0.81			0.26			0.15			0.61	
Uniform Delay, d1		21.0			16.6			10.3			13.5	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		8.2			0.3			0.2			2.2	
Delay (s)		29.2			16.9			10.5			15.7	
Level of Service		C			B			B			B	
Approach Delay (s)		29.2			16.9			10.5			15.7	
Approach LOS		C			B			B			B	

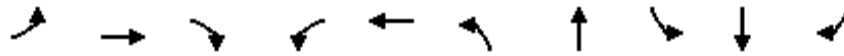
Intersection Summary

HCM 2000 Control Delay	19.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	71.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	90.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Queues
6: Brownridge Road/Fifth Line & Steeles Avenue

Scenario 1 - AM Peak Hour

Premier Gateway



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	57	936	151	18	572	10	5	22	6	71
v/c Ratio	0.10	0.44	0.13	0.05	0.30	0.06	0.02	0.15	0.02	0.26
Control Delay	5.2	6.2	1.3	5.1	5.2	25.0	0.0	27.7	24.2	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	5.2	6.2	1.3	5.1	5.2	25.0	0.0	27.7	24.2	9.8
Queue Length 50th (m)	2.5	28.9	0.0	0.8	14.8	1.3	0.0	2.9	0.8	0.0
Queue Length 95th (m)	6.5	41.4	5.2	2.9	22.7	5.0	0.0	8.3	3.6	10.0
Internal Link Dist (m)		462.3			679.6		261.2		67.4	
Turn Bay Length (m)	145.0		65.0	30.0		20.0		25.0		25.0
Base Capacity (vph)	559	2151	1159	338	1910	443	646	363	688	582
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	0.10	0.44	0.13	0.05	0.30	0.02	0.01	0.06	0.01	0.12

Intersection Summary

HCM Signalized Intersection Capacity Analysis
6: Brownridge Road/Fifth Line & Steeles Avenue

Scenario 1 - AM Peak Hour
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	55	899	145	17	506	43	10	0	5	21	6	68
Future Volume (vph)	55	899	145	17	506	43	10	0	5	21	6	68
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1671	2959	1538	1456	2622		1543	1615		1262	1900	1482
Flt Permitted	0.44	1.00	1.00	0.30	1.00		0.75	1.00		0.75	1.00	1.00
Satd. Flow (perm)	769	2959	1538	466	2622		1224	1615		1002	1900	1482
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	57	936	151	18	527	45	10	0	5	22	6	71
RTOR Reduction (vph)	0	0	47	0	5	0	0	4	0	0	0	63
Lane Group Flow (vph)	57	936	104	18	567	0	10	1	0	22	6	8
Heavy Vehicles (%)	8%	22%	5%	24%	37%	25%	17%	0%	0%	43%	0%	9%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		6
Actuated Green, G (s)	48.8	48.8	48.8	48.8	48.8		7.9	7.9		7.9	7.9	7.9
Effective Green, g (s)	48.8	48.8	48.8	48.8	48.8		7.9	7.9		7.9	7.9	7.9
Actuated g/C Ratio	0.69	0.69	0.69	0.69	0.69		0.11	0.11		0.11	0.11	0.11
Clearance Time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	530	2042	1061	321	1809		136	180		111	212	165
v/s Ratio Prot		c0.32			0.22			0.00			0.00	
v/s Ratio Perm	0.07		0.07	0.04			0.01			c0.02		0.01
v/c Ratio	0.11	0.46	0.10	0.06	0.31		0.07	0.00		0.20	0.03	0.05
Uniform Delay, d1	3.7	5.0	3.6	3.5	4.3		28.1	27.9		28.5	28.0	28.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.4	0.7	0.2	0.3	0.5		0.2	0.0		0.9	0.1	0.1
Delay (s)	4.1	5.7	3.8	3.9	4.8		28.4	27.9		29.4	28.0	28.2
Level of Service	A	A	A	A	A		C	C		C	C	C
Approach Delay (s)		5.4			4.8			28.2			28.4	
Approach LOS		A			A			C			C	

Intersection Summary

HCM 2000 Control Delay	6.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.42		
Actuated Cycle Length (s)	70.7	Sum of lost time (s)	14.0
Intersection Capacity Utilization	68.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Queues
7: Fifth Line South & Steeles Avenue

Scenario 1 - AM Peak Hour
Premier Gateway

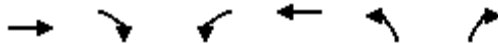


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	961	24	6	595	6	3
v/c Ratio	0.35	0.02	0.01	0.24	0.03	0.01
Control Delay	1.7	1.0	1.8	1.4	33.7	24.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	1.7	1.0	1.8	1.4	33.7	24.0
Queue Length 50th (m)	0.0	0.0	0.0	0.0	0.8	0.0
Queue Length 95th (m)	40.1	1.8	1.2	22.4	4.8	2.7
Internal Link Dist (m)	679.6			455.7	532.9	
Turn Bay Length (m)		30.0	60.0		15.0	
Base Capacity (vph)	2782	1473	536	2515	254	268
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.02	0.01	0.24	0.02	0.01

Intersection Summary

HCM Signalized Intersection Capacity Analysis
7: Fifth Line South & Steeles Avenue

Scenario 1 - AM Peak Hour
Premier Gateway



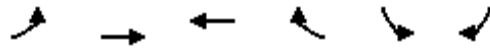
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑
Traffic Volume (vph)	903	23	6	559	6	3
Future Volume (vph)	903	23	6	559	6	3
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0	8.0	6.0	6.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	2935	1553	1805	2654	1543	1615
Flt Permitted	1.00	1.00	0.30	1.00	0.95	1.00
Satd. Flow (perm)	2935	1553	566	2654	1543	1615
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	961	24	6	595	6	3
RTOR Reduction (vph)	0	4	0	0	0	3
Lane Group Flow (vph)	961	20	6	595	6	0
Heavy Vehicles (%)	23%	4%	0%	36%	17%	0%
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	4			8		
Permitted Phases		4	8		2	2
Actuated Green, G (s)	68.4	68.4	68.4	68.4	1.7	1.7
Effective Green, g (s)	68.4	68.4	68.4	68.4	1.7	1.7
Actuated g/C Ratio	0.81	0.81	0.81	0.81	0.02	0.02
Clearance Time (s)	8.0	8.0	8.0	8.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2387	1263	460	2158	31	32
v/s Ratio Prot	c0.33			0.22		
v/s Ratio Perm		0.01	0.01		c0.00	0.00
v/c Ratio	0.40	0.02	0.01	0.28	0.19	0.00
Uniform Delay, d1	2.2	1.5	1.5	1.9	40.5	40.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	0.0	0.1	0.3	3.0	0.0
Delay (s)	2.7	1.5	1.5	2.2	43.6	40.4
Level of Service	A	A	A	A	D	D
Approach Delay (s)	2.7			2.2	42.5	
Approach LOS	A			A	D	

Intersection Summary

HCM 2000 Control Delay	2.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	84.1	Sum of lost time (s)	14.0
Intersection Capacity Utilization	55.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Queues

8: Steeles Avenue & Sixth Line



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	39	926	564	2	10	37
v/c Ratio	0.12	0.75	0.49	0.00	0.02	0.06
Control Delay	9.8	17.1	12.5	6.0	12.2	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.8	17.1	12.5	6.0	12.2	5.4
Queue Length 50th (m)	2.2	38.8	20.4	0.0	0.6	0.0
Queue Length 95th (m)	6.7	56.4	31.2	0.9	3.5	5.2
Internal Link Dist (m)		455.7	881.3		3042.1	
Turn Bay Length (m)	60.0			30.0	30.0	
Base Capacity (vph)	696	2710	2506	1202	441	662
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.34	0.23	0.00	0.02	0.06

Intersection Summary

HCM Signalized Intersection Capacity Analysis

8: Steeles Avenue & Sixth Line

Scenario 1 - AM Peak Hour
Premier Gateway



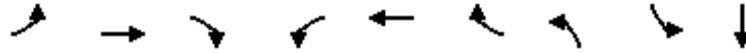
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↗	↑↑	↑↑	↗	↗	↗
Traffic Volume (vph)	37	870	530	2	9	35
Future Volume (vph)	37	870	530	2	9	35
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1752	2935	2714	1302	1081	1568
Flt Permitted	0.41	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	755	2935	2714	1302	1081	1568
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	39	926	564	2	10	37
RTOR Reduction (vph)	0	0	0	1	0	22
Lane Group Flow (vph)	39	926	564	1	10	15
Heavy Vehicles (%)	3%	23%	33%	24%	67%	3%
Turn Type	Perm	NA	NA	Perm	Prot	Perm
Protected Phases		4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	22.3	22.3	22.3	22.3	21.7	21.7
Effective Green, g (s)	22.3	22.3	22.3	22.3	21.7	21.7
Actuated g/C Ratio	0.42	0.42	0.42	0.42	0.41	0.41
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	317	1234	1141	547	442	641
v/s Ratio Prot		c0.32	0.21		0.01	
v/s Ratio Perm	0.05			0.00		c0.01
v/c Ratio	0.12	0.75	0.49	0.00	0.02	0.02
Uniform Delay, d1	9.4	13.0	11.2	8.9	9.3	9.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	2.6	0.3	0.0	0.1	0.1
Delay (s)	9.6	15.6	11.6	8.9	9.4	9.4
Level of Service	A	B	B	A	A	A
Approach Delay (s)		15.4	11.6		9.4	
Approach LOS		B	B		A	

Intersection Summary

HCM 2000 Control Delay	13.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.39		
Actuated Cycle Length (s)	53.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	35.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues
9: Sixth Line South/Street A & Steeles Avenue

Scenario 1 - AM Peak Hour
Premier Gateway



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	SBL	SBT
Lane Group Flow (vph)	41	880	3	2	549	120	2	18	8
v/c Ratio	0.16	0.74	0.00	0.01	0.49	0.20	0.00	0.04	0.01
Control Delay	14.0	23.4	0.0	11.0	18.1	3.1	16.5	16.6	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.0	23.4	0.0	11.0	18.1	3.1	16.5	16.6	0.0
Queue Length 50th (m)	4.0	60.6	0.0	0.2	33.0	0.0	0.2	1.6	0.0
Queue Length 95th (m)	8.7	66.2	0.0	1.2	37.7	7.6	1.7	6.6	0.0
Internal Link Dist (m)	881.3				473.0				481.0
Turn Bay Length (m)	50.0		30.0	60.0		30.0	30.0	70.0	
Base Capacity (vph)	368	1696	965	247	1594	814	625	507	748
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.52	0.00	0.01	0.34	0.15	0.00	0.04	0.01

Intersection Summary

HCM Signalized Intersection Capacity Analysis

9: Sixth Line South/Street A & Steeles Avenue

Scenario 1 - AM Peak Hour

Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗↗	↖	↖	↗↗	↖	↖	↗		↖	↗	
Traffic Volume (vph)	39	836	3	2	522	114	2	0	0	17	0	8
Future Volume (vph)	39	836	3	2	522	114	2	0	0	17	0	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0			6.0	6.0	
Lane Util. Factor	1.00	0.95	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	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95			0.95	1.00	
Satd. Flow (prot)	1467	2888	1615	1805	2714	1302	1805			1456	1292	
Flt Permitted	0.41	1.00	1.00	0.22	1.00	1.00	0.75			0.76	1.00	
Satd. Flow (perm)	628	2888	1615	422	2714	1302	1430			1160	1292	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	41	880	3	2	549	120	2	0	0	18	0	8
RTOR Reduction (vph)	0	0	2	0	0	71	0	0	0	0	5	0
Lane Group Flow (vph)	41	880	1	2	549	50	2	0	0	18	4	0
Heavy Vehicles (%)	23%	25%	0%	0%	33%	24%	0%	0%	0%	24%	0%	25%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm			Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	33.0	33.0	33.0	33.0	33.0	33.0	35.0			35.0	35.0	
Effective Green, g (s)	33.0	33.0	33.0	33.0	33.0	33.0	35.0			35.0	35.0	
Actuated g/C Ratio	0.41	0.41	0.41	0.41	0.41	0.41	0.44			0.44	0.44	
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	6.0			6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0			3.0	3.0	
Lane Grp Cap (vph)	259	1191	666	174	1119	537	625			507	565	
v/s Ratio Prot		c0.30			0.20							0.00
v/s Ratio Perm	0.07		0.00	0.00		0.04	0.00			c0.02		
v/c Ratio	0.16	0.74	0.00	0.01	0.49	0.09	0.00			0.04	0.01	
Uniform Delay, d1	14.8	19.9	13.8	13.9	17.3	14.4	12.7			12.9	12.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	
Incremental Delay, d2	0.3	2.4	0.0	0.0	0.3	0.1	0.0			0.1	0.0	
Delay (s)	15.1	22.3	13.8	13.9	17.6	14.4	12.7			13.0	12.7	
Level of Service	B	C	B	B	B	B	B			B	B	
Approach Delay (s)		21.9			17.1			12.7			12.9	
Approach LOS		C			B			B			B	

Intersection Summary

HCM 2000 Control Delay	19.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.38		
Actuated Cycle Length (s)	80.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	49.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
 10: Steeles Avenue & Hornby Road

Scenario 1 - AM Peak Hour
 Premier Gateway



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	15	838	606	16	6	32
Future Volume (Veh/h)	15	838	606	16	6	32
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	16	873	631	17	6	33
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	648				1100	316
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	648				1100	316
tC, single (s)	4.2				7.1	7.0
tC, 2 stage (s)						
tF (s)	2.3				3.7	3.4
p0 queue free %	98				97	95
cM capacity (veh/h)	901				181	669

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1	SB 2
Volume Total	16	436	436	316	316	17	6	33
Volume Left	16	0	0	0	0	0	6	0
Volume Right	0	0	0	0	0	17	0	33
cSH	901	1700	1700	1700	1700	1700	181	669
Volume to Capacity	0.02	0.26	0.26	0.19	0.19	0.01	0.03	0.05
Queue Length 95th (m)	0.4	0.0	0.0	0.0	0.0	0.0	0.8	1.2
Control Delay (s)	9.1	0.0	0.0	0.0	0.0	0.0	25.6	10.7
Lane LOS	A						D	B
Approach Delay (s)	0.2			0.0			13.0	
Approach LOS							B	

Intersection Summary								
Average Delay			0.4					
Intersection Capacity Utilization			33.2%		ICU Level of Service			A
Analysis Period (min)			15					

HCM Unsignalized Intersection Capacity Analysis
 11: Trafalgar Rd & Hornby Rd

Scenario 1 - AM Peak Hour
 Premier Gateway



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	30	6	2	376	1343	63
Future Volume (Veh/h)	30	6	2	376	1343	63
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	31	6	2	384	1370	64
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1598	717	1370			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1598	717	1370			
tC, single (s)	7.1	7.2	5.1			
tC, 2 stage (s)						
tF (s)	3.6	3.5	2.7			
p0 queue free %	64	98	99			
cM capacity (veh/h)	86	340	306			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	37	130	256	913	521	
Volume Left	31	2	0	0	0	
Volume Right	6	0	0	0	64	
cSH	98	306	1700	1700	1700	
Volume to Capacity	0.38	0.01	0.15	0.54	0.31	
Queue Length 95th (m)	12.1	0.2	0.0	0.0	0.0	
Control Delay (s)	62.2	0.4	0.0	0.0	0.0	
Lane LOS	F	A				
Approach Delay (s)	62.2	0.1		0.0		
Approach LOS	F					
Intersection Summary						
Average Delay			1.3			
Intersection Capacity Utilization			49.1%	ICU Level of Service		A
Analysis Period (min)			15			

Queues
12: Trafalgar Road & Steeles Avenue

Scenario 1 - AM Peak Hour
Premier Gateway



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	34	556	254	559	386	48	310	434	386	171	1203
v/c Ratio	0.15	0.81	0.64	1.23	0.39	0.09	0.89	0.39	0.49	0.39	1.18
Control Delay	22.5	55.4	22.3	167.8	32.3	0.3	80.5	31.4	5.9	21.4	130.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.5	55.4	22.3	167.8	32.3	0.3	80.5	31.4	5.9	21.4	130.0
Queue Length 50th (m)	5.1	71.8	19.3	-92.1	41.4	0.0	41.4	44.8	2.6	23.4	~196.8
Queue Length 95th (m)	11.2	89.1	48.0	#128.7	53.4	0.0	#82.1	61.3	26.4	40.4	#241.4
Internal Link Dist (m)		443.0			287.3			749.5			265.5
Turn Bay Length (m)	115.0		40.0	130.0		70.0	100.0		65.0		
Base Capacity (vph)	223	814	443	453	1034	547	349	1113	788	442	1020
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	0.15	0.68	0.57	1.23	0.37	0.09	0.89	0.39	0.49	0.39	1.18

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
 12: Trafalgar Road & Steeles Avenue

Scenario 1 - AM Peak Hour

Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	33	534	244	537	371	46	298	417	371	164	1146	9
Future Volume (vph)	33	534	244	537	371	46	298	417	371	164	1146	9
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	5.0	7.0	7.0	5.0	8.0	8.0	4.0	8.0	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1165	3085	1214	3335	2888	1324	2556	3034	1509	1703	3356	
Flt Permitted	0.52	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.50	1.00	
Satd. Flow (perm)	642	3085	1214	3335	2888	1324	2556	3034	1509	896	3356	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	34	556	254	559	386	48	310	434	386	171	1194	9
RTOR Reduction (vph)	0	0	128	0	0	31	0	0	240	0	1	0
Lane Group Flow (vph)	34	556	126	559	386	17	310	434	146	171	1202	0
Heavy Vehicles (%)	55%	17%	33%	5%	25%	22%	37%	19%	7%	6%	7%	67%
Turn Type	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4			8			2	6		
Actuated Green, G (s)	33.7	29.5	29.5	17.0	43.3	43.3	17.1	44.3	44.3	46.6	36.4	
Effective Green, g (s)	33.7	29.5	29.5	17.0	43.3	43.3	17.1	44.3	44.3	46.6	36.4	
Actuated g/C Ratio	0.27	0.24	0.24	0.14	0.35	0.35	0.14	0.35	0.35	0.37	0.29	
Clearance Time (s)	4.0	7.0	7.0	5.0	7.0	7.0	5.0	8.0	8.0	4.0	8.0	
Vehicle Extension (s)	3.0	3.0	3.0	4.0	3.0	3.0	4.0	0.2	0.2	3.0	0.2	
Lane Grp Cap (vph)	190	728	286	453	1000	458	349	1075	534	399	977	
v/s Ratio Prot	0.01	c0.18		c0.17	0.13		c0.12	0.14		0.03	c0.36	
v/s Ratio Perm	0.04		0.10			0.01			0.10	0.12		
v/c Ratio	0.18	0.76	0.44	1.23	0.39	0.04	0.89	0.40	0.27	0.43	1.23	
Uniform Delay, d1	34.3	44.5	40.7	54.0	30.8	27.0	53.0	30.4	28.9	27.3	44.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.5	4.8	1.1	123.2	0.2	0.0	23.3	1.1	1.3	0.7	112.8	
Delay (s)	34.8	49.3	41.8	177.2	31.1	27.1	76.3	31.5	30.1	28.1	157.1	
Level of Service	C	D	D	F	C	C	E	C	C	C	F	
Approach Delay (s)		46.4			113.1			43.3			141.1	
Approach LOS		D			F			D			F	

Intersection Summary		
HCM 2000 Control Delay	90.8	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	1.03	F
Actuated Cycle Length (s)	125.0	Sum of lost time (s)
Intersection Capacity Utilization	93.3%	25.0
Analysis Period (min)	15	ICU Level of Service
c Critical Lane Group		F

Queues
13: Toronto Premier Outlets & Steeles Avenue

Scenario 1 - AM Peak Hour
Premier Gateway



Lane Group	EBT	EBR	WBT	NBL	NBR
Lane Group Flow (vph)	1071	45	952	42	11
v/c Ratio	0.45	0.04	0.40	0.08	0.05
Control Delay	6.1	1.2	5.7	37.2	19.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	6.1	1.2	5.7	37.2	19.4
Queue Length 50th (m)	39.0	0.0	33.1	3.8	0.0
Queue Length 95th (m)	50.0	2.7	42.6	8.8	5.2
Internal Link Dist (m)	287.3		176.7	95.1	
Turn Bay Length (m)		130.0			40.0
Base Capacity (vph)	2395	1134	2373	500	214
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	0.45	0.04	0.40	0.08	0.05

Intersection Summary

HCM Signalized Intersection Capacity Analysis
13: Toronto Premier Outlets & Steeles Avenue

Scenario 1 - AM Peak Hour
Premier Gateway



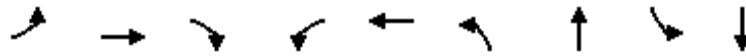
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑↑	↑
Traffic Volume (vph)	1028	43	0	914	40	11
Future Volume (vph)	1028	43	0	914	40	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	0.95	1.00		0.95	0.97	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	1.00	1.00		1.00	0.95	1.00
Satd. Flow (prot)	3282	1538		3252	3335	1369
Flt Permitted	1.00	1.00		1.00	0.95	1.00
Satd. Flow (perm)	3282	1538		3252	3335	1369
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	1071	45	0	952	42	11
RTOR Reduction (vph)	0	12	0	0	0	9
Lane Group Flow (vph)	1071	33	0	952	42	2
Heavy Vehicles (%)	10%	5%	0%	11%	5%	18%
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	73.0	73.0		73.0	15.0	15.0
Effective Green, g (s)	73.0	73.0		73.0	15.0	15.0
Actuated g/C Ratio	0.73	0.73		0.73	0.15	0.15
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	0.2	0.2		0.2	4.0	4.0
Lane Grp Cap (vph)	2395	1122		2373	500	205
v/s Ratio Prot	c0.33			0.29	c0.01	
v/s Ratio Perm		0.02				0.00
v/c Ratio	0.45	0.03		0.40	0.08	0.01
Uniform Delay, d1	5.4	3.7		5.2	36.6	36.2
Progression Factor	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.6	0.0		0.5	0.3	0.1
Delay (s)	6.0	3.8		5.7	36.9	36.2
Level of Service	A	A		A	D	D
Approach Delay (s)	5.9			5.7	36.8	
Approach LOS	A			A	D	

Intersection Summary

HCM 2000 Control Delay	6.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	46.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues

14: Toronto Premium Outlets/Eighth Line & Steeles Avenue



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	95	993	15	35	582	3	11	205	429
v/c Ratio	0.23	0.60	0.02	0.12	0.42	0.01	0.02	0.52	0.58
Control Delay	12.4	22.7	0.1	11.9	20.9	47.0	12.9	38.9	7.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.4	22.7	0.1	11.9	20.9	47.0	12.9	38.9	7.3
Queue Length 50th (m)	7.9	80.3	0.0	2.8	40.1	0.3	0.2	35.8	2.1
Queue Length 95th (m)	21.2	135.0	0.0	9.6	71.4	2.0	4.1	71.7	31.5
Internal Link Dist (m)		176.7			846.8		194.1		472.6
Turn Bay Length (m)	105.0		55.0	30.0				20.0	
Base Capacity (vph)	420	1642	783	293	1374	248	667	395	746
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.60	0.02	0.12	0.42	0.01	0.02	0.52	0.58

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 14: Toronto Premium Outlets/Eighth Line & Steeles Avenue

Scenario 1 - AM Peak Hour

Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	89	933	14	33	511	36	3	1	9	193	5	399
Future Volume (vph)	89	933	14	33	511	36	3	1	9	193	5	399
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	4.0	6.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.97	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.86		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1671	3252	1417	1752	2965		2633	1492		1770	1587	
Flt Permitted	0.35	1.00	1.00	0.20	1.00		0.95	1.00		0.75	1.00	
Satd. Flow (perm)	622	3252	1417	368	2965		2633	1492		1398	1587	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	95	993	15	35	544	38	3	1	10	205	5	424
RTOR Reduction (vph)	0	0	8	0	4	0	0	7	0	0	305	0
Lane Group Flow (vph)	95	993	7	35	578	0	3	4	0	205	124	0
Heavy Vehicles (%)	8%	11%	14%	3%	21%	14%	33%	0%	11%	2%	0%	2%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA		Perm	NA	
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases	4		4	8						6		
Actuated Green, G (s)	60.7	53.7	53.7	54.9	50.8		1.8	38.9		30.1	30.1	
Effective Green, g (s)	60.7	53.7	53.7	54.9	50.8		1.8	38.9		30.1	30.1	
Actuated g/C Ratio	0.53	0.47	0.47	0.48	0.45		0.02	0.34		0.26	0.26	
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	0.2	0.2	3.0	0.2		4.0	4.0		3.0	3.0	
Lane Grp Cap (vph)	396	1535	669	227	1324		41	510		370	420	
v/s Ratio Prot	c0.01	c0.31		0.01	0.19		c0.00	0.00			0.08	
v/s Ratio Perm	0.11		0.01	0.07						c0.15		
v/c Ratio	0.24	0.65	0.01	0.15	0.44		0.07	0.01		0.55	0.29	
Uniform Delay, d1	13.6	22.8	15.9	16.7	21.6		55.1	24.7		36.0	33.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	2.1	0.0	0.3	1.0		1.0	0.0		5.9	1.8	
Delay (s)	13.9	24.9	15.9	17.0	22.7		56.2	24.7		41.9	35.1	
Level of Service	B	C	B	B	C		E	C		D	D	
Approach Delay (s)		23.8			22.3			31.4			37.3	
Approach LOS		C			C			C			D	

Intersection Summary			
HCM 2000 Control Delay	27.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	113.7	Sum of lost time (s)	24.0
Intersection Capacity Utilization	70.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
 15: Eighth Line South & Steeles Avenue

Scenario 1 - AM Peak Hour
 Premier Gateway



Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	↑↑		↙	↑↑	↙	↗	
Traffic Volume (veh/h)	1134	1	1	579	1	0	
Future Volume (Veh/h)	1134	1	1	579	1	0	
Sign Control	Free			Free	Stop		
Grade	0%			0%	0%		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	
Hourly flow rate (vph)	1181	1	1	603	1	0	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type	None		None				
Median storage (veh)							
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume			1182		1485	591	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol			1182		1485	591	
tC, single (s)			4.1		6.8	6.9	
tC, 2 stage (s)							
tF (s)			2.2		3.5	3.3	
p0 queue free %			100		99	100	
cM capacity (veh/h)			598		117	455	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	787	395	1	302	302	1	0
Volume Left	0	0	1	0	0	1	0
Volume Right	0	1	0	0	0	0	0
cSH	1700	1700	598	1700	1700	117	1700
Volume to Capacity	0.46	0.23	0.00	0.18	0.18	0.01	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.2	0.0
Control Delay (s)	0.0	0.0	11.0	0.0	0.0	35.9	0.0
Lane LOS			B			E	A
Approach Delay (s)	0.0		0.0			35.9	
Approach LOS						E	
Intersection Summary							
Average Delay			0.0				
Intersection Capacity Utilization			41.4%	ICU Level of Service		A	
Analysis Period (min)			15				

Queues
16: Steeles Avenue & Ninth Line

Scenario 1 - AM Peak Hour
Premier Gateway



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	85	1108	528	241	642	82
v/c Ratio	0.28	0.84	0.56	0.38	0.79	0.13
Control Delay	19.8	34.0	32.2	5.5	31.5	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.8	34.0	32.2	5.5	31.5	4.1
Queue Length 50th (m)	10.2	105.1	48.6	0.0	107.5	0.0
Queue Length 95th (m)	19.9	134.0	66.6	17.8	156.9	8.1
Internal Link Dist (m)		501.4	674.5		3096.2	
Turn Bay Length (m)	65.0			75.0		
Base Capacity (vph)	303	1324	946	636	814	653
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.28	0.84	0.56	0.38	0.79	0.13

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 16: Steeles Avenue & Ninth Line

Scenario 1 - AM Peak Hour
 Premier Gateway



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	81	1053	502	229	610	78
Future Volume (vph)	81	1053	502	229	610	78
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1556	3312	3034	1509	1770	1324
Flt Permitted	0.33	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	541	3312	3034	1509	1770	1324
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	85	1108	528	241	642	82
RTOR Reduction (vph)	0	0	0	166	0	45
Lane Group Flow (vph)	85	1108	528	75	642	37
Heavy Vehicles (%)	16%	9%	19%	7%	2%	22%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	40.8	40.8	31.2	31.2	46.0	46.0
Effective Green, g (s)	40.8	40.8	31.2	31.2	46.0	46.0
Actuated g/C Ratio	0.40	0.40	0.31	0.31	0.46	0.46
Clearance Time (s)	4.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	0.2	0.2	0.2	3.0	3.0
Lane Grp Cap (vph)	275	1340	939	467	807	604
v/s Ratio Prot	0.02	c0.33	0.17		c0.36	
v/s Ratio Perm	0.11			0.05		0.03
v/c Ratio	0.31	0.83	0.56	0.16	0.80	0.06
Uniform Delay, d1	19.4	26.8	29.1	25.3	23.4	15.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	6.0	2.4	0.7	8.0	0.2
Delay (s)	20.1	32.8	31.5	26.0	31.4	15.5
Level of Service	C	C	C	C	C	B
Approach Delay (s)		31.9	29.8		29.6	
Approach LOS		C	C		C	

Intersection Summary

HCM 2000 Control Delay	30.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	100.8	Sum of lost time (s)	18.0
Intersection Capacity Utilization	74.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Queues
17: Ninth Line (South) & Steeles Avenue

Scenario 1 - AM Peak Hour
Premier Gateway



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1282	488	355	598	180	323
v/c Ratio	0.90	0.51	0.85	0.30	0.54	0.57
Control Delay	35.1	3.7	42.5	7.0	43.8	8.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.1	3.7	42.5	7.0	43.8	8.7
Queue Length 50th (m)	124.6	0.0	49.9	22.6	34.7	0.0
Queue Length 95th (m)	#159.1	18.3	#93.9	30.4	57.7	24.3
Internal Link Dist (m)	674.5			410.9	143.5	
Turn Bay Length (m)		75.0	145.0		60.0	
Base Capacity (vph)	1574	1008	474	2242	336	568
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.48	0.75	0.27	0.54	0.57

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
 17: Ninth Line (South) & Steeles Avenue

Scenario 1 - AM Peak Hour
 Premier Gateway



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑
Traffic Volume (vph)	1205	459	334	562	169	304
Future Volume (vph)	1205	459	334	562	169	304
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	4.0	7.0	7.0	7.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3312	1583	1787	3034	1770	1615
Flt Permitted	1.00	1.00	0.09	1.00	0.95	1.00
Satd. Flow (perm)	3312	1583	166	3034	1770	1615
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	1282	488	355	598	180	323
RTOR Reduction (vph)	0	277	0	0	0	261
Lane Group Flow (vph)	1282	211	355	598	180	62
Heavy Vehicles (%)	9%	2%	1%	19%	2%	0%
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	41.3	41.3	63.3	63.3	18.2	18.2
Effective Green, g (s)	41.3	41.3	63.3	63.3	18.2	18.2
Actuated g/C Ratio	0.43	0.43	0.66	0.66	0.19	0.19
Clearance Time (s)	7.0	7.0	4.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1432	684	415	2011	337	307
v/s Ratio Prot	0.39		c0.16	0.20	c0.10	
v/s Ratio Perm		0.13	c0.40			0.04
v/c Ratio	0.90	0.31	0.86	0.30	0.53	0.20
Uniform Delay, d1	25.1	17.7	26.7	6.8	34.8	32.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	7.6	0.3	15.7	0.1	6.0	1.5
Delay (s)	32.7	18.0	42.4	6.8	40.8	34.0
Level of Service	C	B	D	A	D	C
Approach Delay (s)	28.7			20.1	36.4	
Approach LOS	C			C	D	

Intersection Summary			
HCM 2000 Control Delay	27.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.81		
Actuated Cycle Length (s)	95.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	76.2%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Queues

Scenario 1 - AM Peak Hour

18: James Snow Parkway & Hwy 401 (Westbound Ramp)

Premier Gateway



Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	542	252	654	560
v/c Ratio	0.66	0.61	0.41	0.33
Control Delay	22.9	16.5	11.9	11.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	22.9	16.5	11.9	11.1
Queue Length 50th (m)	26.5	12.6	24.6	20.1
Queue Length 95th (m)	40.8	34.9	45.0	37.1
Internal Link Dist (m)	390.4		415.8	504.8
Turn Bay Length (m)				
Base Capacity (vph)	1371	623	1584	1689
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.40	0.40	0.41	0.33

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 18: James Snow Parkway & Hwy 401 (Westbound Ramp)

Scenario 1 - AM Peak Hour

Premier Gateway



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔↔	↗	↕↕			↕↕
Traffic Volume (vph)	374	380	621	0	0	532
Future Volume (vph)	374	380	621	0	0	532
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.2	8.2	9.3			9.3
Lane Util. Factor	0.97	0.91	0.95			0.95
Frt	0.96	0.85	1.00			1.00
Flt Protected	0.96	1.00	1.00			1.00
Satd. Flow (prot)	3274	1336	3195			3406
Flt Permitted	0.96	1.00	1.00			1.00
Satd. Flow (perm)	3274	1336	3195			3406
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	394	400	654	0	0	560
RTOR Reduction (vph)	64	109	0	0	0	0
Lane Group Flow (vph)	478	143	654	0	0	560
Heavy Vehicles (%)	2%	10%	13%	0%	0%	6%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	14.8	14.8	31.8			31.8
Effective Green, g (s)	14.8	14.8	31.8			31.8
Actuated g/C Ratio	0.23	0.23	0.50			0.50
Clearance Time (s)	8.2	8.2	9.3			9.3
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	755	308	1585			1689
v/s Ratio Prot	c0.15		c0.20			0.16
v/s Ratio Perm		0.11				
v/c Ratio	0.63	0.46	0.41			0.33
Uniform Delay, d1	22.2	21.2	10.2			9.7
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	1.7	1.1	0.8			0.5
Delay (s)	23.9	22.3	11.0			10.3
Level of Service	C	C	B			B
Approach Delay (s)	23.4		11.0			10.3
Approach LOS	C		B			B

Intersection Summary

HCM 2000 Control Delay	15.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	64.1	Sum of lost time (s)	17.5
Intersection Capacity Utilization	47.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues

Scenario 1 - AM Peak Hour

19: James Snow Parkway & Hwy 401 (Eastbound Ramp)

Premier Gateway



Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	340	157	668	722
v/c Ratio	0.57	0.42	0.33	0.34
Control Delay	19.9	8.3	6.8	6.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	19.9	8.3	6.8	6.9
Queue Length 50th (m)	13.2	0.0	17.4	19.1
Queue Length 95th (m)	24.6	14.8	31.0	33.4
Internal Link Dist (m)	305.5		1282.4	415.8
Turn Bay Length (m)				
Base Capacity (vph)	1089	588	2052	2132
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.31	0.27	0.33	0.34

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 19: James Snow Parkway & Hwy 401 (Eastbound Ramp)

Scenario 1 - AM Peak Hour

Premier Gateway



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	226	261	0	655	708	0
Future Volume (vph)	226	261	0	655	708	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		7.4	7.4	
Lane Util. Factor	0.97	0.91		0.95	0.95	
Frt	0.95	0.85		1.00	1.00	
Flt Protected	0.97	1.00		1.00	1.00	
Satd. Flow (prot)	2815	1348		3374	3505	
Flt Permitted	0.97	1.00		1.00	1.00	
Satd. Flow (perm)	2815	1348		3374	3505	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	231	266	0	668	722	0
RTOR Reduction (vph)	89	129	0	0	0	0
Lane Group Flow (vph)	251	28	0	668	722	0
Heavy Vehicles (%)	26%	9%	0%	7%	3%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	11.5	11.5		38.6	38.6	
Effective Green, g (s)	11.5	11.5		38.6	38.6	
Actuated g/C Ratio	0.18	0.18		0.61	0.61	
Clearance Time (s)	6.0	6.0		7.4	7.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	509	244		2050	2130	
v/s Ratio Prot	c0.09			0.20	c0.21	
v/s Ratio Perm		0.02				
v/c Ratio	0.49	0.12		0.33	0.34	
Uniform Delay, d1	23.4	21.8		6.1	6.1	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.8	0.2		0.4	0.4	
Delay (s)	24.1	22.0		6.5	6.6	
Level of Service	C	C		A	A	
Approach Delay (s)	23.4			6.5	6.6	
Approach LOS	C			A	A	

Intersection Summary			
HCM 2000 Control Delay	11.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.37		
Actuated Cycle Length (s)	63.5	Sum of lost time (s)	13.4
Intersection Capacity Utilization	47.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues

20: Trafalgar Road & Hwy 401 (Westbound Ramp)



Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	299	174	770	1856
v/c Ratio	0.73	0.65	0.30	0.71
Control Delay	30.5	18.5	4.0	8.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	30.5	18.5	4.0	8.1
Queue Length 50th (m)	14.0	0.0	20.6	85.6
Queue Length 95th (m)	29.0	24.3	36.2	144.3
Internal Link Dist (m)	383.1		312.7	749.5
Turn Bay Length (m)				
Base Capacity (vph)	574	336	2559	2631
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.52	0.52	0.30	0.71

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 20: Trafalgar Road & Hwy 401 (Westbound Ramp)

Scenario 1 - AM Peak Hour
 Premier Gateway



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔↔	↗	↕↕			↕↕
Traffic Volume (vph)	120	339	747	0	0	1800
Future Volume (vph)	120	339	747	0	0	1800
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0			6.0
Lane Util. Factor	0.97	0.91	0.95			0.95
Frt	0.91	0.85	1.00			1.00
Flt Protected	0.98	1.00	1.00			1.00
Satd. Flow (prot)	2407	1081	3252			3343
Flt Permitted	0.98	1.00	1.00			1.00
Satd. Flow (perm)	2407	1081	3252			3343
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	124	349	770	0	0	1856
RTOR Reduction (vph)	157	156	0	0	0	0
Lane Group Flow (vph)	142	18	770	0	0	1856
Heavy Vehicles (%)	38%	36%	11%	0%	0%	8%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	11.8	11.8	88.1			88.1
Effective Green, g (s)	11.8	11.8	88.1			88.1
Actuated g/C Ratio	0.11	0.11	0.79			0.79
Clearance Time (s)	6.0	6.0	6.0			6.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	253	113	2560			2631
v/s Ratio Prot	c0.06		0.24			c0.56
v/s Ratio Perm		0.02				
v/c Ratio	0.56	0.16	0.30			0.71
Uniform Delay, d1	47.6	45.6	3.3			5.7
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	2.9	0.7	0.3			1.6
Delay (s)	50.5	46.2	3.6			7.3
Level of Service	D	D	A			A
Approach Delay (s)	48.9		3.6			7.3
Approach LOS	D		A			A

Intersection Summary

HCM 2000 Control Delay	12.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	111.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	66.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Queues
 21: Trafalgar Road & Hwy 401 (Eastbound Ramp)

Scenario 1 - AM Peak Hour
 Premier Gateway



Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	221	104	1314	1426
v/c Ratio	0.62	0.50	0.49	0.55
Control Delay	37.3	23.3	4.8	5.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	37.3	23.3	4.8	5.3
Queue Length 50th (m)	15.6	4.9	41.8	48.9
Queue Length 95th (m)	28.2	23.6	64.7	76.1
Internal Link Dist (m)	204.3		1138.2	312.7
Turn Bay Length (m)				
Base Capacity (vph)	598	316	2685	2611
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.37	0.33	0.49	0.55
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
 21: Trafalgar Road & Hwy 401 (Eastbound Ramp)

Scenario 1 - AM Peak Hour
 Premier Gateway



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	120	199	0	1288	1392	6
Future Volume (vph)	120	199	0	1288	1392	6
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	
Lane Util. Factor	0.97	0.91		0.95	0.95	
Frt	0.93	0.85		1.00	1.00	
Flt Protected	0.97	1.00		1.00	1.00	
Satd. Flow (prot)	2956	1386		3374	3281	
Flt Permitted	0.97	1.00		1.00	1.00	
Satd. Flow (perm)	2956	1386		3374	3281	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	122	203	0	1314	1420	6
RTOR Reduction (vph)	75	75	0	0	0	0
Lane Group Flow (vph)	146	29	0	1314	1426	0
Heavy Vehicles (%)	19%	6%	0%	7%	10%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	10.7	10.7		88.7	88.7	
Effective Green, g (s)	10.7	10.7		88.7	88.7	
Actuated g/C Ratio	0.10	0.10		0.80	0.80	
Clearance Time (s)	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	283	133		2686	2612	
v/s Ratio Prot	c0.05			0.39	c0.43	
v/s Ratio Perm		0.02				
v/c Ratio	0.52	0.22		0.49	0.55	
Uniform Delay, d1	47.9	46.5		3.8	4.1	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.6	0.8		0.6	0.8	
Delay (s)	49.5	47.3		4.4	4.9	
Level of Service	D	D		A	A	
Approach Delay (s)	48.8			4.4	4.9	
Approach LOS	D			A	A	

Intersection Summary			
HCM 2000 Control Delay	9.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	111.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	56.9%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Queues

22: Winston Churchill Boulevard & Hwy 401 (Westbound Ramp)



Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	482	227	1343	1128
v/c Ratio	0.80	0.78	0.38	0.32
Control Delay	54.7	52.7	8.4	7.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	54.7	52.7	8.4	7.9
Queue Length 50th (m)	56.2	44.6	48.0	38.1
Queue Length 95th (m)	76.1	79.1	68.7	55.3
Internal Link Dist (m)	284.7		32.1	320.2
Turn Bay Length (m)				
Base Capacity (vph)	772	363	3543	3543
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.62	0.63	0.38	0.32

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 22: Winston Churchill Boulevard & Hwy 401 (Westbound Ramp)

Scenario 1 - AM Peak Hour
 Premier Gateway



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	TT	T	TTT			TTT
Traffic Volume (vph)	266	408	1276	0	0	1072
Future Volume (vph)	266	408	1276	0	0	1072
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	8.0			8.0
Lane Util. Factor	0.97	0.91	0.91			0.91
Frt	0.94	0.85	1.00			1.00
Flt Protected	0.97	1.00	1.00			1.00
Satd. Flow (prot)	3049	1301	4988			4988
Flt Permitted	0.97	1.00	1.00			1.00
Satd. Flow (perm)	3049	1301	4988			4988
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	280	429	1343	0	0	1128
RTOR Reduction (vph)	63	63	0	0	0	0
Lane Group Flow (vph)	419	164	1343	0	0	1128
Heavy Vehicles (%)	8%	13%	4%	0%	0%	4%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	23.4	23.4	94.1			94.1
Effective Green, g (s)	23.4	23.4	94.1			94.1
Actuated g/C Ratio	0.18	0.18	0.71			0.71
Clearance Time (s)	7.0	7.0	8.0			8.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	538	229	3542			3542
v/s Ratio Prot	c0.14		c0.27			0.23
v/s Ratio Perm		0.13				
v/c Ratio	0.78	0.72	0.38			0.32
Uniform Delay, d1	52.1	51.4	7.6			7.2
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	7.0	10.3	0.3			0.2
Delay (s)	59.1	61.7	7.9			7.4
Level of Service	E	E	A			A
Approach Delay (s)	60.0		7.9			7.4
Approach LOS	E		A			A

Intersection Summary

HCM 2000 Control Delay	19.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	132.5	Sum of lost time (s)	15.0
Intersection Capacity Utilization	179.5%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Queues

Scenario 1 - AM Peak Hour

23: Winston Churchill Boulevard & Hwy 401 (Eastbound Ramp)

Premier Gateway



Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	623	282	1111	1125
v/c Ratio	0.81	0.72	0.34	0.34
Control Delay	54.3	41.4	10.6	10.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	54.3	41.4	10.6	10.7
Queue Length 50th (m)	78.4	52.7	44.3	45.2
Queue Length 95th (m)	99.8	88.4	64.0	65.1
Internal Link Dist (m)	152.5		433.2	198.3
Turn Bay Length (m)				
Base Capacity (vph)	1102	531	3292	3261
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.57	0.53	0.34	0.34

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 23: Winston Churchill Boulevard & Hwy 401 (Eastbound Ramp)

Scenario 1 - AM Peak Hour
 Premier Gateway



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔↔	↗		↑↑↑	↑↑↑	
Traffic Volume (vph)	493	367	0	1055	1069	0
Future Volume (vph)	493	367	0	1055	1069	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		7.0	7.0	
Lane Util. Factor	0.97	0.91		0.91	0.91	
Frt	0.97	0.85		1.00	1.00	
Flt Protected	0.96	1.00		1.00	1.00	
Satd. Flow (prot)	3296	1427		5036	4988	
Flt Permitted	0.96	1.00		1.00	1.00	
Satd. Flow (perm)	3296	1427		5036	4988	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	519	386	0	1111	1125	0
RTOR Reduction (vph)	14	68	0	0	0	0
Lane Group Flow (vph)	609	214	0	1111	1125	0
Heavy Vehicles (%)	5%	3%	0%	3%	4%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	29.0	29.0		83.2	83.2	
Effective Green, g (s)	29.0	29.0		83.2	83.2	
Actuated g/C Ratio	0.23	0.23		0.65	0.65	
Clearance Time (s)	8.0	8.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	751	325		3293	3262	
v/s Ratio Prot	c0.18			0.22	c0.23	
v/s Ratio Perm		0.15				
v/c Ratio	0.81	0.66		0.34	0.34	
Uniform Delay, d1	46.5	44.6		9.8	9.8	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.6	4.8		0.3	0.3	
Delay (s)	53.1	49.4		10.0	10.1	
Level of Service	D	D		B	B	
Approach Delay (s)	52.0			10.0	10.1	
Approach LOS	D			B	B	

Intersection Summary

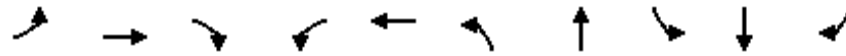
HCM 2000 Control Delay	22.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	127.2	Sum of lost time (s)	15.0
Intersection Capacity Utilization	179.5%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Queues

Scenario 1 - AM Peak Hour

24: James Snow Parkway & Main Street East

Premier Gateway



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	852	243	459	83	103	225	948	136	622	263
v/c Ratio	0.89	0.29	0.55	0.53	0.22	0.73	0.92	0.68	0.72	0.45
Control Delay	42.6	15.0	9.7	46.0	18.0	34.9	45.1	38.7	35.1	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	42.6	15.0	9.7	46.0	18.0	34.9	45.1	38.7	35.1	6.7
Queue Length 50th (m)	71.2	24.1	22.3	13.2	3.7	24.6	80.7	14.1	50.8	0.0
Queue Length 95th (m)	#119.4	39.2	47.7	27.4	10.7	#54.8	#136.2	#37.3	#82.1	19.3
Internal Link Dist (m)		274.7			467.9		430.6		1282.4	
Turn Bay Length (m)	70.0		50.0	105.0		100.0		135.0		135.0
Base Capacity (vph)	963	1066	1002	251	707	307	1025	200	858	583
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	0.88	0.23	0.46	0.33	0.15	0.73	0.92	0.68	0.72	0.45

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
 24: James Snow Parkway & Main Street East

Scenario 1 - AM Peak Hour
 Premier Gateway

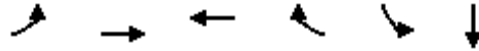


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	809	231	436	79	46	52	214	784	117	129	591	250
Future Volume (vph)	809	231	436	79	46	52	214	784	117	129	591	250
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0	6.0	6.0	6.0		4.5	6.0		4.5	6.0	6.0
Lane Util. Factor	0.97	1.00	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.92		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	1900	1599	1752	2961		1752	3470		1687	3374	1524
Flt Permitted	0.95	1.00	1.00	0.61	1.00		0.23	1.00		0.19	1.00	1.00
Satd. Flow (perm)	3433	1900	1599	1121	2961		420	3470		343	3374	1524
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	852	243	459	83	48	55	225	825	123	136	622	263
RTOR Reduction (vph)	0	0	132	0	48	0	0	13	0	0	0	197
Lane Group Flow (vph)	852	243	327	83	55	0	225	935	0	136	622	66
Heavy Vehicles (%)	2%	0%	1%	3%	2%	21%	3%	2%	2%	7%	7%	6%
Turn Type	Prot	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases			4	8			2			6		6
Actuated Green, G (s)	22.7	37.0	37.0	9.8	9.8		31.9	23.7		25.9	20.7	20.7
Effective Green, g (s)	22.7	37.0	37.0	9.8	9.8		31.9	23.7		25.9	20.7	20.7
Actuated g/C Ratio	0.28	0.45	0.45	0.12	0.12		0.39	0.29		0.31	0.25	0.25
Clearance Time (s)	4.5	6.0	6.0	6.0	6.0		4.5	6.0		4.5	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	945	853	717	133	352		295	998		192	847	382
v/s Ratio Prot	c0.25	0.13			0.02		c0.08	c0.27		0.04	0.18	
v/s Ratio Perm			0.20	c0.07			0.22			0.18		0.04
v/c Ratio	0.90	0.28	0.46	0.62	0.15		0.76	0.94		0.71	0.73	0.17
Uniform Delay, d1	28.8	14.3	15.7	34.5	32.6		18.7	28.6		22.4	28.3	24.1
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	11.6	0.2	0.5	8.8	0.2		11.1	16.8		11.3	5.6	1.0
Delay (s)	40.4	14.5	16.2	43.3	32.8		29.8	45.5		33.7	33.9	25.1
Level of Service	D	B	B	D	C		C	D		C	C	C
Approach Delay (s)		29.2			37.5			42.5			31.6	
Approach LOS		C			D			D			C	

Intersection Summary		
HCM 2000 Control Delay	34.2	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.89	
Actuated Cycle Length (s)	82.4	Sum of lost time (s) 21.0
Intersection Capacity Utilization	77.3%	ICU Level of Service D
Analysis Period (min)	15	
c Critical Lane Group		

Queues
25: Street B & Steeles Avenue

Scenario 1 - AM Peak Hour
Premier Gateway



Lane Group	EBL	EBT	WBT	WBR	SBL	SBT
Lane Group Flow (vph)	53	826	623	82	18	25
v/c Ratio	0.26	0.68	0.53	0.17	0.04	0.04
Control Delay	14.8	16.5	14.2	4.1	10.0	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.8	16.5	14.2	4.1	10.0	0.1
Queue Length 50th (m)	3.2	31.4	22.2	0.0	0.9	0.0
Queue Length 95th (m)	10.2	46.8	34.2	6.4	4.1	0.0
Internal Link Dist (m)		388.7	443.0			311.5
Turn Bay Length (m)	50.0			30.0	30.0	
Base Capacity (vph)	242	1449	1407	576	470	598
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.57	0.44	0.14	0.04	0.04

Intersection Summary

HCM Signalized Intersection Capacity Analysis

25: Street B & Steeles Avenue

Scenario 1 - AM Peak Hour
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗↗	↖	↖	↗↗	↖	↖	↗	↖	↖	↗	↖
Traffic Volume (vph)	51	793	0	0	598	79	0	0	0	17	0	24
Future Volume (vph)	51	793	0	0	598	79	0	0	0	17	0	24
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0	6.0				6.0	6.0	
Lane Util. Factor	1.00	0.95			0.95	1.00				1.00	1.00	
Frt	1.00	1.00			1.00	0.85				1.00	0.85	
Flt Protected	0.95	1.00			1.00	1.00				0.95	1.00	
Satd. Flow (prot)	1456	3574			3471	1302				1456	1292	
Flt Permitted	0.39	1.00			1.00	1.00				0.76	1.00	
Satd. Flow (perm)	600	3574			3471	1302				1160	1292	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	53	826	0	0	623	82	0	0	0	18	0	25
RTOR Reduction (vph)	0	0	0	0	0	54	0	0	0	0	15	0
Lane Group Flow (vph)	53	826	0	0	623	28	0	0	0	18	10	0
Heavy Vehicles (%)	24%	1%	10%	10%	4%	24%	10%	10%	10%	24%	0%	25%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm		Perm	Perm	NA	
Protected Phases		4			8			2				6
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)	15.9	15.9			15.9	15.9				19.1	19.1	
Effective Green, g (s)	15.9	15.9			15.9	15.9				19.1	19.1	
Actuated g/C Ratio	0.34	0.34			0.34	0.34				0.41	0.41	
Clearance Time (s)	6.0	6.0			6.0	6.0				6.0	6.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0				3.0	3.0	
Lane Grp Cap (vph)	202	1209			1174	440				471	525	
v/s Ratio Prot		c0.23			0.18							0.01
v/s Ratio Perm	0.09					0.02				c0.02		
v/c Ratio	0.26	0.68			0.53	0.06				0.04	0.02	
Uniform Delay, d1	11.3	13.4			12.5	10.5				8.4	8.3	
Progression Factor	1.00	1.00			1.00	1.00				1.00	1.00	
Incremental Delay, d2	0.7	1.6			0.5	0.1				0.2	0.1	
Delay (s)	12.0	15.0			13.0	10.6				8.6	8.4	
Level of Service	B	B			B	B				A	A	
Approach Delay (s)		14.8			12.7			0.0			8.5	
Approach LOS		B			B			A			A	

Intersection Summary

HCM 2000 Control Delay	13.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.33		
Actuated Cycle Length (s)	47.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	45.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
 26: Hornby Road & Street A

Scenario 1 - AM Peak Hour
 Premier Gateway



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Right Turn Channelized						
Traffic Volume (veh/h)	5	0	0	31	39	26
Future Volume (veh/h)	5	0	0	31	39	26
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	5	0	0	32	41	27
Approach Volume (veh/h)	5			32	68	
Crossing Volume (veh/h)	41			5	0	
High Capacity (veh/h)	1341			1379	1385	
High v/c (veh/h)	0.00			0.02	0.05	
Low Capacity (veh/h)	1122			1156	1161	
Low v/c (veh/h)	0.00			0.03	0.06	
Intersection Summary						
Maximum v/c High			0.05			
Maximum v/c Low			0.06			
Intersection Capacity Utilization			13.6%		ICU Level of Service	A

Queues
27: Trafalgar Road & Street B

Scenario 1 - AM Peak Hour
Premier Gateway



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	6	38	14	39	75	380	61	32	1344	30
v/c Ratio	0.02	0.09	0.04	0.09	0.73	0.20	0.08	0.07	0.69	0.04
Control Delay	17.3	12.8	17.8	15.9	56.9	8.1	2.6	7.8	13.4	1.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.3	12.8	17.8	15.9	56.9	8.1	2.6	7.8	13.4	1.5
Queue Length 50th (m)	0.6	2.0	1.3	3.0	6.6	11.9	0.0	1.8	60.1	0.0
Queue Length 95th (m)	3.0	8.2	5.2	9.5	#30.2	18.4	4.6	5.5	82.0	2.0
Internal Link Dist (m)		260.1		649.3		221.2			63.9	
Turn Bay Length (m)	50.0		50.0		50.0		50.0	50.0		50.0
Base Capacity (vph)	329	404	313	417	103	1943	729	437	1943	724
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	0.02	0.09	0.04	0.09	0.73	0.20	0.08	0.07	0.69	0.04

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
27: Trafalgar Road & Street B

Scenario 1 - AM Peak Hour
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	6	20	16	13	31	7	72	365	59	31	1290	29
Future Volume (vph)	6	20	16	13	31	7	72	365	59	31	1290	29
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.93		1.00	0.97		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)	1543	1418		1467	1490		1456	3610	1302	1467	3610	1302
Flt Permitted	0.73	1.00		0.73	1.00		0.13	1.00	1.00	0.53	1.00	1.00
Satd. Flow (perm)	1188	1418		1131	1490		192	3610	1302	813	3610	1302
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	6	21	17	14	32	7	75	380	61	32	1344	30
RTOR Reduction (vph)	0	12	0	0	5	0	0	0	28	0	0	14
Lane Group Flow (vph)	6	26	0	14	34	0	75	380	33	32	1344	16
Heavy Vehicles (%)	17%	25%	25%	23%	23%	29%	24%	0%	24%	23%	0%	24%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	18.0	18.0		18.0	18.0		35.0	35.0	35.0	35.0	35.0	35.0
Effective Green, g (s)	18.0	18.0		18.0	18.0		35.0	35.0	35.0	35.0	35.0	35.0
Actuated g/C Ratio	0.28	0.28		0.28	0.28		0.54	0.54	0.54	0.54	0.54	0.54
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Grp Cap (vph)	328	392		313	412		103	1943	701	437	1943	701
v/s Ratio Prot		0.02			c0.02			0.11			0.37	
v/s Ratio Perm	0.01			0.01			c0.39		0.03	0.04		0.01
v/c Ratio	0.02	0.07		0.04	0.08		0.73	0.20	0.05	0.07	0.69	0.02
Uniform Delay, d1	17.1	17.3		17.2	17.4		11.4	7.7	7.1	7.2	11.0	7.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.3		0.3	0.4		36.1	0.2	0.1	0.3	2.0	0.1
Delay (s)	17.2	17.6		17.5	17.8		47.5	8.0	7.2	7.5	13.1	7.1
Level of Service	B	B		B	B		D	A	A	A	B	A
Approach Delay (s)		17.6			17.7			13.6			12.8	
Approach LOS		B			B			B			B	

Intersection Summary

HCM 2000 Control Delay	13.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	65.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	62.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

HCM Unsignalized Intersection Capacity Analysis
28: Eighth Line & Street B

Scenario 1 - AM Peak Hour
Premier Gateway



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	5	3	21	108	595	28
Future Volume (Veh/h)	5	3	21	108	595	28
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	5	3	22	113	620	29
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	792	634	649			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	792	634	649			
tC, single (s)	6.4	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	99	99	98			
cM capacity (veh/h)	350	479	937			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	
Volume Total	5	3	22	113	649	
Volume Left	5	0	22	0	0	
Volume Right	0	3	0	0	29	
cSH	350	479	937	1700	1700	
Volume to Capacity	0.01	0.01	0.02	0.07	0.38	
Queue Length 95th (m)	0.3	0.2	0.6	0.0	0.0	
Control Delay (s)	15.4	12.6	8.9	0.0	0.0	
Lane LOS	C	B	A			
Approach Delay (s)	14.4		1.5		0.0	
Approach LOS	B					
Intersection Summary						
Average Delay			0.4			
Intersection Capacity Utilization			43.0%		ICU Level of Service	A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
1: Fifth Line & 5 Side Road

Scenario 1 - PM Peak Hour
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	37	216	4	20	528	26	6	41	23	1	28	13
Future Volume (Veh/h)	37	216	4	20	528	26	6	41	23	1	28	13
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	39	225	4	21	550	27	6	43	24	1	29	14
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	577			229			939	924	227	956	912	564
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	577			229			939	924	227	956	912	564
tC, single (s)	4.1			4.1			7.2	6.5	6.2	7.1	6.5	6.4
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.3	3.5	4.0	3.5
p0 queue free %	96			98			97	83	97	99	89	97
cM capacity (veh/h)	1006			1351			199	257	807	195	261	493
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	268	598	73	44								
Volume Left	39	21	6	1								
Volume Right	4	27	24	14								
cSH	1006	1351	321	304								
Volume to Capacity	0.04	0.02	0.23	0.14								
Queue Length 95th (m)	1.0	0.4	6.9	4.0								
Control Delay (s)	1.6	0.4	19.5	18.8								
Lane LOS	A	A	C	C								
Approach Delay (s)	1.6	0.4	19.5	18.8								
Approach LOS			C	C								
Intersection Summary												
Average Delay			3.0									
Intersection Capacity Utilization			45.9%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

2: Sixth Line & 5 Side Road

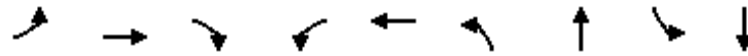
Scenario 1 - PM Peak Hour
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	3	231	2	17	582	23	8	28	15	6	14	6
Future Volume (Veh/h)	3	231	2	17	582	23	8	28	15	6	14	6
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	3	241	2	18	606	24	8	29	16	6	15	6
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type	None			None								
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	630			243			916	914	242	932	903	618
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	630			243			916	914	242	932	903	618
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	100			99			97	89	98	97	95	99
cM capacity (veh/h)	962			1335			239	271	802	221	275	470
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	246	648	53	27								
Volume Left	3	18	8	6								
Volume Right	2	24	16	6								
cSH	962	1335	330	286								
Volume to Capacity	0.00	0.01	0.16	0.09								
Queue Length 95th (m)	0.1	0.3	4.5	2.5								
Control Delay (s)	0.1	0.4	18.0	18.9								
Lane LOS	A	A	C	C								
Approach Delay (s)	0.1	0.4	18.0	18.9								
Approach LOS			C	C								
Intersection Summary												
Average Delay			1.8									
Intersection Capacity Utilization			52.1%	ICU Level of Service	A							
Analysis Period (min)			15									

Queues
3: Trafalgar Rd & 5 Side Road

Scenario 1 - PM Peak Hour
Premier Gateway



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	51	158	50	46	539	134	1011	8	520
v/c Ratio	0.43	0.24	0.09	0.11	0.80	0.32	0.64	0.03	0.41
Control Delay	33.4	19.4	1.5	18.2	33.6	13.4	20.4	11.0	20.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.4	19.4	1.5	18.2	33.6	13.4	20.4	11.0	20.7
Queue Length 50th (m)	6.3	18.1	0.0	5.0	78.2	11.5	62.1	0.6	34.6
Queue Length 95th (m)	18.1	32.1	2.4	12.3	118.0	21.8	#112.2	2.8	49.8
Internal Link Dist (m)		593.5			641.2		240.1		238.0
Turn Bay Length (m)	40.0		40.0	40.0		40.0		50.0	
Base Capacity (vph)	136	764	661	497	773	419	1568	278	1282
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.21	0.08	0.09	0.70	0.32	0.64	0.03	0.41

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

3: Trafalgar Rd & 5 Side Road

Scenario 1 - PM Peak Hour

Premier Gateway



















Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	155	49	45	490	38	131	923	68	8	504	6
Future Volume (vph)	50	155	49	45	490	38	131	923	68	8	504	6
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4	6.4	6.4	6.4		4.0	6.0		4.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.95		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1671	1863	1482	1752	1879		1671	3403		1626	3379	
Flt Permitted	0.19	1.00	1.00	0.66	1.00		0.37	1.00		0.20	1.00	
Satd. Flow (perm)	333	1863	1482	1212	1879		654	3403		346	3379	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	51	158	50	46	500	39	134	942	69	8	514	6
RTOR Reduction (vph)	0	0	33	0	3	0	0	6	0	0	1	0
Lane Group Flow (vph)	51	158	17	46	536	0	134	1005	0	8	519	0
Heavy Vehicles (%)	8%	2%	9%	3%	0%	0%	8%	5%	5%	11%	6%	63%
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	28.2	28.2	28.2	28.2	28.2		41.6	36.3		33.6	32.3	
Effective Green, g (s)	28.2	28.2	28.2	28.2	28.2		41.6	36.3		33.6	32.3	
Actuated g/C Ratio	0.34	0.34	0.34	0.34	0.34		0.51	0.44		0.41	0.39	
Clearance Time (s)	6.4	6.4	6.4	6.4	6.4		4.0	6.0		4.0	6.0	
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0		3.0	5.0		3.0	5.0	
Lane Grp Cap (vph)	114	639	508	415	644		396	1502		161	1327	
v/s Ratio Prot		0.08			c0.29		c0.02	c0.30		0.00	0.15	
v/s Ratio Perm	0.15		0.01	0.04			0.15			0.02		
v/c Ratio	0.45	0.25	0.03	0.11	0.83		0.34	0.67		0.05	0.39	
Uniform Delay, d1	21.0	19.4	17.9	18.4	24.8		11.3	18.2		15.0	17.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	5.7	0.4	0.1	0.2	10.0		0.5	2.4		0.1	0.9	
Delay (s)	26.7	19.8	18.0	18.7	34.8		11.8	20.6		15.1	18.8	
Level of Service	C	B	B	B	C		B	C		B	B	
Approach Delay (s)		20.8			33.5			19.5			18.7	
Approach LOS		C			C			B			B	

Intersection Summary

HCM 2000 Control Delay	22.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	82.2	Sum of lost time (s)	16.4
Intersection Capacity Utilization	88.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

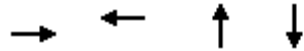
HCM Unsignalized Intersection Capacity Analysis
4: Eighth Line & 5 Side Road

Scenario 1 - PM Peak Hour
Premier Gateway

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	50	168	38	23	528	75	4	400	57	19	129	41
Future Volume (vph)	50	168	38	23	528	75	4	400	57	19	129	41
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	52	175	40	24	550	78	4	417	59	20	134	43
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	267	652	480	197								
Volume Left (vph)	52	24	4	20								
Volume Right (vph)	40	78	59	43								
Hadj (s)	0.03	-0.04	0.00	-0.07								
Departure Headway (s)	8.2	7.5	7.4	8.5								
Degree Utilization, x	0.61	1.36	0.99	0.46								
Capacity (veh/h)	428	490	480	403								
Control Delay (s)	23.1	197.5	66.4	18.5								
Approach Delay (s)	23.1	197.5	66.4	18.5								
Approach LOS	C	F	F	C								
Intersection Summary												
Delay			106.8									
Level of Service			F									
Intersection Capacity Utilization			67.2%	ICU Level of Service	C							
Analysis Period (min)			15									

Queues

5: Ninth Line & 5 Side Road



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	307	869	877	404
v/c Ratio	0.40	0.92	0.79	0.44
Control Delay	13.0	33.7	30.2	22.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	13.0	33.7	30.2	22.4
Queue Length 50th (m)	26.5	110.8	67.6	26.4
Queue Length 95th (m)	44.3	#195.2	#94.6	39.8
Internal Link Dist (m)	556.9	434.3	3096.2	305.9
Turn Bay Length (m)				
Base Capacity (vph)	843	1038	1117	912
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.36	0.84	0.79	0.44

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

5: Ninth Line & 5 Side Road

Scenario 1 - PM Peak Hour
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	47	240	5	6	580	239	18	805	10	29	328	27
Future Volume (vph)	47	240	5	6	580	239	18	805	10	29	328	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			6.0			6.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frt		1.00			0.96			1.00			0.99	
Flt Protected		0.99			1.00			1.00			1.00	
Satd. Flow (prot)		1815			1812			3599			3529	
Flt Permitted		0.81			1.00			0.94			0.78	
Satd. Flow (perm)		1485			1809			3385			2747	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	49	253	5	6	611	252	19	847	11	31	345	28
RTOR Reduction (vph)	0	1	0	0	14	0	0	1	0	0	7	0
Lane Group Flow (vph)	0	306		0	855		0	876		0	397	
Heavy Vehicles (%)	2%	4%	0%	0%	1%	0%	0%	0%	0%	0%	1%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		39.0			39.0			25.1			25.1	
Effective Green, g (s)		39.0			39.0			25.1			25.1	
Actuated g/C Ratio		0.51			0.51			0.33			0.33	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.5			3.5			5.5			5.5	
Lane Grp Cap (vph)		761			927			1116			906	
v/s Ratio Prot												
v/s Ratio Perm		0.21			c0.47			c0.26			0.14	
v/c Ratio		0.40			0.92			0.78			0.44	
Uniform Delay, d1		11.4			17.2			23.1			20.0	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.4			14.5			5.6			1.5	
Delay (s)		11.8			31.7			28.6			21.5	
Level of Service		B			C			C			C	
Approach Delay (s)		11.8			31.7			28.6			21.5	
Approach LOS		B			C			C			C	

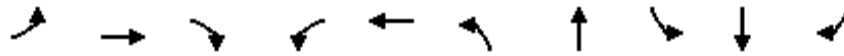
Intersection Summary

HCM 2000 Control Delay	26.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	76.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	92.3%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Queues
6: Brownridge Road/Fifth Line & Steeles Avenue

Scenario 1 - PM Peak Hour

Premier Gateway



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	52	809	3	2	1242	48	48	73	3	113
v/c Ratio	0.20	0.36	0.00	0.01	0.52	0.24	0.19	0.41	0.01	0.38
Control Delay	7.8	5.8	0.0	5.0	7.2	31.3	13.6	36.4	27.0	15.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	7.8	5.8	0.0	5.0	7.2	31.3	13.6	36.4	27.0	15.1
Queue Length 50th (m)	2.4	23.0	0.0	0.1	41.8	6.4	1.1	10.0	0.4	4.4
Queue Length 95th (m)	9.0	39.8	0.0	0.9	70.3	15.9	9.9	22.3	2.6	18.0
Internal Link Dist (m)		462.3			679.6		261.2		67.4	
Turn Bay Length (m)	145.0		65.0	30.0		20.0		25.0		25.0
Base Capacity (vph)	263	2274	955	361	2411	285	340	254	322	395
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	0.20	0.36	0.00	0.01	0.52	0.17	0.14	0.29	0.01	0.29

Intersection Summary

HCM Signalized Intersection Capacity Analysis
6: Brownridge Road/Fifth Line & Steeles Avenue

Scenario 1 - PM Peak Hour

Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	50	777	3	2	1179	13	46	8	38	70	3	108
Future Volume (vph)	50	777	3	2	1179	13	46	8	38	70	3	108
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.88		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1687	3112	1292	1357	3300		1687	1456		1570	1520	1568
Flt Permitted	0.20	1.00	1.00	0.35	1.00		0.76	1.00		0.73	1.00	1.00
Satd. Flow (perm)	361	3112	1292	495	3300		1342	1456		1199	1520	1568
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	52	809	3	2	1228	14	48	8	40	73	3	112
RTOR Reduction (vph)	0	0	1	0	1	0	0	35	0	0	0	70
Lane Group Flow (vph)	52	809	2	2	1241	0	48	13	0	73	3	43
Heavy Vehicles (%)	7%	16%	25%	33%	9%	29%	7%	0%	17%	15%	25%	3%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		6
Actuated Green, G (s)	53.5	53.5	53.5	53.5	53.5		9.2	9.2		9.2	9.2	9.2
Effective Green, g (s)	53.5	53.5	53.5	53.5	53.5		9.2	9.2		9.2	9.2	9.2
Actuated g/C Ratio	0.70	0.70	0.70	0.70	0.70		0.12	0.12		0.12	0.12	0.12
Clearance Time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	251	2170	901	345	2301		160	174		143	182	188
v/s Ratio Prot		0.26			c0.38			0.01			0.00	
v/s Ratio Perm	0.14		0.00	0.00			0.04			c0.06		0.03
v/c Ratio	0.21	0.37	0.00	0.01	0.54		0.30	0.07		0.51	0.02	0.23
Uniform Delay, d1	4.1	4.7	3.5	3.5	5.6		30.8	30.0		31.6	29.8	30.5
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	1.9	0.5	0.0	0.0	0.9		1.1	0.2		3.1	0.0	0.6
Delay (s)	6.0	5.2	3.5	3.6	6.5		31.9	30.1		34.7	29.8	31.1
Level of Service	A	A	A	A	A		C	C		C	C	C
Approach Delay (s)		5.3			6.5			31.0			32.5	
Approach LOS		A			A			C			C	

Intersection Summary		
HCM 2000 Control Delay	9.1	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.53	A
Actuated Cycle Length (s)	76.7	Sum of lost time (s)
Intersection Capacity Utilization	68.3%	14.0
Analysis Period (min)	15	ICU Level of Service
c Critical Lane Group		C

Queues
7: Fifth Line South & Steeles Avenue

Scenario 1 - PM Peak Hour
Premier Gateway



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	939	1	2	1254	16	11
v/c Ratio	0.34	0.00	0.00	0.43	0.08	0.06
Control Delay	2.7	2.0	3.0	3.1	36.4	20.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.7	2.0	3.0	3.1	36.4	20.4
Queue Length 50th (m)	0.0	0.0	0.0	0.0	2.2	0.0
Queue Length 95th (m)	37.3	0.4	0.6	55.3	8.8	5.2
Internal Link Dist (m)	679.6			455.7	532.9	
Turn Bay Length (m)		30.0	60.0		15.0	
Base Capacity (vph)	2786	1446	517	2938	271	236
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.34	0.00	0.00	0.43	0.06	0.05

Intersection Summary

HCM Signalized Intersection Capacity Analysis
7: Fifth Line South & Steeles Avenue

Scenario 1 - PM Peak Hour
Premier Gateway



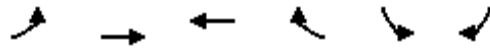
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑	↑
Traffic Volume (vph)	883	1	2	1179	15	10
Future Volume (vph)	883	1	2	1179	15	10
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0	8.0	6.0	6.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3112	1615	1805	3282	1703	1429
Flt Permitted	1.00	1.00	0.30	1.00	0.95	1.00
Satd. Flow (perm)	3112	1615	579	3282	1703	1429
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	939	1	2	1254	16	11
RTOR Reduction (vph)	0	0	0	0	0	11
Lane Group Flow (vph)	939	1	2	1254	16	0
Heavy Vehicles (%)	16%	0%	0%	10%	6%	13%
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	4			8		
Permitted Phases		4	8		2	2
Actuated Green, G (s)	68.5	68.5	68.5	68.5	3.6	3.6
Effective Green, g (s)	68.5	68.5	68.5	68.5	3.6	3.6
Actuated g/C Ratio	0.80	0.80	0.80	0.80	0.04	0.04
Clearance Time (s)	8.0	8.0	8.0	8.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	2475	1284	460	2611	71	59
v/s Ratio Prot	0.30			c0.38		
v/s Ratio Perm		0.00	0.00		c0.01	0.00
v/c Ratio	0.38	0.00	0.00	0.48	0.23	0.01
Uniform Delay, d1	2.6	1.8	1.8	2.9	39.9	39.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	0.0	0.0	0.6	1.6	0.1
Delay (s)	3.0	1.8	1.8	3.5	41.5	39.6
Level of Service	A	A	A	A	D	D
Approach Delay (s)	3.0			3.5	40.7	
Approach LOS	A			A	D	

Intersection Summary

HCM 2000 Control Delay	3.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	86.1	Sum of lost time (s)	14.0
Intersection Capacity Utilization	55.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Queues

8: Steeles Avenue & Sixth Line



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	50	900	1221	20	5	35
v/c Ratio	0.38	0.62	0.78	0.03	0.01	0.06
Control Delay	18.7	12.8	16.1	3.8	15.0	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.7	12.8	16.1	3.8	15.0	6.7
Queue Length 50th (m)	3.2	35.2	53.4	0.1	0.4	0.0
Queue Length 95th (m)	11.5	49.7	73.7	2.7	2.7	5.7
Internal Link Dist (m)		455.7	881.3		3042.1	
Turn Bay Length (m)	60.0			30.0	30.0	
Base Capacity (vph)	242	2686	2906	1377	655	608
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.34	0.42	0.01	0.01	0.06

Intersection Summary

HCM Signalized Intersection Capacity Analysis

8: Steeles Avenue & Sixth Line

Scenario 1 - PM Peak Hour
Premier Gateway



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	47	846	1148	19	5	33
Future Volume (vph)	47	846	1148	19	5	33
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	3034	3282	1553	1805	1615
Flt Permitted	0.15	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	273	3034	3282	1553	1805	1615
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	50	900	1221	20	5	35
RTOR Reduction (vph)	0	0	0	9	0	22
Lane Group Flow (vph)	50	900	1221	11	5	13
Heavy Vehicles (%)	2%	19%	10%	4%	0%	0%
Turn Type	Perm	NA	NA	Perm	Prot	Perm
Protected Phases		4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	27.3	27.3	27.3	27.3	20.8	20.8
Effective Green, g (s)	27.3	27.3	27.3	27.3	20.8	20.8
Actuated g/C Ratio	0.48	0.48	0.48	0.48	0.36	0.36
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	130	1450	1569	742	657	588
v/s Ratio Prot		0.30	c0.37		0.00	
v/s Ratio Perm	0.18			0.01		c0.01
v/c Ratio	0.38	0.62	0.78	0.01	0.01	0.02
Uniform Delay, d1	9.5	11.1	12.4	7.8	11.6	11.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.9	0.8	2.5	0.0	0.0	0.1
Delay (s)	11.4	11.9	14.9	7.8	11.6	11.7
Level of Service	B	B	B	A	B	B
Approach Delay (s)		11.9	14.8		11.7	
Approach LOS		B	B		B	

Intersection Summary

HCM 2000 Control Delay	13.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	57.1	Sum of lost time (s)	9.0
Intersection Capacity Utilization	50.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues
9: Sixth Line South/Street A & Steeles Avenue

Scenario 1 - PM Peak Hour
Premier Gateway



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	12	884	1180	28	8	2	99	41
v/c Ratio	0.10	0.64	0.79	0.04	0.02	0.00	0.23	0.08
Control Delay	9.1	13.4	16.7	0.9	15.0	0.0	17.2	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.1	13.4	16.7	0.9	15.0	0.0	17.2	4.1
Queue Length 50th (m)	0.7	34.4	51.0	0.0	0.6	0.0	7.5	0.0
Queue Length 95th (m)	2.8	42.6	61.4	1.3	3.3	0.0	19.5	4.3
Internal Link Dist (m)		881.3	473.0			145.8		481.0
Turn Bay Length (m)	50.0			60.0	30.0		70.0	
Base Capacity (vph)	132	1453	1571	734	484	618	457	552
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.61	0.75	0.04	0.02	0.00	0.22	0.07
Intersection Summary								

HCM Signalized Intersection Capacity Analysis
9: Sixth Line South/Street A & Steeles Avenue

Scenario 1 - PM Peak Hour
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗↗	↖	↖	↗↗	↖	↖	↗		↖	↗	
Traffic Volume (vph)	11	840	0	0	1121	27	8	0	2	94	0	39
Future Volume (vph)	11	840	0	0	1121	27	8	0	2	94	0	39
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0	6.0	6.0	6.0		6.0	6.0	
Lane Util. Factor	1.00	0.95			0.95	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00			1.00	0.85	1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1641	3034			3282	1468	1805	1615		1641	1468	
Flt Permitted	0.16	1.00			1.00	1.00	0.73	1.00		0.76	1.00	
Satd. Flow (perm)	275	3034			3282	1468	1388	1615		1307	1468	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	12	884	0	0	1180	28	8	0	2	99	0	41
RTOR Reduction (vph)	0	0	0	0	0	15	0	1	0	0	28	0
Lane Group Flow (vph)	12	884	0	0	1180	13	8	1	0	99	13	0
Heavy Vehicles (%)	10%	19%	0%	0%	10%	10%	0%	0%	0%	10%	0%	10%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2				6
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	25.1	25.1			25.1	25.1	17.9	17.9		17.9	17.9	
Effective Green, g (s)	25.1	25.1			25.1	25.1	17.9	17.9		17.9	17.9	
Actuated g/C Ratio	0.46	0.46			0.46	0.46	0.33	0.33		0.33	0.33	
Clearance Time (s)	6.0	6.0			6.0	6.0	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	125	1384			1497	669	451	525		425	477	
v/s Ratio Prot		0.29			c0.36			0.00				0.01
v/s Ratio Perm	0.04					0.01	0.01			c0.08		
v/c Ratio	0.10	0.64			0.79	0.02	0.02	0.00		0.23	0.03	
Uniform Delay, d1	8.5	11.5			12.7	8.2	12.6	12.5		13.5	12.6	
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	1.0			2.8	0.0	0.1	0.0		0.3	0.0	
Delay (s)	8.8	12.4			15.5	8.2	12.7	12.5		13.8	12.7	
Level of Service	A	B			B	A	B	B		B	B	
Approach Delay (s)		12.4			15.4			12.6			13.5	
Approach LOS		B			B			B			B	

Intersection Summary

HCM 2000 Control Delay	14.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	52.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
 10: Steeles Avenue & Hornby Road

Scenario 1 - PM Peak Hour
 Premier Gateway



Movement	EBL	EBT	WBT	WBR	SBL	SBR		
Lane Configurations	↶	↷	↷	↷	↶	↶		
Traffic Volume (veh/h)	32	904	1082	15	4	66		
Future Volume (Veh/h)	32	904	1082	15	4	66		
Sign Control		Free	Free		Stop			
Grade		0%	0%		0%			
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96		
Hourly flow rate (vph)	33	942	1127	16	4	69		
Pedestrians								
Lane Width (m)								
Walking Speed (m/s)								
Percent Blockage								
Right turn flare (veh)								
Median type		None	None					
Median storage (veh)								
Upstream signal (m)								
pX, platoon unblocked								
vC, conflicting volume	1143				1664	564		
vC1, stage 1 conf vol								
vC2, stage 2 conf vol								
vCu, unblocked vol	1143				1664	564		
tC, single (s)	4.3				7.2	7.1		
tC, 2 stage (s)								
tF (s)	2.3				3.7	3.4		
p0 queue free %	94				94	85		
cM capacity (veh/h)	563				69	449		
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1	SB 2
Volume Total	33	471	471	564	564	16	4	69
Volume Left	33	0	0	0	0	0	4	0
Volume Right	0	0	0	0	0	16	0	69
cSH	563	1700	1700	1700	1700	1700	69	449
Volume to Capacity	0.06	0.28	0.28	0.33	0.33	0.01	0.06	0.15
Queue Length 95th (m)	1.5	0.0	0.0	0.0	0.0	0.0	1.5	4.3
Control Delay (s)	11.8	0.0	0.0	0.0	0.0	0.0	60.7	14.5
Lane LOS	B						F	B
Approach Delay (s)	0.4			0.0			17.0	
Approach LOS							C	
Intersection Summary								
Average Delay			0.7					
Intersection Capacity Utilization			40.7%		ICU Level of Service			A
Analysis Period (min)			15					

HCM Unsignalized Intersection Capacity Analysis
 11: Trafalgar Rd & Hornby Rd

Scenario 1 - PM Peak Hour
 Premier Gateway



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	67	6	3	995	489	77
Future Volume (Veh/h)	67	6	3	995	489	77
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98
Hourly flow rate (vph)	68	6	3	1015	499	79
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1052	289	499			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1052	289	499			
tC, single (s)	7.0	7.1	4.3			
tC, 2 stage (s)						
tF (s)	3.6	3.4	2.3			
p0 queue free %	68	99	100			
cM capacity (veh/h)	212	684	1007			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	74	341	677	333	245	
Volume Left	68	3	0	0	0	
Volume Right	6	0	0	0	79	
cSH	224	1007	1700	1700	1700	
Volume to Capacity	0.33	0.00	0.40	0.20	0.14	
Queue Length 95th (m)	11.0	0.1	0.0	0.0	0.0	
Control Delay (s)	28.8	0.1	0.0	0.0	0.0	
Lane LOS	D	A				
Approach Delay (s)	28.8	0.0		0.0		
Approach LOS	D					
Intersection Summary						
Average Delay			1.3			
Intersection Capacity Utilization			40.3%	ICU Level of Service		A
Analysis Period (min)			15			

Queues
12: Trafalgar Road & Steeles Avenue

Scenario 1 - PM Peak Hour
Premier Gateway



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	61	581	360	868	841	171	254	781	761	88	559
v/c Ratio	0.26	0.82	0.75	1.02	0.57	0.21	0.75	0.86	0.97	0.51	0.80
Control Delay	19.4	55.4	29.1	82.3	27.3	3.4	68.6	54.8	41.7	38.4	57.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.4	55.4	29.1	82.3	27.3	3.4	68.6	54.8	41.7	38.4	57.0
Queue Length 50th (m)	7.1	75.0	38.9	~122.6	85.2	0.0	32.7	104.6	85.7	14.6	74.5
Queue Length 95th (m)	13.2	93.6	74.4	#163.4	100.3	12.3	#57.4	#145.1	#177.9	28.1	#106.1
Internal Link Dist (m)		443.0			287.3			749.5			265.5
Turn Bay Length (m)	115.0		40.0	130.0		70.0	100.0		65.0		
Base Capacity (vph)	231	814	522	851	1537	826	339	913	785	172	698
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	0.26	0.71	0.69	1.02	0.55	0.21	0.75	0.86	0.97	0.51	0.80

























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
12: Trafalgar Road & Steeles Avenue

Scenario 1 - PM Peak Hour

Premier Gateway

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	59	558	346	833	807	164	244	750	731	84	519	17
Future Volume (vph)	59	558	346	833	807	164	244	750	731	84	519	17
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	5.0	7.0	7.0	5.0	8.0	8.0	4.0	8.0	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1583	3085	1417	3433	3312	1583	3099	3438	1568	1570	3286	
Flt Permitted	0.34	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.18	1.00	
Satd. Flow (perm)	559	3085	1417	3433	3312	1583	3099	3438	1568	297	3286	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	61	581	360	868	841	171	254	781	761	88	541	18
RTOR Reduction (vph)	0	0	153	0	0	94	0	0	373	0	2	0
Lane Group Flow (vph)	61	581	207	868	841	77	254	781	388	88	557	0
Heavy Vehicles (%)	14%	17%	14%	2%	9%	2%	13%	5%	3%	15%	9%	19%
Turn Type	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4			8			2	6		
Actuated Green, G (s)	35.2	29.6	29.6	31.0	56.0	56.0	13.7	32.4	32.4	33.7	25.7	
Effective Green, g (s)	35.2	29.6	29.6	31.0	56.0	56.0	13.7	32.4	32.4	33.7	25.7	
Actuated g/C Ratio	0.28	0.24	0.24	0.25	0.45	0.45	0.11	0.26	0.26	0.27	0.21	
Clearance Time (s)	4.0	7.0	7.0	5.0	7.0	7.0	5.0	8.0	8.0	4.0	8.0	
Vehicle Extension (s)	3.0	3.0	3.0	4.0	3.0	3.0	4.0	0.2	0.2	3.0	0.2	
Lane Grp Cap (vph)	203	730	335	851	1483	709	339	891	406	161	675	
v/s Ratio Prot	0.01	c0.19		c0.25	0.25		c0.08	0.23		0.03	0.17	
v/s Ratio Perm	0.07		0.15			0.05			c0.25	0.11		
v/c Ratio	0.30	0.80	0.62	1.02	0.57	0.11	0.75	0.88	0.96	0.55	0.83	
Uniform Delay, d1	33.5	44.9	42.6	47.0	25.5	20.0	54.0	44.4	45.6	36.1	47.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.8	6.0	3.4	36.0	0.5	0.1	9.3	11.8	35.0	3.8	11.1	
Delay (s)	34.4	50.9	46.0	83.0	26.0	20.1	63.3	56.2	80.6	39.8	58.6	
Level of Service	C	D	D	F	C	C	E	E	F	D	E	
Approach Delay (s)		48.1			51.8			67.5			56.0	
Approach LOS		D			D			E			E	
Intersection Summary												
HCM 2000 Control Delay			56.9			HCM 2000 Level of Service			E			
HCM 2000 Volume to Capacity ratio			0.93									
Actuated Cycle Length (s)			125.0			Sum of lost time (s)			25.0			
Intersection Capacity Utilization			87.0%			ICU Level of Service			E			
Analysis Period (min)			15									
c Critical Lane Group												

Queues
13: Toronto Premier Outlets & Steeles Avenue

Scenario 1 - PM Peak Hour
Premier Gateway



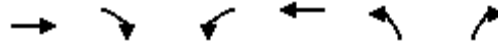
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	945	447	88	1599	280	20
v/c Ratio	0.47	0.39	0.21	0.66	0.45	0.07
Control Delay	12.2	2.0	5.4	10.1	39.2	14.9
Queue Delay	0.0	0.0	0.0	0.6	0.0	0.0
Total Delay	12.2	2.0	5.4	10.8	39.2	14.9
Queue Length 50th (m)	54.2	0.0	4.5	83.8	26.5	0.0
Queue Length 95th (m)	71.8	12.6	8.8	105.5	39.4	6.6
Internal Link Dist (m)	287.3			176.7	95.1	
Turn Bay Length (m)		130.0	45.0			40.0
Base Capacity (vph)	2003	1150	426	2406	624	278
Starvation Cap Reductn	0	0	0	414	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.47	0.39	0.21	0.80	0.45	0.07

Intersection Summary

HCM Signalized Intersection Capacity Analysis
13: Toronto Premier Outlets & Steeles Avenue

Scenario 1 - PM Peak Hour

Premier Gateway



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑↑	↑
Traffic Volume (vph)	907	429	84	1535	269	19
Future Volume (vph)	907	429	84	1535	269	19
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	4.0	6.0	6.0	6.0
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3282	1599	1752	3438	3467	1455
Flt Permitted	1.00	1.00	0.24	1.00	0.95	1.00
Satd. Flow (perm)	3282	1599	448	3438	3467	1455
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	945	447	88	1599	280	20
RTOR Reduction (vph)	0	174	0	0	0	17
Lane Group Flow (vph)	945	273	88	1599	280	3
Heavy Vehicles (%)	10%	1%	3%	5%	1%	11%
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	61.0	61.0	70.8	70.8	17.2	17.2
Effective Green, g (s)	61.0	61.0	70.8	70.8	17.2	17.2
Actuated g/C Ratio	0.61	0.61	0.71	0.71	0.17	0.17
Clearance Time (s)	6.0	6.0	4.0	6.0	6.0	6.0
Vehicle Extension (s)	0.2	0.2	3.0	0.2	4.0	4.0
Lane Grp Cap (vph)	2002	975	392	2434	596	250
v/s Ratio Prot	0.29		0.01	c0.47	c0.08	
v/s Ratio Perm		0.17	0.15			0.00
v/c Ratio	0.47	0.28	0.22	0.66	0.47	0.01
Uniform Delay, d1	10.7	9.2	5.5	8.0	37.3	34.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.8	0.7	0.3	1.4	2.6	0.1
Delay (s)	11.5	9.9	5.8	9.4	39.9	34.5
Level of Service	B	A	A	A	D	C
Approach Delay (s)	11.0			9.2	39.6	
Approach LOS	B			A	D	

Intersection Summary

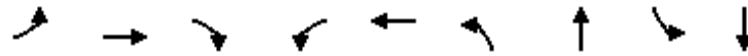
HCM 2000 Control Delay	12.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	60.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Queues

Scenario 1 - PM Peak Hour

14: Toronto Premium Outlets/Eighth Line & Steeles Avenue

Premier Gateway



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	259	690	35	172	1532	241	329	49	109
v/c Ratio	0.88	0.39	0.04	0.35	0.93	0.76	0.57	0.59	0.52
Control Delay	60.6	16.1	0.1	9.9	39.7	68.9	14.4	81.3	26.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	60.6	16.1	0.1	9.9	39.7	68.9	14.4	81.3	26.6
Queue Length 50th (m)	45.9	49.3	0.0	14.0	183.8	30.5	15.3	11.9	6.3
Queue Length 95th (m)	#91.2	63.1	0.0	22.5	#240.1	#48.9	45.2	#30.7	25.1
Internal Link Dist (m)		176.7			846.8		194.1		472.6
Turn Bay Length (m)	105.0		55.0	30.0				20.0	
Base Capacity (vph)	311	1778	952	499	1649	318	577	83	211
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.39	0.04	0.34	0.93	0.76	0.57	0.59	0.52

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
 14: Toronto Premium Outlets/Eighth Line & Steeles Avenue

Scenario 1 - PM Peak Hour

Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	243	649	33	162	1316	124	227	41	268	46	25	77
Future Volume (vph)	243	649	33	162	1316	124	227	41	268	46	25	77
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	4.0	6.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.97	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.87		1.00	0.89	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	3223	1615	1770	3344		3467	1639		1687	1636	
Flt Permitted	0.06	1.00	1.00	0.39	1.00		0.95	1.00		0.56	1.00	
Satd. Flow (perm)	117	3223	1615	721	3344		3467	1639		998	1636	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	259	690	35	172	1400	132	241	44	285	49	27	82
RTOR Reduction (vph)	0	0	16	0	6	0	0	194	0	0	75	0
Lane Group Flow (vph)	259	690	19	172	1526	0	241	135	0	49	34	0
Heavy Vehicles (%)	3%	12%	0%	2%	7%	2%	1%	0%	1%	7%	0%	4%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA		Perm	NA	
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases	4		4	8						6		
Actuated Green, G (s)	78.6	66.0	66.0	67.4	58.8		11.0	28.0		10.0	10.0	
Effective Green, g (s)	78.6	66.0	66.0	67.4	58.8		11.0	28.0		10.0	10.0	
Actuated g/C Ratio	0.66	0.55	0.55	0.56	0.49		0.09	0.23		0.08	0.08	
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	0.2	0.2	3.0	0.2		4.0	4.0		3.0	3.0	
Lane Grp Cap (vph)	292	1778	891	481	1644		318	383		83	136	
v/s Ratio Prot	c0.12	0.21		0.03	c0.46		c0.07	0.08			0.02	
v/s Ratio Perm	0.46		0.01	0.18						c0.05		
v/c Ratio	0.89	0.39	0.02	0.36	0.93		0.76	0.35		0.59	0.25	
Uniform Delay, d1	37.5	15.3	12.2	12.6	28.4		53.0	38.2		52.8	51.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	25.9	0.6	0.0	0.5	10.7		10.5	0.8		27.2	4.3	
Delay (s)	63.4	15.9	12.2	13.1	39.1		63.5	39.0		80.1	55.6	
Level of Service	E	B	B	B	D		E	D		F	E	
Approach Delay (s)		28.3			36.5			49.4			63.2	
Approach LOS		C			D			D			E	

Intersection Summary			
HCM 2000 Control Delay	37.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	119.6	Sum of lost time (s)	24.0
Intersection Capacity Utilization	100.8%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
 15: Eighth Line South & Steeles Avenue

Scenario 1 - PM Peak Hour
 Premier Gateway



Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	↑↑		↙	↑↑	↙	↗	
Traffic Volume (veh/h)	961	2	0	1601	1	5	
Future Volume (Veh/h)	961	2	0	1601	1	5	
Sign Control	Free			Free	Stop		
Grade	0%			0%	0%		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	
Hourly flow rate (vph)	1001	2	0	1668	1	5	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type	None			None			
Median storage (veh)							
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume			1003		1836	502	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol			1003		1836	502	
tC, single (s)			4.1		6.8	7.2	
tC, 2 stage (s)							
tF (s)			2.2		3.5	3.5	
p0 queue free %			100		99	99	
cM capacity (veh/h)			698		69	477	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	667	336	0	834	834	1	5
Volume Left	0	0	0	0	0	1	0
Volume Right	0	2	0	0	0	0	5
cSH	1700	1700	1700	1700	1700	69	477
Volume to Capacity	0.39	0.20	0.00	0.49	0.49	0.01	0.01
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.4	0.3
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	58.1	12.6
Lane LOS						F	B
Approach Delay (s)	0.0		0.0			20.2	
Approach LOS						C	
Intersection Summary							
Average Delay			0.0				
Intersection Capacity Utilization			54.3%	ICU Level of Service		A	
Analysis Period (min)			15				

Queues
16: Steeles Avenue & Ninth Line

Scenario 1 - PM Peak Hour
Premier Gateway



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	148	869	1585	798	301	100
v/c Ratio	0.75	0.43	0.90	0.68	0.72	0.22
Control Delay	39.6	10.6	31.1	5.3	46.3	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.6	10.6	31.1	5.3	46.3	7.7
Queue Length 50th (m)	12.6	44.2	148.0	6.9	56.7	0.0
Queue Length 95th (m)	#43.7	57.3	#191.7	33.8	#89.9	13.0
Internal Link Dist (m)		501.4	674.5		3096.2	
Turn Bay Length (m)	65.0			75.0		
Base Capacity (vph)	198	2034	1753	1172	416	445
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.75	0.43	0.90	0.68	0.72	0.22

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
 16: Steeles Avenue & Ninth Line

Scenario 1 - PM Peak Hour
 Premier Gateway



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	141	826	1506	758	286	95
Future Volume (vph)	141	826	1506	758	286	95
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1736	3282	3438	1599	1736	1538
Flt Permitted	0.07	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	133	3282	3438	1599	1736	1538
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	148	869	1585	798	301	100
RTOR Reduction (vph)	0	0	0	357	0	76
Lane Group Flow (vph)	148	869	1585	441	301	24
Heavy Vehicles (%)	4%	10%	5%	1%	4%	5%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	62.0	62.0	51.0	51.0	24.0	24.0
Effective Green, g (s)	62.0	62.0	51.0	51.0	24.0	24.0
Actuated g/C Ratio	0.62	0.62	0.51	0.51	0.24	0.24
Clearance Time (s)	4.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	0.2	0.2	0.2	3.0	3.0
Lane Grp Cap (vph)	194	2034	1753	815	416	369
v/s Ratio Prot	c0.05	0.26	c0.46		c0.17	
v/s Ratio Perm	0.42			0.28		0.02
v/c Ratio	0.76	0.43	0.90	0.54	0.72	0.07
Uniform Delay, d1	21.5	9.8	22.3	16.6	34.9	29.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	16.2	0.7	8.1	2.6	10.4	0.3
Delay (s)	37.7	10.5	30.4	19.1	45.4	29.7
Level of Service	D	B	C	B	D	C
Approach Delay (s)		14.4	26.6		41.5	
Approach LOS		B	C		D	

Intersection Summary			
HCM 2000 Control Delay	24.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	80.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Queues
17: Ninth Line (South) & Steeles Avenue

Scenario 1 - PM Peak Hour
Premier Gateway



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	918	265	329	1853	556	364
v/c Ratio	0.79	0.36	0.88	1.00	0.97	0.48
Control Delay	34.9	4.4	42.6	44.3	66.7	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	34.9	4.4	42.6	44.3	66.7	5.8
Queue Length 50th (m)	88.0	0.0	39.0	188.2	111.3	2.1
Queue Length 95th (m)	113.4	16.7	#87.7	#252.0	#181.0	22.9
Internal Link Dist (m)	674.5			487.1	143.5	
Turn Bay Length (m)		75.0	145.0		60.0	
Base Capacity (vph)	1165	738	384	1856	571	754
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.36	0.86	1.00	0.97	0.48

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
 17: Ninth Line (South) & Steeles Avenue

Scenario 1 - PM Peak Hour
 Premier Gateway



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↵	↑↑	↵	↑
Traffic Volume (vph)	863	249	309	1742	523	342
Future Volume (vph)	863	249	309	1742	523	342
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	4.0	7.0	7.0	7.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3282	1599	1787	3438	1787	1615
Flt Permitted	1.00	1.00	0.15	1.00	0.95	1.00
Satd. Flow (perm)	3282	1599	279	3438	1787	1615
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	918	265	329	1853	556	364
RTOR Reduction (vph)	0	171	0	0	0	237
Lane Group Flow (vph)	918	94	329	1853	556	127
Heavy Vehicles (%)	10%	1%	1%	5%	1%	0%
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	35.5	35.5	54.0	54.0	32.0	32.0
Effective Green, g (s)	35.5	35.5	54.0	54.0	32.0	32.0
Actuated g/C Ratio	0.36	0.36	0.54	0.54	0.32	0.32
Clearance Time (s)	7.0	7.0	4.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1165	567	369	1856	571	516
v/s Ratio Prot	0.28		0.13	c0.54	c0.31	
v/s Ratio Perm		0.06	0.35			0.08
v/c Ratio	0.79	0.17	0.89	1.00	0.97	0.25
Uniform Delay, d1	28.9	22.1	21.0	23.0	33.6	25.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	3.6	0.1	22.6	20.3	31.7	1.1
Delay (s)	32.5	22.2	43.6	43.3	65.3	26.2
Level of Service	C	C	D	D	E	C
Approach Delay (s)	30.2			43.4	49.8	
Approach LOS	C			D	D	

Intersection Summary

HCM 2000 Control Delay	41.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.04		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	88.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Queues

Scenario 1 - PM Peak Hour

18: James Snow Parkway & Hwy 401 (Westbound Ramp)

Premier Gateway



Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	794	273	487	1004
v/c Ratio	0.77	0.46	0.32	0.62
Control Delay	28.3	6.3	13.5	17.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	28.3	6.3	13.5	17.4
Queue Length 50th (m)	51.6	1.9	22.3	55.0
Queue Length 95th (m)	70.9	19.5	35.2	80.4
Internal Link Dist (m)	390.4		415.8	504.8
Turn Bay Length (m)				
Base Capacity (vph)	1218	648	1535	1609
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.65	0.42	0.32	0.62

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 18: James Snow Parkway & Hwy 401 (Westbound Ramp)

Scenario 1 - PM Peak Hour

Premier Gateway



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔↔	↗	↕↕			↕↕
Traffic Volume (vph)	726	288	463	0	0	954
Future Volume (vph)	726	288	463	0	0	954
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.2	8.2	9.3			9.3
Lane Util. Factor	0.97	0.91	0.95			0.95
Frt	0.99	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3489	1386	3343			3505
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3489	1386	3343			3505
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	764	303	487	0	0	1004
RTOR Reduction (vph)	4	180	0	0	0	0
Lane Group Flow (vph)	790	93	487	0	0	1004
Heavy Vehicles (%)	0%	6%	8%	0%	0%	3%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	21.1	21.1	32.8			32.8
Effective Green, g (s)	21.1	21.1	32.8			32.8
Actuated g/C Ratio	0.30	0.30	0.46			0.46
Clearance Time (s)	8.2	8.2	9.3			9.3
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	1031	409	1535			1610
v/s Ratio Prot	c0.23		0.15			c0.29
v/s Ratio Perm		0.07				
v/c Ratio	0.77	0.23	0.32			0.62
Uniform Delay, d1	22.9	19.0	12.2			14.6
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	3.5	0.3	0.5			1.8
Delay (s)	26.4	19.3	12.8			16.5
Level of Service	C	B	B			B
Approach Delay (s)	24.5		12.8			16.5
Approach LOS	C		B			B

Intersection Summary			
HCM 2000 Control Delay	19.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	71.4	Sum of lost time (s)	17.5
Intersection Capacity Utilization	64.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Queues

19: James Snow Parkway & Hwy 401 (Eastbound Ramp)



Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	199	114	616	1422
v/c Ratio	0.41	0.45	0.27	0.61
Control Delay	23.3	23.3	5.7	8.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	23.3	23.3	5.7	8.6
Queue Length 50th (m)	9.8	9.7	15.1	48.1
Queue Length 95th (m)	18.7	25.0	26.2	78.2
Internal Link Dist (m)	305.5		1282.4	415.8
Turn Bay Length (m)				
Base Capacity (vph)	778	395	2315	2338
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.26	0.29	0.27	0.61

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 19: James Snow Parkway & Hwy 401 (Eastbound Ramp)

Scenario 1 - PM Peak Hour

Premier Gateway



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	82	224	0	604	1394	0
Future Volume (vph)	82	224	0	604	1394	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		7.4	7.4	
Lane Util. Factor	0.97	0.91		0.95	0.95	
Frt	0.91	0.85		1.00	1.00	
Flt Protected	0.98	1.00		1.00	1.00	
Satd. Flow (prot)	2925	1427		3539	3574	
Flt Permitted	0.98	1.00		1.00	1.00	
Satd. Flow (perm)	2925	1427		3539	3574	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	84	229	0	616	1422	0
RTOR Reduction (vph)	34	34	0	0	0	0
Lane Group Flow (vph)	165	80	0	616	1422	0
Heavy Vehicles (%)	26%	3%	0%	2%	1%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	10.9	10.9		46.2	46.2	
Effective Green, g (s)	10.9	10.9		46.2	46.2	
Actuated g/C Ratio	0.15	0.15		0.66	0.66	
Clearance Time (s)	6.0	6.0		7.4	7.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	452	220		2319	2342	
v/s Ratio Prot	c0.06			0.17	c0.40	
v/s Ratio Perm		0.06				
v/c Ratio	0.37	0.36		0.27	0.61	
Uniform Delay, d1	26.7	26.7		5.1	7.0	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	1.0		0.3	1.2	
Delay (s)	27.2	27.7		5.4	8.1	
Level of Service	C	C		A	A	
Approach Delay (s)	27.4			5.4	8.1	
Approach LOS	C			A	A	

Intersection Summary

HCM 2000 Control Delay	10.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	70.5	Sum of lost time (s)	13.4
Intersection Capacity Utilization	64.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Queues
 20: Trafalgar Road & Hwy 401 (Westbound Ramp)

Scenario 1 - PM Peak Hour
 Premier Gateway



Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	716	385	1102	1134
v/c Ratio	0.72	0.83	0.55	0.58
Control Delay	33.5	44.2	16.2	16.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	33.5	44.2	16.2	16.8
Queue Length 50th (m)	63.8	71.5	68.7	72.7
Queue Length 95th (m)	82.9	111.5	124.9	132.0
Internal Link Dist (m)	383.1		312.7	749.5
Turn Bay Length (m)				
Base Capacity (vph)	1516	690	2007	1951
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.47	0.56	0.55	0.58
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
 20: Trafalgar Road & Hwy 401 (Westbound Ramp)

Scenario 1 - PM Peak Hour
 Premier Gateway



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↶↶	↶	↕↕			↕↕
Traffic Volume (vph)	321	747	1069	0	0	1100
Future Volume (vph)	321	747	1069	0	0	1100
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0			6.0
Lane Util. Factor	0.97	0.91	0.95			0.95
Frt	0.92	0.85	1.00			1.00
Flt Protected	0.98	1.00	1.00			1.00
Satd. Flow (prot)	3185	1413	3438			3343
Flt Permitted	0.98	1.00	1.00			1.00
Satd. Flow (perm)	3185	1413	3438			3343
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	331	770	1102	0	0	1134
RTOR Reduction (vph)	40	40	0	0	0	0
Lane Group Flow (vph)	676	345	1102	0	0	1134
Heavy Vehicles (%)	4%	4%	5%	0%	0%	8%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	31.0	31.0	60.5			60.5
Effective Green, g (s)	31.0	31.0	60.5			60.5
Actuated g/C Ratio	0.30	0.30	0.58			0.58
Clearance Time (s)	6.0	6.0	6.0			6.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	953	423	2009			1954
v/s Ratio Prot	0.21		0.32			c0.34
v/s Ratio Perm		c0.24				
v/c Ratio	0.71	0.82	0.55			0.58
Uniform Delay, d1	32.2	33.6	13.1			13.5
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	2.4	11.5	1.1			1.3
Delay (s)	34.7	45.1	14.2			14.8
Level of Service	C	D	B			B
Approach Delay (s)	38.3		14.2			14.8
Approach LOS	D		B			B

Intersection Summary

HCM 2000 Control Delay	22.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	103.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Queues
 21: Trafalgar Road & Hwy 401 (Eastbound Ramp)

Scenario 1 - PM Peak Hour
 Premier Gateway



Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	434	205	915	1051
v/c Ratio	0.73	0.65	0.37	0.45
Control Delay	37.6	28.8	6.4	7.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	37.6	28.8	6.4	7.0
Queue Length 50th (m)	33.0	20.1	32.3	40.0
Queue Length 95th (m)	49.7	47.0	53.4	65.6
Internal Link Dist (m)	204.3		1138.2	312.7
Turn Bay Length (m)				
Base Capacity (vph)	1182	571	2446	2357
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.37	0.36	0.37	0.45
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
 21: Trafalgar Road & Hwy 401 (Eastbound Ramp)

Scenario 1 - PM Peak Hour
 Premier Gateway



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	233	393	0	897	1030	0
Future Volume (vph)	233	393	0	897	1030	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	
Lane Util. Factor	0.97	0.91		0.95	0.95	
Frt	0.93	0.85		1.00	1.00	
Flt Protected	0.97	1.00		1.00	1.00	
Satd. Flow (prot)	3104	1400		3406	3282	
Flt Permitted	0.97	1.00		1.00	1.00	
Satd. Flow (perm)	3104	1400		3406	3282	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	238	401	0	915	1051	0
RTOR Reduction (vph)	90	90	0	0	0	0
Lane Group Flow (vph)	344	115	0	915	1051	0
Heavy Vehicles (%)	10%	5%	0%	6%	10%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	16.3	16.3		72.1	72.1	
Effective Green, g (s)	16.3	16.3		72.1	72.1	
Actuated g/C Ratio	0.16	0.16		0.72	0.72	
Clearance Time (s)	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	503	227		2445	2356	
v/s Ratio Prot	c0.11			0.27	c0.32	
v/s Ratio Perm		0.08				
v/c Ratio	0.68	0.51		0.37	0.45	
Uniform Delay, d1	39.6	38.4		5.5	5.9	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.8	1.8		0.4	0.6	
Delay (s)	43.5	40.2		5.9	6.5	
Level of Service	D	D		A	A	
Approach Delay (s)	42.4			5.9	6.5	
Approach LOS	D			A	A	

Intersection Summary

HCM 2000 Control Delay	15.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	100.4	Sum of lost time (s)	12.0
Intersection Capacity Utilization	70.4%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Queues

22: Winston Churchill Boulevard & Hwy 401 (Westbound Ramp)



Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	691	324	1365	1240
v/c Ratio	0.80	0.83	0.44	0.40
Control Delay	48.7	56.9	13.7	13.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	48.7	56.9	13.7	13.2
Queue Length 50th (m)	83.2	78.3	62.6	54.7
Queue Length 95th (m)	105.0	118.7	95.3	83.9
Internal Link Dist (m)	284.7		32.1	320.2
Turn Bay Length (m)				
Base Capacity (vph)	1180	522	3096	3127
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.59	0.62	0.44	0.40

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 22: Winston Churchill Boulevard & Hwy 401 (Westbound Ramp)

Scenario 1 - PM Peak Hour
 Premier Gateway



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔↔	↔	↑↑↑			↑↑↑
Traffic Volume (vph)	433	531	1297	0	0	1178
Future Volume (vph)	433	531	1297	0	0	1178
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	8.0			8.0
Lane Util. Factor	0.97	0.91	0.91			0.91
Frt	0.95	0.85	1.00			1.00
Flt Protected	0.97	1.00	1.00			1.00
Satd. Flow (prot)	3266	1400	4940			4988
Flt Permitted	0.97	1.00	1.00			1.00
Satd. Flow (perm)	3266	1400	4940			4988
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	456	559	1365	0	0	1240
RTOR Reduction (vph)	33	33	0	0	0	0
Lane Group Flow (vph)	658	291	1365	0	0	1240
Heavy Vehicles (%)	3%	5%	5%	0%	0%	4%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	32.7	32.7	80.3			80.3
Effective Green, g (s)	32.7	32.7	80.3			80.3
Actuated g/C Ratio	0.26	0.26	0.63			0.63
Clearance Time (s)	7.0	7.0	8.0			8.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	834	357	3099			3129
v/s Ratio Prot	0.20		c0.28			0.25
v/s Ratio Perm		c0.21				
v/c Ratio	0.79	0.82	0.44			0.40
Uniform Delay, d1	44.4	44.8	12.3			11.8
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	5.0	13.4	0.5			0.4
Delay (s)	49.4	58.2	12.7			12.2
Level of Service	D	E	B			B
Approach Delay (s)	52.2		12.7			12.2
Approach LOS	D		B			B

Intersection Summary			
HCM 2000 Control Delay		23.6	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio		0.55	
Actuated Cycle Length (s)		128.0	Sum of lost time (s) 15.0
Intersection Capacity Utilization		99.4%	ICU Level of Service F
Analysis Period (min)		15	
c Critical Lane Group			

Queues

23: Winston Churchill Boulevard & Hwy 401 (Eastbound Ramp)



Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	474	218	1816	1497
v/c Ratio	0.82	0.72	0.50	0.41
Control Delay	63.4	51.9	9.5	8.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	63.4	51.9	9.5	8.5
Queue Length 50th (m)	63.5	46.5	77.1	57.7
Queue Length 95th (m)	83.7	79.7	95.6	72.7
Internal Link Dist (m)	152.5		433.2	198.3
Turn Bay Length (m)				
Base Capacity (vph)	673	343	3633	3631
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.70	0.64	0.50	0.41

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 23: Winston Churchill Boulevard & Hwy 401 (Eastbound Ramp)

Scenario 1 - PM Peak Hour
 Premier Gateway



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	↔↔	↗		↑↑↑	↑↑↑	
Traffic Volume (vph)	343	314	0	1725	1411	11
Future Volume (vph)	343	314	0	1725	1411	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		7.0	7.0	
Lane Util. Factor	0.97	0.91		0.91	0.91	
Frt	0.96	0.85		1.00	1.00	
Flt Protected	0.96	1.00		1.00	1.00	
Satd. Flow (prot)	3161	1427		5085	5080	
Flt Permitted	0.96	1.00		1.00	1.00	
Satd. Flow (perm)	3161	1427		5085	5080	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	361	331	0	1816	1485	12
RTOR Reduction (vph)	23	51	0	0	1	0
Lane Group Flow (vph)	451	167	0	1816	1496	0
Heavy Vehicles (%)	10%	3%	0%	2%	2%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	23.8	23.8		97.1	97.1	
Effective Green, g (s)	23.8	23.8		97.1	97.1	
Actuated g/C Ratio	0.18	0.18		0.71	0.71	
Clearance Time (s)	8.0	8.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	553	249		3633	3629	
v/s Ratio Prot	c0.14			c0.36	0.29	
v/s Ratio Perm		0.12				
v/c Ratio	0.82	0.67		0.50	0.41	
Uniform Delay, d1	53.9	52.4		8.6	7.9	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	9.0	6.9		0.5	0.3	
Delay (s)	63.0	59.3		9.1	8.2	
Level of Service	E	E		A	A	
Approach Delay (s)	61.8			9.1	8.2	
Approach LOS	E			A	A	

Intersection Summary

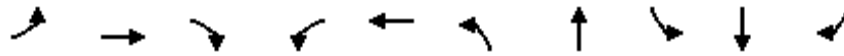
HCM 2000 Control Delay	17.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	135.9	Sum of lost time (s)	15.0
Intersection Capacity Utilization	103.1%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Queues

Scenario 1 - PM Peak Hour

24: James Snow Parkway & Main Street East

Premier Gateway



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	388	79	281	89	174	401	684	97	801	805
v/c Ratio	0.86	0.13	0.40	0.51	0.36	0.89	0.45	0.27	0.74	0.95
Control Delay	56.0	20.6	4.6	44.0	27.4	41.0	17.6	12.8	31.7	31.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	56.0	20.6	4.6	44.0	27.4	41.0	17.6	12.8	31.7	31.8
Queue Length 50th (m)	32.9	9.3	0.0	14.0	11.0	43.0	39.6	7.0	62.5	49.4
Queue Length 95th (m)	#62.1	19.2	16.0	28.4	20.3	#106.1	61.1	16.0	91.1	#142.3
Internal Link Dist (m)		274.7			467.9		430.6		1282.4	
Turn Bay Length (m)	70.0		50.0	105.0		100.0		135.0		135.0
Base Capacity (vph)	452	762	816	291	784	452	1522	358	1081	851
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	0.86	0.10	0.34	0.31	0.22	0.89	0.45	0.27	0.74	0.95

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
 24: James Snow Parkway & Main Street East

Scenario 1 - PM Peak Hour
 Premier Gateway



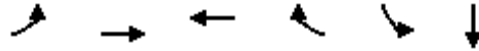
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	369	75	267	85	128	37	381	520	130	92	761	765
Future Volume (vph)	369	75	267	85	128	37	381	520	130	92	761	765
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0	6.0	6.0	6.0		4.5	6.0		4.5	6.0	6.0
Lane Util. Factor	0.97	1.00	1.00	1.00	0.95		1.00	0.95		1.00	0.95	1.00
Frt	1.00	1.00	0.85	1.00	0.97		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3502	1900	1615	1805	3473		1805	3406		1752	3610	1599
Flt Permitted	0.95	1.00	1.00	0.71	1.00		0.16	1.00		0.39	1.00	1.00
Satd. Flow (perm)	3502	1900	1615	1341	3473		308	3406		722	3610	1599
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	388	79	281	89	135	39	401	547	137	97	801	805
RTOR Reduction (vph)	0	0	194	0	32	0	0	23	0	0	0	368
Lane Group Flow (vph)	388	79	87	89	142	0	401	661	0	97	801	437
Heavy Vehicles (%)	0%	0%	0%	0%	0%	2%	0%	3%	2%	3%	0%	1%
Turn Type	Prot	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases			4	8			2			6		6
Actuated Green, G (s)	10.7	26.0	26.0	10.8	10.8		45.8	36.5		30.6	25.8	25.8
Effective Green, g (s)	10.7	26.0	26.0	10.8	10.8		45.8	36.5		30.6	25.8	25.8
Actuated g/C Ratio	0.13	0.31	0.31	0.13	0.13		0.55	0.44		0.37	0.31	0.31
Clearance Time (s)	4.5	6.0	6.0	6.0	6.0		4.5	6.0		4.5	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	447	589	501	172	447		445	1483		322	1111	492
v/s Ratio Prot	c0.11	0.04			0.04		c0.17	0.19		0.02	0.22	
v/s Ratio Perm			0.05	c0.07			c0.33			0.09		0.27
v/c Ratio	0.87	0.13	0.17	0.52	0.32		0.90	0.45		0.30	0.72	0.89
Uniform Delay, d1	35.9	20.8	21.1	34.1	33.2		18.8	16.6		17.9	25.8	27.6
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	16.2	0.1	0.2	2.6	0.4		21.0	1.0		0.5	4.1	20.6
Delay (s)	52.0	20.9	21.2	36.7	33.6		39.8	17.5		18.4	29.9	48.2
Level of Service	D	C	C	D	C		D	B		B	C	D
Approach Delay (s)		37.2			34.6			25.8			37.9	
Approach LOS		D			C			C			D	

Intersection Summary

HCM 2000 Control Delay	34.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	83.8	Sum of lost time (s)	21.0
Intersection Capacity Utilization	86.9%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Queues
25: Street B & Steeles Avenue

Scenario 1 - PM Peak Hour
Premier Gateway



Lane Group	EBL	EBT	WBT	WBR	SBL	SBT
Lane Group Flow (vph)	27	923	1090	23	80	53
v/c Ratio	0.21	0.71	0.79	0.04	0.18	0.10
Control Delay	13.8	16.0	18.0	0.9	14.3	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.8	16.0	18.0	0.9	14.3	4.6
Queue Length 50th (m)	1.6	37.1	45.9	0.0	5.6	0.0
Queue Length 95th (m)	6.3	54.6	66.5	1.0	14.4	5.5
Internal Link Dist (m)		388.7	443.0			311.5
Turn Bay Length (m)	50.0			30.0	30.0	
Base Capacity (vph)	152	1494	1589	735	452	550
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.62	0.69	0.03	0.18	0.10
Intersection Summary						

HCM Signalized Intersection Capacity Analysis

25: Street B & Steeles Avenue

Scenario 1 - PM Peak Hour
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	26	886	0	0	1046	22	0	0	0	77	0	51
Future Volume (vph)	26	886	0	0	1046	22	0	0	0	77	0	51
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0	6.0				6.0	6.0	
Lane Util. Factor	1.00	0.95			0.95	1.00				1.00	1.00	
Frt	1.00	1.00			1.00	0.85				1.00	0.85	
Flt Protected	0.95	1.00			1.00	1.00				0.95	1.00	
Satd. Flow (prot)	1626	3085			3282	1455				1626	1468	
Flt Permitted	0.18	1.00			1.00	1.00				0.76	1.00	
Satd. Flow (perm)	316	3085			3282	1455				1296	1468	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	27	923	0	0	1090	23	0	0	0	80	0	53
RTOR Reduction (vph)	0	0	0	0	0	13	0	0	0	0	34	0
Lane Group Flow (vph)	27	923	0	0	1090	10	0	0	0	80	19	0
Heavy Vehicles (%)	11%	17%	0%	0%	10%	11%	0%	0%	0%	11%	0%	10%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm		Perm	Perm	NA	
Protected Phases		4			8			2				6
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)	21.7	21.7			21.7	21.7				18.1	18.1	
Effective Green, g (s)	21.7	21.7			21.7	21.7				18.1	18.1	
Actuated g/C Ratio	0.42	0.42			0.42	0.42				0.35	0.35	
Clearance Time (s)	6.0	6.0			6.0	6.0				6.0	6.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0				3.0	3.0	
Lane Grp Cap (vph)	132	1292			1374	609				452	512	
v/s Ratio Prot		0.30			c0.33							0.01
v/s Ratio Perm	0.09					0.01				c0.06		
v/c Ratio	0.20	0.71			0.79	0.02				0.18	0.04	
Uniform Delay, d1	9.6	12.5			13.1	8.8				11.7	11.1	
Progression Factor	1.00	1.00			1.00	1.00				1.00	1.00	
Incremental Delay, d2	0.8	1.9			3.2	0.0				0.9	0.1	
Delay (s)	10.3	14.4			16.3	8.8				12.5	11.2	
Level of Service	B	B			B	A				B	B	
Approach Delay (s)		14.3			16.2			0.0			12.0	
Approach LOS		B			B			A			B	

Intersection Summary

HCM 2000 Control Delay	15.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	51.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	43.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
 26: Hornby Road & Street A

Scenario 1 - PM Peak Hour
 Premier Gateway



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Right Turn Channelized						
Traffic Volume (veh/h)	26	0	0	47	70	7
Future Volume (veh/h)	26	0	0	47	70	7
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	27	0	0	49	73	7
Approach Volume (veh/h)	27			49	80	
Crossing Volume (veh/h)	73			27	0	
High Capacity (veh/h)	1308			1356	1385	
High v/c (veh/h)	0.02			0.04	0.06	
Low Capacity (veh/h)	1091			1135	1161	
Low v/c (veh/h)	0.02			0.04	0.07	
Intersection Summary						
Maximum v/c High			0.06			
Maximum v/c Low			0.07			
Intersection Capacity Utilization			14.1%		ICU Level of Service	A

Queues
27: Trafalgar Road & Street B

Scenario 1 - PM Peak Hour

Premier Gateway



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	30	107	73	55	20	977	17	8	500	8
v/c Ratio	0.06	0.17	0.16	0.09	0.07	0.76	0.03	0.06	0.41	0.01
Control Delay	11.0	5.9	12.1	6.9	10.1	17.7	0.1	10.5	12.1	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.0	5.9	12.1	6.9	10.1	17.7	0.1	10.5	12.1	0.0
Queue Length 50th (m)	1.8	2.0	4.5	1.4	1.1	38.3	0.0	0.5	16.5	0.0
Queue Length 95th (m)	5.9	9.8	11.7	6.9	4.4	56.7	0.2	2.5	26.3	0.0
Internal Link Dist (m)		260.1		649.3		221.2			63.9	
Turn Bay Length (m)	50.0		50.0		50.0		50.0	50.0		50.0
Base Capacity (vph)	469	624	444	609	339	1439	652	162	1386	652
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	0.06	0.17	0.16	0.09	0.06	0.68	0.03	0.05	0.36	0.01

Intersection Summary

HCM Signalized Intersection Capacity Analysis
27: Trafalgar Road & Street B

Scenario 1 - PM Peak Hour
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	32	71	70	22	31	19	938	16	8	480	8
Future Volume (vph)	29	32	71	70	22	31	19	938	16	8	480	8
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.90		1.00	0.91		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)	1641	1534		1626	1562		1641	3438	1468	1641	3312	1468
Flt Permitted	0.72	1.00		0.69	1.00		0.47	1.00	1.00	0.22	1.00	1.00
Satd. Flow (perm)	1246	1534		1178	1562		809	3438	1468	388	3312	1468
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	30	33	74	73	23	32	20	977	17	8	500	8
RTOR Reduction (vph)	0	46	0	0	20	0	0	0	11	0	0	5
Lane Group Flow (vph)	30	61	0	73	35	0	20	977	6	8	500	3
Heavy Vehicles (%)	10%	11%	11%	11%	11%	11%	10%	5%	10%	10%	9%	10%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8			4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	18.1	18.1		18.1	18.1		17.8	17.8	17.8	17.8	17.8	17.8
Effective Green, g (s)	18.1	18.1		18.1	18.1		17.8	17.8	17.8	17.8	17.8	17.8
Actuated g/C Ratio	0.38	0.38		0.38	0.38		0.37	0.37	0.37	0.37	0.37	0.37
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	470	579		445	590		300	1277	545	144	1230	545
v/s Ratio Prot		0.04			0.02			c0.28			0.15	
v/s Ratio Perm	0.02			c0.06			0.02		0.00	0.02		0.00
v/c Ratio	0.06	0.11		0.16	0.06		0.07	0.77	0.01	0.06	0.41	0.01
Uniform Delay, d1	9.5	9.7		9.9	9.5		9.7	13.2	9.5	9.7	11.1	9.5
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.3	0.4		0.8	0.2		0.1	2.8	0.0	0.2	0.2	0.0
Delay (s)	9.8	10.0		10.7	9.7		9.8	16.0	9.5	9.8	11.4	9.5
Level of Service	A	B		B	A		A	B	A	A	B	A
Approach Delay (s)		10.0			10.2			15.8			11.3	
Approach LOS		A			B			B			B	

Intersection Summary

HCM 2000 Control Delay	13.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	47.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	46.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
28: Eighth Line & Street B

















Scenario 1 - PM Peak Hour
Premier Gateway



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	28	11	6	420	138	7
Future Volume (Veh/h)	28	11	6	420	138	7
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	29	11	6	438	144	7
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	598	148	151			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	598	148	151			
tC, single (s)	6.5	6.3	4.2			
tC, 2 stage (s)						
tF (s)	3.6	3.4	2.3			
p0 queue free %	94	99	100			
cM capacity (veh/h)	449	876	1377			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	
Volume Total	29	11	6	438	151	
Volume Left	29	0	6	0	0	
Volume Right	0	11	0	0	7	
cSH	449	876	1377	1700	1700	
Volume to Capacity	0.06	0.01	0.00	0.26	0.09	
Queue Length 95th (m)	1.7	0.3	0.1	0.0	0.0	
Control Delay (s)	13.6	9.2	7.6	0.0	0.0	
Lane LOS	B	A	A			
Approach Delay (s)	12.4		0.1		0.0	
Approach LOS	B					
Intersection Summary						
Average Delay			0.9			
Intersection Capacity Utilization			32.1%	ICU Level of Service		A
Analysis Period (min)			15			

HCM Unsignalized Intersection Capacity Analysis
1: Fifth Line & 5 Side Road

















Scenario 1 - SAT Peak Hour
Premier Gateway

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	5	0	0	21	0	0	0	0	0	0	0
Future Volume (Veh/h)	0	5	0	0	21	0	0	0	0	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	0	5	0	0	22	0	0	0	0	0	0	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	22			5			27	27	5	27	27	22
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	22			5			27	27	5	27	27	22
tC, single (s)	4.1			4.1			7.3	6.5	6.2	7.1	6.5	6.4
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.7	4.0	3.3	3.5	4.0	3.4
p0 queue free %	100			100			100	100	100	100	100	100
cM capacity (veh/h)	1607			1630			946	870	1072	988	870	1019
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	5	22	0	0								
Volume Left	0	0	0	0								
Volume Right	0	0	0	0								
cSH	1607	1630	1700	1700								
Volume to Capacity	0.00	0.00	0.00	0.00								
Queue Length 95th (m)	0.0	0.0	0.0	0.0								
Control Delay (s)	0.0	0.0	0.0	0.0								
Lane LOS			A	A								
Approach Delay (s)	0.0	0.0	0.0	0.0								
Approach LOS			A	A								
Intersection Summary												
Average Delay			0.0									
Intersection Capacity Utilization			6.7%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

2: Sixth Line & 5 Side Road

Scenario 1 - SAT Peak Hour
Premier Gateway

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	5	0	0	21	0	0	0	0	0	0	0
Future Volume (Veh/h)	0	5	0	0	21	0	0	0	0	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	0	5	0	0	22	0	0	0	0	0	0	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	22			5			27	27	5	27	27	22
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	22			5			27	27	5	27	27	22
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.4
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.5
p0 queue free %	100			100			100	100	100	100	100	100
cM capacity (veh/h)	1607			1630			988	870	1084	988	870	1013
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	5	22	0	0								
Volume Left	0	0	0	0								
Volume Right	0	0	0	0								
cSH	1607	1630	1700	1700								
Volume to Capacity	0.00	0.00	0.00	0.00								
Queue Length 95th (m)	0.0	0.0	0.0	0.0								
Control Delay (s)	0.0	0.0	0.0	0.0								
Lane LOS			A	A								
Approach Delay (s)	0.0	0.0	0.0	0.0								
Approach LOS			A	A								
Intersection Summary												
Average Delay			0.0									
Intersection Capacity Utilization			6.7%		ICU Level of Service				A			
Analysis Period (min)			15									

Queues
3: Trafalgar Rd & 5 Side Road

Scenario 1 - SAT Peak Hour
Premier Gateway



Lane Group	EBR	WBL	NBL	NBT	SBT
Lane Group Flow (vph)	5	2	22	29	7
v/c Ratio	0.00	0.00	0.02	0.01	0.00
Control Delay	0.0	19.5	2.3	2.2	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	0.0	19.5	2.3	2.2	5.4
Queue Length 50th (m)	0.0	0.2	0.2	0.0	0.0
Queue Length 95th (m)	0.0	1.9	3.1	1.9	1.2
Internal Link Dist (m)				240.1	238.0
Turn Bay Length (m)	40.0	40.0	40.0		
Base Capacity (vph)	1320	1125	1181	3122	3082
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	0.00	0.00	0.02	0.01	0.00
Intersection Summary					

HCM Signalized Intersection Capacity Analysis
3: Trafalgar Rd & 5 Side Road

















Scenario 1 - SAT Peak Hour

Premier Gateway

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	5	2	0	0	21	21	7	0	7	0
Future Volume (vph)	0	0	5	2	0	0	21	21	7	0	7	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			6.4	6.4			4.0	6.0			6.0	
Lane Util. Factor			1.00	1.00			1.00	0.95			0.95	
Frt			0.85	1.00			1.00	0.96			1.00	
Flt Protected			1.00	0.95			0.95	1.00			1.00	
Satd. Flow (prot)			1495	1805			1719	3369			3438	
Flt Permitted			1.00	1.00			0.69	1.00			1.00	
Satd. Flow (perm)			1495	1900			1250	3369			3438	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	0	5	2	0	0	22	22	7	0	7	0
RTOR Reduction (vph)	0	0	5	0	0	0	0	2	0	0	0	0
Lane Group Flow (vph)	0	0	0	2	0	0	22	27	0	0	7	0
Heavy Vehicles (%)	8%	2%	8%	0%	0%	0%	5%	4%	1%	13%	5%	67%
Turn Type	Perm		Perm	Perm			pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)			2.2	2.2			49.3	49.3			44.3	
Effective Green, g (s)			2.2	2.2			49.3	49.3			44.3	
Actuated g/C Ratio			0.03	0.03			0.77	0.77			0.69	
Clearance Time (s)			6.4	6.4			4.0	6.0			6.0	
Vehicle Extension (s)			5.0	5.0			3.0	5.0			5.0	
Lane Grp Cap (vph)			51	65			971	2599			2383	
v/s Ratio Prot							c0.00	0.01			0.00	
v/s Ratio Perm			0.00	c0.00			c0.02					
v/c Ratio			0.00	0.03			0.02	0.01			0.00	
Uniform Delay, d1			29.8	29.8			1.8	1.7			3.0	
Progression Factor			1.00	1.00			1.00	1.00			1.00	
Incremental Delay, d2			0.1	0.4			0.0	0.0			0.0	
Delay (s)			29.8	30.2			1.8	1.7			3.0	
Level of Service			C	C			A	A			A	
Approach Delay (s)		29.8			30.2			1.7			3.0	
Approach LOS		C			C			A			A	
Intersection Summary												
HCM 2000 Control Delay			4.9				HCM 2000 Level of Service				A	
HCM 2000 Volume to Capacity ratio			0.02									
Actuated Cycle Length (s)			63.9				Sum of lost time (s)			16.4		
Intersection Capacity Utilization			61.5%				ICU Level of Service			B		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis
4: Eighth Line & 5 Side Road

Scenario 1 - SAT Peak Hour
Premier Gateway

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	0	7	0	2	2	0	0	21	8	0	2	0
Future Volume (vph)	0	7	0	2	2	0	0	21	8	0	2	0
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	0	7	0	2	2	0	0	22	8	0	2	0
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total (vph)	7	4	30	2								
Volume Left (vph)	0	2	0	0								
Volume Right (vph)	0	0	8	0								
Hadj (s)	0.05	0.18	-0.11	0.02								
Departure Headway (s)	4.0	4.2	3.8	4.0								
Degree Utilization, x	0.01	0.00	0.03	0.00								
Capacity (veh/h)	882	854	938	898								
Control Delay (s)	7.1	7.2	6.9	7.0								
Approach Delay (s)	7.1	7.2	6.9	7.0								
Approach LOS	A	A	A	A								
Intersection Summary												
Delay			7.0									
Level of Service			A									
Intersection Capacity Utilization			13.3%	ICU Level of Service	A							
Analysis Period (min)			15									

Queues
5: Ninth Line & 5 Side Road



Lane Group	EBT	WBT
Lane Group Flow (vph)	16	4
v/c Ratio	0.07	0.02
Control Delay	27.8	27.2
Queue Delay	0.0	0.0
Total Delay	27.8	27.2
Queue Length 50th (m)	1.7	0.4
Queue Length 95th (m)	7.7	3.3
Internal Link Dist (m)	556.9	434.3
Turn Bay Length (m)		
Base Capacity (vph)	875	884
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.02	0.00
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

5: Ninth Line & 5 Side Road

Scenario 1 - SAT Peak Hour
Premier Gateway



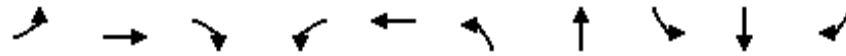
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	0	15	0	0	4	0	0	0	0	0	0	0
Future Volume (vph)	0	15	0	0	4	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0							
Lane Util. Factor		1.00			1.00							
Frt		1.00			1.00							
Flt Protected		1.00			1.00							
Satd. Flow (prot)		1881			1900							
Flt Permitted		1.00			1.00							
Satd. Flow (perm)		1881			1900							
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	16	0	0	4	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	16	0	0	4	0	0	0	0	0	0	0
Heavy Vehicles (%)	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%
Turn Type		NA			NA							
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		1.3			1.3							
Effective Green, g (s)		1.3			1.3							
Actuated g/C Ratio		0.02			0.02							
Clearance Time (s)		6.0			6.0							
Vehicle Extension (s)		3.5			3.5							
Lane Grp Cap (vph)		36			36							
v/s Ratio Prot		c0.01			0.00							
v/s Ratio Perm												
v/c Ratio		0.44			0.11							
Uniform Delay, d1		32.8			32.6							
Progression Factor		1.00			1.00							
Incremental Delay, d2		10.0			1.6							
Delay (s)		42.8			34.3							
Level of Service		D			C							
Approach Delay (s)		42.8			34.3			0.0			0.0	
Approach LOS		D			C			A			A	

Intersection Summary

HCM 2000 Control Delay	41.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.01		
Actuated Cycle Length (s)	67.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	10.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues
6: Brownridge Road/Fifth Line & Steeles Avenue

Scenario 1 - SAT Peak Hour
Premier Gateway



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	30	484	4	3	631	11	7	15	2	39
v/c Ratio	0.05	0.18	0.00	0.00	0.22	0.06	0.03	0.11	0.01	0.14
Control Delay	4.1	3.4	0.0	4.0	3.6	29.4	18.7	30.7	27.5	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	4.1	3.4	0.0	4.0	3.6	29.4	18.7	30.7	27.5	4.6
Queue Length 50th (m)	1.3	11.8	0.0	0.2	16.2	1.7	0.2	2.4	0.3	0.0
Queue Length 95th (m)	3.9	17.5	0.0	0.9	23.1	5.7	3.5	7.0	2.1	4.1
Internal Link Dist (m)		462.3			679.6		261.2		67.4	
Turn Bay Length (m)	145.0		65.0	30.0		20.0		25.0		25.0
Base Capacity (vph)	595	2744	1321	735	2813	338	428	265	486	464
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	0.05	0.18	0.00	0.00	0.22	0.03	0.02	0.06	0.00	0.08

Intersection Summary

HCM Signalized Intersection Capacity Analysis
6: Brownridge Road/Fifth Line & Steeles Avenue

Scenario 1 - SAT Peak Hour
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	29	465	4	3	603	3	11	1	6	14	2	37
Future Volume (vph)	29	465	4	3	603	3	11	1	6	14	2	37
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.87		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1687	3374	1615	1805	3459		1656	1656		1308	1900	1615
Flt Permitted	0.41	1.00	1.00	0.48	1.00		0.76	1.00		0.75	1.00	1.00
Satd. Flow (perm)	732	3374	1615	904	3459		1319	1656		1037	1900	1615
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	30	484	4	3	628	3	11	1	6	15	2	39
RTOR Reduction (vph)	0	0	1	0	0	0	0	6	0	0	0	36
Lane Group Flow (vph)	30	484	3	3	631	0	11	1	0	15	2	3
Heavy Vehicles (%)	7%	7%	0%	0%	4%	67%	9%	0%	0%	38%	0%	0%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		6
Actuated Green, G (s)	57.3	57.3	57.3	57.3	57.3		5.8	5.8		5.8	5.8	5.8
Effective Green, g (s)	57.3	57.3	57.3	57.3	57.3		5.8	5.8		5.8	5.8	5.8
Actuated g/C Ratio	0.74	0.74	0.74	0.74	0.74		0.08	0.08		0.08	0.08	0.08
Clearance Time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	544	2507	1200	671	2570		99	124		78	142	121
v/s Ratio Prot		0.14			c0.18			0.00			0.00	
v/s Ratio Perm	0.04		0.00	0.00			0.01			c0.01		0.00
v/c Ratio	0.06	0.19	0.00	0.00	0.25		0.11	0.01		0.19	0.01	0.02
Uniform Delay, d1	2.7	3.0	2.5	2.6	3.1		33.2	33.0		33.5	33.0	33.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.2	0.2	0.0	0.0	0.2		0.5	0.0		1.2	0.0	0.1
Delay (s)	2.8	3.1	2.6	2.6	3.3		33.7	33.0		34.7	33.0	33.1
Level of Service	A	A	A	A	A		C	C		C	C	C
Approach Delay (s)		3.1			3.3			33.5			33.5	
Approach LOS		A			A			C			C	

Intersection Summary

HCM 2000 Control Delay	5.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	77.1	Sum of lost time (s)	14.0
Intersection Capacity Utilization	68.3%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

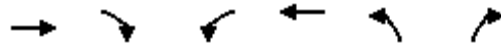
Queues
7: Fifth Line South & Steeles Avenue



Lane Group	EBT	EBR	WBT	NBL
Lane Group Flow (vph)	507	3	639	2
v/c Ratio	0.16	0.00	0.19	0.01
Control Delay	1.2	1.7	1.3	32.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	1.2	1.7	1.3	32.0
Queue Length 50th (m)	0.0	0.0	0.0	0.3
Queue Length 95th (m)	17.6	0.7	22.3	2.5
Internal Link Dist (m)	679.6		455.7	532.9
Turn Bay Length (m)		30.0		15.0
Base Capacity (vph)	3133	1528	3284	381
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.16	0.00	0.19	0.01
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
7: Fifth Line South & Steeles Avenue

Scenario 1 - SAT Peak Hour
Premier Gateway



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↗	↖	↑↑	↖	↗
Traffic Volume (vph)	482	3	0	607	2	0
Future Volume (vph)	482	3	0	607	2	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		8.0	6.0	
Lane Util. Factor	0.95	1.00		0.95	1.00	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	1.00	1.00		1.00	0.95	
Satd. Flow (prot)	3312	1615		3471	1805	
Flt Permitted	1.00	1.00		1.00	0.95	
Satd. Flow (perm)	3312	1615		3471	1805	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	507	3	0	639	2	0
RTOR Reduction (vph)	0	1	0	0	0	0
Lane Group Flow (vph)	507	2	0	639	2	0
Heavy Vehicles (%)	9%	0%	0%	4%	0%	0%
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	4			8		
Permitted Phases		4	8		2	2
Actuated Green, G (s)	65.4	65.4		65.4	1.7	
Effective Green, g (s)	65.4	65.4		65.4	1.7	
Actuated g/C Ratio	0.81	0.81		0.81	0.02	
Clearance Time (s)	8.0	8.0		8.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	2670	1302		2799	37	
v/s Ratio Prot	0.15			c0.18		
v/s Ratio Perm		0.00			c0.00	
v/c Ratio	0.19	0.00		0.23	0.05	
Uniform Delay, d1	1.8	1.5		1.9	38.9	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.0		0.2	0.6	
Delay (s)	2.0	1.5		2.1	39.5	
Level of Service	A	A		A	D	
Approach Delay (s)	1.9			2.1	39.5	
Approach LOS	A			A	D	

Intersection Summary

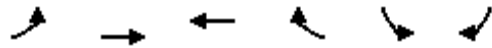
HCM 2000 Control Delay	2.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.22		
Actuated Cycle Length (s)	81.1	Sum of lost time (s)	14.0
Intersection Capacity Utilization	40.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues

Scenario 1 - SAT Peak Hour

8: Steeles Avenue & Sixth Line

Premier Gateway



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	36	477	628	10	9	18
v/c Ratio	0.19	0.50	0.61	0.02	0.01	0.02
Control Delay	13.6	14.4	15.8	6.3	7.0	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.6	14.4	15.8	6.3	7.0	4.1
Queue Length 50th (m)	2.1	16.1	22.1	0.0	0.3	0.0
Queue Length 95th (m)	7.2	26.3	34.6	2.3	2.2	2.5
Internal Link Dist (m)		455.7	881.3		3042.1	
Turn Bay Length (m)	60.0			30.0	30.0	
Base Capacity (vph)	629	3112	3343	1615	883	799
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.06	0.15	0.19	0.01	0.01	0.02

Intersection Summary

HCM Signalized Intersection Capacity Analysis
8: Steeles Avenue & Sixth Line

Scenario 1 - SAT Peak Hour
Premier Gateway

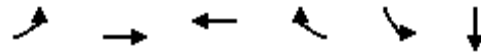


Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	34	448	590	9	8	17
Future Volume (vph)	34	448	590	9	8	17
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1752	3112	3343	1615	1805	1615
Flt Permitted	0.34	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	628	3112	3343	1615	1805	1615
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	36	477	628	10	9	18
RTOR Reduction (vph)	0	0	0	7	0	9
Lane Group Flow (vph)	36	477	628	3	9	9
Heavy Vehicles (%)	3%	16%	8%	0%	0%	0%
Turn Type	Perm	NA	NA	Perm	Prot	Perm
Protected Phases		4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	13.5	13.5	13.5	13.5	21.6	21.6
Effective Green, g (s)	13.5	13.5	13.5	13.5	21.6	21.6
Actuated g/C Ratio	0.31	0.31	0.31	0.31	0.49	0.49
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	192	952	1023	494	884	791
v/s Ratio Prot		0.15	c0.19		0.00	
v/s Ratio Perm	0.06			0.00		c0.01
v/c Ratio	0.19	0.50	0.61	0.01	0.01	0.01
Uniform Delay, d1	11.3	12.5	13.1	10.6	5.8	5.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	0.4	1.1	0.0	0.0	0.0
Delay (s)	11.7	13.0	14.2	10.6	5.8	5.8
Level of Service	B	B	B	B	A	A
Approach Delay (s)		12.9	14.1		5.8	
Approach LOS		B	B		A	

Intersection Summary			
HCM 2000 Control Delay	13.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	44.1	Sum of lost time (s)	9.0
Intersection Capacity Utilization	35.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues
 9: Sixth Line South/Street A & Steeles Avenue

Scenario 1 - SAT Peak Hour
 Premier Gateway



Lane Group	EBL	EBT	WBT	WBR	SBL	SBT
Lane Group Flow (vph)	6	483	622	18	66	23
v/c Ratio	0.03	0.53	0.63	0.04	0.11	0.03
Control Delay	11.2	16.5	18.0	0.1	9.5	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.2	16.5	18.0	0.1	9.5	0.0
Queue Length 50th (m)	0.4	19.7	26.3	0.0	3.2	0.0
Queue Length 95th (m)	2.1	27.2	34.8	0.3	10.1	0.0
Internal Link Dist (m)		881.3	473.0			481.0
Turn Bay Length (m)	50.0			30.0	70.0	
Base Capacity (vph)	262	1182	1270	619	627	785
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.02	0.41	0.49	0.03	0.11	0.03

Intersection Summary

HCM Signalized Intersection Capacity Analysis

9: Sixth Line South/Street A & Steeles Avenue

Scenario 1 - SAT Peak Hour

Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗↗	↖	↖	↗↗	↖	↖	↗		↖	↗	
Traffic Volume (vph)	6	449	0	0	578	17	0	0	0	61	0	21
Future Volume (vph)	6	449	0	0	578	17	0	0	0	61	0	21
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0	6.0				6.0	6.0	
Lane Util. Factor	1.00	0.95			0.95	1.00				1.00	1.00	
Frt	1.00	1.00			1.00	0.85				1.00	0.85	
Flt Protected	0.95	1.00			1.00	1.00				0.95	1.00	
Satd. Flow (prot)	1805	3112			3343	1524				1687	1538	
Flt Permitted	0.36	1.00			1.00	1.00				0.76	1.00	
Satd. Flow (perm)	691	3112			3343	1524				1345	1538	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	6	483	0	0	622	18	0	0	0	66	0	23
RTOR Reduction (vph)	0	0	0	0	0	13	0	0	0	0	12	0
Lane Group Flow (vph)	6	483	0	0	622	5	0	0	0	66	11	0
Heavy Vehicles (%)	0%	16%	0%	0%	8%	6%	0%	0%	0%	7%	0%	5%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm			Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	14.7	14.7			14.7	14.7				23.3	23.3	
Effective Green, g (s)	14.7	14.7			14.7	14.7				23.3	23.3	
Actuated g/C Ratio	0.29	0.29			0.29	0.29				0.47	0.47	
Clearance Time (s)	6.0	6.0			6.0	6.0				6.0	6.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0				3.0	3.0	
Lane Grp Cap (vph)	203	914			982	448				626	716	
v/s Ratio Prot		0.16			c0.19						0.01	
v/s Ratio Perm	0.01					0.00				c0.05		
v/c Ratio	0.03	0.53			0.63	0.01				0.11	0.01	
Uniform Delay, d1	12.6	14.8			15.3	12.5				7.5	7.2	
Progression Factor	1.00	1.00			1.00	1.00				1.00	1.00	
Incremental Delay, d2	0.1	0.6			1.3	0.0				0.3	0.0	
Delay (s)	12.6	15.3			16.7	12.5				7.8	7.2	
Level of Service	B	B			B	B				A	A	
Approach Delay (s)		15.3			16.5			0.0			7.7	
Approach LOS		B			B			A			A	

Intersection Summary

HCM 2000 Control Delay	15.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.31		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	30.1%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
 10: Steeles Avenue & Hornby Road

Scenario 1 - SAT Peak Hour
 Premier Gateway



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↵	↑↑	↑↑	↵	↵	↵
Traffic Volume (veh/h)	33	477	517	10	8	77
Future Volume (Veh/h)	33	477	517	10	8	77
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	35	513	556	11	9	83
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	567				882	278
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	567				882	278
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	97				97	89
cM capacity (veh/h)	1015				279	722

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	SB 1	SB 2
Volume Total	35	256	256	278	278	11	9	83
Volume Left	35	0	0	0	0	0	9	0
Volume Right	0	0	0	0	0	11	0	83
cSH	1015	1700	1700	1700	1700	1700	279	722
Volume to Capacity	0.03	0.15	0.15	0.16	0.16	0.01	0.03	0.11
Queue Length 95th (m)	0.9	0.0	0.0	0.0	0.0	0.0	0.8	3.1
Control Delay (s)	8.7	0.0	0.0	0.0	0.0	0.0	18.3	10.6
Lane LOS	A						C	B
Approach Delay (s)	0.6			0.0			11.4	
Approach LOS							B	

Intersection Summary		
Average Delay		1.1
Intersection Capacity Utilization	31.0%	ICU Level of Service
Analysis Period (min)	15	A

HCM Unsignalized Intersection Capacity Analysis
 11: Trafalgar Rd & Hornby Rd

Scenario 1 - SAT Peak Hour
 Premier Gateway



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	56	1	2	666	571	87
Future Volume (Veh/h)	56	1	2	666	571	87
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97
Hourly flow rate (vph)	58	1	2	687	589	90
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	982	340	589			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	982	340	589			
tC, single (s)	6.8	6.9	4.1			
tC, 2 stage (s)						
tF (s)	3.5	3.3	2.2			
p0 queue free %	76	100	100			
cM capacity (veh/h)	246	662	996			
Direction, Lane #	EB 1	NB 1	NB 2	SB 1	SB 2	
Volume Total	59	231	458	393	286	
Volume Left	58	2	0	0	0	
Volume Right	1	0	0	0	90	
cSH	249	996	1700	1700	1700	
Volume to Capacity	0.24	0.00	0.27	0.23	0.17	
Queue Length 95th (m)	7.2	0.0	0.0	0.0	0.0	
Control Delay (s)	23.9	0.1	0.0	0.0	0.0	
Lane LOS	C	A				
Approach Delay (s)	23.9	0.0		0.0		
Approach LOS	C					
Intersection Summary						
Average Delay			1.0			
Intersection Capacity Utilization			29.8%	ICU Level of Service		A
Analysis Period (min)			15			

Queues
12: Trafalgar Road & Steeles Avenue

Scenario 1 - SAT Peak Hour
Premier Gateway



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	40	297	189	857	398	68	120	575	1077	85	585
v/c Ratio	0.18	0.56	0.52	1.33	0.37	0.12	0.46	0.42	1.11	0.21	0.47
Control Delay	26.1	52.5	15.5	199.3	34.7	1.5	58.9	29.4	83.6	16.7	32.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.1	52.5	15.5	199.3	34.7	1.5	58.9	29.4	83.6	16.7	32.8
Queue Length 50th (m)	6.2	37.8	5.4	~148.2	43.1	0.0	15.4	55.8	~223.7	10.5	60.4
Queue Length 95th (m)	13.4	52.2	28.1	#189.0	56.7	2.5	25.0	77.2	#312.5	20.0	83.6
Internal Link Dist (m)		443.0			287.3			749.5			265.5
Turn Bay Length (m)	115.0		40.0	130.0		70.0	100.0		65.0		
Base Capacity (vph)	221	858	482	644	1375	683	269	1368	968	407	1245
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	0.18	0.35	0.39	1.33	0.29	0.10	0.45	0.42	1.11	0.21	0.47

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
12: Trafalgar Road & Steeles Avenue

Scenario 1 - SAT Peak Hour

Premier Gateway

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	38	285	181	823	382	65	115	552	1034	82	549	12
Future Volume (vph)	38	285	181	823	382	65	115	552	1034	82	549	12
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	5.0	7.0	7.0	5.0	8.0	8.0	4.0	8.0	
Lane Util. Factor	1.00	0.95	1.00	0.97	0.95	1.00	0.97	0.95	1.00	1.00	0.95	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1399	3252	1369	3502	3438	1538	2824	3505	1599	1736	3457	
Flt Permitted	0.52	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.40	1.00	
Satd. Flow (perm)	762	3252	1369	3502	3438	1538	2824	3505	1599	730	3457	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	40	297	189	857	398	68	120	575	1077	85	572	12
RTOR Reduction (vph)	0	0	137	0	0	46	0	0	347	0	1	0
Lane Group Flow (vph)	40	297	52	857	398	22	120	575	730	85	584	0
Heavy Vehicles (%)	29%	11%	18%	0%	5%	5%	24%	3%	1%	4%	4%	8%
Turn Type	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4			8			2	6		
Actuated Green, G (s)	26.8	21.2	21.2	23.0	39.6	39.6	11.6	48.1	48.1	52.9	44.2	
Effective Green, g (s)	26.8	21.2	21.2	23.0	39.6	39.6	11.6	48.1	48.1	52.9	44.2	
Actuated g/C Ratio	0.21	0.17	0.17	0.18	0.32	0.32	0.09	0.38	0.38	0.42	0.35	
Clearance Time (s)	4.0	7.0	7.0	5.0	7.0	7.0	5.0	8.0	8.0	4.0	8.0	
Vehicle Extension (s)	3.0	3.0	3.0	4.0	3.0	3.0	4.0	0.2	0.2	3.0	0.2	
Lane Grp Cap (vph)	191	551	232	644	1089	487	262	1348	615	378	1222	
v/s Ratio Prot	0.01	c0.09		c0.24	0.12		c0.04	0.16		0.02	0.17	
v/s Ratio Perm	0.04		0.04			0.01			c0.46	0.08		
v/c Ratio	0.21	0.54	0.22	1.33	0.37	0.04	0.46	0.43	1.19	0.22	0.48	
Uniform Delay, d1	39.7	47.4	44.8	51.0	33.0	29.6	53.7	28.3	38.5	21.9	31.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.5	1.0	0.5	159.3	0.2	0.0	1.7	1.0	99.8	0.3	1.3	
Delay (s)	40.3	48.5	45.3	210.3	33.2	29.6	55.5	29.3	138.3	22.2	32.8	
Level of Service	D	D	D	F	C	C	E	C	F	C	C	
Approach Delay (s)		46.7			147.8			97.3			31.4	
Approach LOS		D			F			F			C	
Intersection Summary												
HCM 2000 Control Delay			96.4		HCM 2000 Level of Service			F				
HCM 2000 Volume to Capacity ratio			1.04									
Actuated Cycle Length (s)			125.0		Sum of lost time (s)			25.0				
Intersection Capacity Utilization			102.4%		ICU Level of Service			G				
Analysis Period (min)			15									
c Critical Lane Group												

Queues
13: Toronto Premier Outlets & Steeles Avenue

Scenario 1 - SAT Peak Hour
Premier Gateway



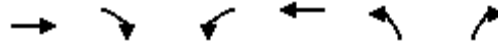
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	680	678	85	880	438	14
v/c Ratio	0.37	0.58	0.18	0.40	0.48	0.03
Control Delay	14.8	3.3	7.7	10.3	33.4	13.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.8	3.3	7.7	10.3	33.4	13.5
Queue Length 50th (m)	42.5	0.0	5.9	44.0	38.9	0.0
Queue Length 95th (m)	56.0	17.4	11.5	56.5	54.2	4.9
Internal Link Dist (m)	287.3			176.7	95.1	
Turn Bay Length (m)		130.0	45.0			40.0
Base Capacity (vph)	1849	1176	480	2173	910	430
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.58	0.18	0.40	0.48	0.03

Intersection Summary

HCM Signalized Intersection Capacity Analysis
13: Toronto Premier Outlets & Steeles Avenue

Scenario 1 - SAT Peak Hour

Premier Gateway



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↑	↑↑	↑↑	↑
Traffic Volume (vph)	653	651	82	845	420	13
Future Volume (vph)	653	651	82	845	420	13
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	4.0	6.0	6.0	6.0
Lane Util. Factor	0.95	1.00	1.00	0.95	0.97	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3471	1615	1805	3505	3502	1615
Flt Permitted	1.00	1.00	0.33	1.00	0.95	1.00
Satd. Flow (perm)	3471	1615	622	3505	3502	1615
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	680	678	85	880	438	14
RTOR Reduction (vph)	0	317	0	0	0	10
Lane Group Flow (vph)	680	361	85	880	438	4
Heavy Vehicles (%)	4%	0%	0%	3%	0%	0%
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	53.3	53.3	62.8	62.8	25.2	25.2
Effective Green, g (s)	53.3	53.3	62.8	62.8	25.2	25.2
Actuated g/C Ratio	0.53	0.53	0.63	0.63	0.25	0.25
Clearance Time (s)	6.0	6.0	4.0	6.0	6.0	6.0
Vehicle Extension (s)	0.2	0.2	3.0	0.2	4.0	4.0
Lane Grp Cap (vph)	1850	860	455	2201	882	406
v/s Ratio Prot	0.20		0.01	c0.25	c0.13	
v/s Ratio Perm		c0.22	0.11			0.00
v/c Ratio	0.37	0.42	0.19	0.40	0.50	0.01
Uniform Delay, d1	13.6	14.1	7.8	9.2	32.0	28.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	1.5	0.2	0.5	2.0	0.0
Delay (s)	14.1	15.6	8.0	9.8	34.0	28.1
Level of Service	B	B	A	A	C	C
Approach Delay (s)	14.8			9.6	33.8	
Approach LOS	B			A	C	

Intersection Summary

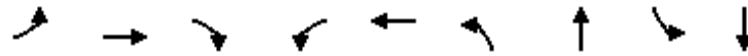
HCM 2000 Control Delay	16.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	53.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues

Scenario 1 - SAT Peak Hour

14: Toronto Premium Outlets/Eighth Line & Steeles Avenue

Premier Gateway



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	145	441	31	211	506	355	438	24	121
v/c Ratio	0.36	0.45	0.06	0.46	0.46	0.64	0.47	0.12	0.29
Control Delay	20.0	34.1	0.2	21.2	32.0	48.2	4.7	39.0	11.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.0	34.1	0.2	21.2	32.0	48.2	4.7	39.0	11.6
Queue Length 50th (m)	17.8	41.3	0.0	27.0	46.2	37.8	4.3	4.3	2.5
Queue Length 95th (m)	33.0	64.5	0.0	46.7	70.0	55.5	24.8	13.0	19.4
Internal Link Dist (m)		176.7			846.8		194.1		472.6
Turn Bay Length (m)	105.0		55.0	30.0				20.0	
Base Capacity (vph)	487	981	562	531	1095	820	1028	199	424
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.30	0.45	0.06	0.40	0.46	0.43	0.43	0.12	0.29

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 14: Toronto Premium Outlets/Eighth Line & Steeles Avenue

Scenario 1 - SAT Peak Hour

Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	142	432	30	207	474	22	348	34	395	24	14	105
Future Volume (vph)	142	432	30	207	474	22	348	34	395	24	14	105
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	4.0	6.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95		0.97	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.86		1.00	0.87	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1770	3406	1615	1805	3519		3502	1638		1805	1648	
Flt Permitted	0.40	1.00	1.00	0.38	1.00		0.95	1.00		0.51	1.00	
Satd. Flow (perm)	744	3406	1615	726	3519		3502	1638		966	1648	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	145	441	31	211	484	22	355	35	403	24	14	107
RTOR Reduction (vph)	0	0	22	0	3	0	0	230	0	0	85	0
Lane Group Flow (vph)	145	441	9	211	503	0	355	208	0	24	36	0
Heavy Vehicles (%)	2%	6%	0%	0%	2%	0%	0%	0%	0%	0%	0%	0%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA		Perm	NA	
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases	4		4	8						6		
Actuated Green, G (s)	41.6	30.9	30.9	46.4	33.3		16.9	46.0		22.1	22.1	
Effective Green, g (s)	41.6	30.9	30.9	46.4	33.3		16.9	46.0		22.1	22.1	
Actuated g/C Ratio	0.39	0.29	0.29	0.43	0.31		0.16	0.43		0.21	0.21	
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	0.2	0.2	3.0	0.2		4.0	4.0		3.0	3.0	
Lane Grp Cap (vph)	391	983	466	446	1095		553	704		199	340	
v/s Ratio Prot	0.04	0.13		c0.06	0.14		c0.10	c0.13			0.02	
v/s Ratio Perm	0.11		0.01	c0.15						0.02		
v/c Ratio	0.37	0.45	0.02	0.47	0.46		0.64	0.30		0.12	0.11	
Uniform Delay, d1	21.9	31.1	27.2	19.8	29.6		42.2	19.9		34.5	34.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.6	1.5	0.1	0.8	1.4		2.8	0.3		1.2	0.6	
Delay (s)	22.5	32.6	27.3	20.6	31.0		45.1	20.2		35.8	35.1	
Level of Service	C	C	C	C	C		D	C		D	D	
Approach Delay (s)		29.9			27.9			31.4			35.2	
Approach LOS		C			C			C			D	

Intersection Summary

HCM 2000 Control Delay	30.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.48		
Actuated Cycle Length (s)	107.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	68.5%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
 15: Eighth Line South & Steeles Avenue

Scenario 1 - SAT Peak Hour
 Premier Gateway



Movement	EBT	EBR	WBL	WBT	NBL	NBR	
Lane Configurations	↑↑		↙	↑↑	↙	↗	
Traffic Volume (veh/h)	849	2	1	707	2	6	
Future Volume (Veh/h)	849	2	1	707	2	6	
Sign Control	Free			Free	Stop		
Grade	0%			0%	0%		
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93	
Hourly flow rate (vph)	913	2	1	760	2	6	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type	None		None				
Median storage (veh)							
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume			915		1296	458	
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol			915		1296	458	
tC, single (s)			4.1		6.8	6.9	
tC, 2 stage (s)							
tF (s)			2.2		3.5	3.3	
p0 queue free %			100		99	99	
cM capacity (veh/h)			754		156	556	
Direction, Lane #	EB 1	EB 2	WB 1	WB 2	WB 3	NB 1	NB 2
Volume Total	609	306	1	380	380	2	6
Volume Left	0	0	1	0	0	2	0
Volume Right	0	2	0	0	0	0	6
cSH	1700	1700	754	1700	1700	156	556
Volume to Capacity	0.36	0.18	0.00	0.22	0.22	0.01	0.01
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.3	0.3
Control Delay (s)	0.0	0.0	9.8	0.0	0.0	28.3	11.5
Lane LOS			A			D	B
Approach Delay (s)	0.0		0.0			15.7	
Approach LOS						C	
Intersection Summary							
Average Delay			0.1				
Intersection Capacity Utilization			33.5%	ICU Level of Service		A	
Analysis Period (min)			15				

Queues
16: Steeles Avenue & Ninth Line

Scenario 1 - SAT Peak Hour
Premier Gateway



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	127	765	622	305	318	109
v/c Ratio	0.34	0.47	0.52	0.41	0.45	0.16
Control Delay	16.3	19.2	28.9	4.8	25.2	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.3	19.2	28.9	4.8	25.2	4.5
Queue Length 50th (m)	13.4	53.8	53.3	0.0	47.2	0.0
Queue Length 95th (m)	24.0	70.3	72.6	18.5	72.2	10.6
Internal Link Dist (m)		501.4	674.5		3096.2	
Turn Bay Length (m)	65.0			75.0		
Base Capacity (vph)	391	1631	1193	741	703	690
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.47	0.52	0.41	0.45	0.16

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 16: Steeles Avenue & Ninth Line

Scenario 1 - SAT Peak Hour
 Premier Gateway



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	122	734	597	293	305	105
Future Volume (vph)	122	734	597	293	305	105
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	1.00	0.95	0.95	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1719	3471	3539	1599	1805	1599
Flt Permitted	0.29	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	518	3471	3539	1599	1805	1599
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	127	765	622	305	318	109
RTOR Reduction (vph)	0	0	0	202	0	66
Lane Group Flow (vph)	127	765	622	103	318	43
Heavy Vehicles (%)	5%	4%	2%	1%	0%	1%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	47.0	47.0	33.7	33.7	39.0	39.0
Effective Green, g (s)	47.0	47.0	33.7	33.7	39.0	39.0
Actuated g/C Ratio	0.47	0.47	0.34	0.34	0.39	0.39
Clearance Time (s)	4.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	0.2	0.2	0.2	3.0	3.0
Lane Grp Cap (vph)	355	1631	1192	538	703	623
v/s Ratio Prot	0.03	c0.22	c0.18		c0.18	
v/s Ratio Perm	0.13			0.06		0.03
v/c Ratio	0.36	0.47	0.52	0.19	0.45	0.07
Uniform Delay, d1	16.0	18.0	26.7	23.5	22.6	19.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	1.0	1.6	0.8	2.1	0.2
Delay (s)	16.6	19.0	28.3	24.3	24.7	19.3
Level of Service	B	B	C	C	C	B
Approach Delay (s)		18.6	27.0		23.3	
Approach LOS		B	C		C	

Intersection Summary

HCM 2000 Control Delay	23.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.49		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	55.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Queues
17: Ninth Line (South) & Steeles Avenue

Scenario 1 - SAT Peak Hour
Premier Gateway



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	903	214	108	746	212	155
v/c Ratio	0.75	0.31	0.37	0.46	0.33	0.23
Control Delay	28.2	4.1	13.6	15.3	23.0	5.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.2	4.1	13.6	15.3	23.0	5.0
Queue Length 50th (m)	69.7	0.0	8.7	40.8	25.3	0.0
Queue Length 95th (m)	92.4	13.5	16.4	54.0	51.6	13.7
Internal Link Dist (m)	674.5			176.7	143.5	
Turn Bay Length (m)		75.0	145.0		60.0	
Base Capacity (vph)	1943	991	312	2542	652	688
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.22	0.35	0.29	0.33	0.23
Intersection Summary						

HCM Signalized Intersection Capacity Analysis
 17: Ninth Line (South) & Steeles Avenue

Scenario 1 - SAT Peak Hour
 Premier Gateway



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑	↑	↓	↑↑	↓	↑
Traffic Volume (vph)	840	199	100	694	197	144
Future Volume (vph)	840	199	100	694	197	144
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	4.0	7.0	7.0	7.0
Lane Util. Factor	0.95	1.00	1.00	0.95	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	3505	1615	1787	3539	1787	1615
Flt Permitted	1.00	1.00	0.15	1.00	0.95	1.00
Satd. Flow (perm)	3505	1615	288	3539	1787	1615
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	903	214	108	746	212	155
RTOR Reduction (vph)	0	141	0	0	0	99
Lane Group Flow (vph)	903	73	108	746	212	56
Heavy Vehicles (%)	3%	0%	1%	2%	1%	0%
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	27.7	27.7	38.0	38.0	29.5	29.5
Effective Green, g (s)	27.7	27.7	38.0	38.0	29.5	29.5
Actuated g/C Ratio	0.34	0.34	0.47	0.47	0.36	0.36
Clearance Time (s)	7.0	7.0	4.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1191	548	250	1650	646	584
v/s Ratio Prot	c0.26		0.03	c0.21	c0.12	
v/s Ratio Perm		0.05	0.17			0.03
v/c Ratio	0.76	0.13	0.43	0.45	0.33	0.10
Uniform Delay, d1	23.9	18.6	14.3	14.7	18.8	17.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.8	0.1	1.2	0.2	1.4	0.3
Delay (s)	26.7	18.7	15.5	14.9	20.2	17.5
Level of Service	C	B	B	B	C	B
Approach Delay (s)	25.2			15.0	19.1	
Approach LOS	C			B	B	

Intersection Summary			
HCM 2000 Control Delay	20.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	81.5	Sum of lost time (s)	18.0
Intersection Capacity Utilization	55.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues

18: James Snow Parkway & Hwy 401 (Westbound Ramp)



Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	703	258	469	757
v/c Ratio	0.70	0.46	0.31	0.48
Control Delay	24.4	7.2	13.1	14.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	24.4	7.2	13.1	14.9
Queue Length 50th (m)	40.1	3.8	19.1	33.9
Queue Length 95th (m)	56.3	20.4	34.4	57.3
Internal Link Dist (m)	390.4		415.8	504.8
Turn Bay Length (m)				
Base Capacity (vph)	1555	744	1523	1568
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.45	0.35	0.31	0.48

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 18: James Snow Parkway & Hwy 401 (Westbound Ramp)

Scenario 1 - SAT Peak Hour

Premier Gateway



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔↔	↔	↑↑			↑↑
Traffic Volume (vph)	654	278	455	0	0	734
Future Volume (vph)	654	278	455	0	0	734
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.2	8.2	9.3			9.3
Lane Util. Factor	0.97	0.91	0.95			0.95
Frt	0.99	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3488	1400	3438			3539
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3488	1400	3438			3539
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	674	287	469	0	0	757
RTOR Reduction (vph)	5	157	0	0	0	0
Lane Group Flow (vph)	698	101	469	0	0	757
Heavy Vehicles (%)	0%	5%	5%	0%	0%	2%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	18.6	18.6	28.8			28.8
Effective Green, g (s)	18.6	18.6	28.8			28.8
Actuated g/C Ratio	0.29	0.29	0.44			0.44
Clearance Time (s)	8.2	8.2	9.3			9.3
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	999	401	1525			1570
v/s Ratio Prot	c0.20		0.14			c0.21
v/s Ratio Perm		0.07				
v/c Ratio	0.70	0.25	0.31			0.48
Uniform Delay, d1	20.7	17.8	11.6			12.8
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	2.2	0.3	0.5			1.1
Delay (s)	22.8	18.1	12.2			13.8
Level of Service	C	B	B			B
Approach Delay (s)	21.6		12.2			13.8
Approach LOS	C		B			B

Intersection Summary

HCM 2000 Control Delay	16.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	64.9	Sum of lost time (s)	17.5
Intersection Capacity Utilization	56.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Queues

19: James Snow Parkway & Hwy 401 (Eastbound Ramp)



Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	137	65	515	1176
v/c Ratio	0.28	0.24	0.20	0.45
Control Delay	17.4	10.3	4.4	5.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	17.4	10.3	4.4	5.9
Queue Length 50th (m)	4.6	0.0	12.2	35.6
Queue Length 95th (m)	12.0	10.7	18.0	48.4
Internal Link Dist (m)	305.5		1282.4	415.8
Turn Bay Length (m)				
Base Capacity (vph)	784	411	2584	2610
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.17	0.16	0.20	0.45

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 19: James Snow Parkway & Hwy 401 (Eastbound Ramp)

Scenario 1 - SAT Peak Hour

Premier Gateway



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	76	124	0	510	1164	0
Future Volume (vph)	76	124	0	510	1164	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		7.4	7.4	
Lane Util. Factor	0.97	0.91		0.95	0.95	
Frt	0.93	0.85		1.00	1.00	
Flt Protected	0.97	1.00		1.00	1.00	
Satd. Flow (prot)	2996	1470		3539	3574	
Flt Permitted	0.97	1.00		1.00	1.00	
Satd. Flow (perm)	2996	1470		3539	3574	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	77	125	0	515	1176	0
RTOR Reduction (vph)	53	58	0	0	0	0
Lane Group Flow (vph)	84	7	0	515	1176	0
Heavy Vehicles (%)	21%	0%	0%	2%	1%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	8.0	8.0		48.9	48.9	
Effective Green, g (s)	8.0	8.0		48.9	48.9	
Actuated g/C Ratio	0.11	0.11		0.70	0.70	
Clearance Time (s)	6.0	6.0		7.4	7.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	340	167		2461	2486	
v/s Ratio Prot	c0.03			0.15	c0.33	
v/s Ratio Perm		0.01				
v/c Ratio	0.25	0.04		0.21	0.47	
Uniform Delay, d1	28.4	27.7		3.8	4.9	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	0.1		0.2	0.6	
Delay (s)	28.8	27.9		4.0	5.5	
Level of Service	C	C		A	A	
Approach Delay (s)	28.5			4.0	5.5	
Approach LOS	C			A	A	

Intersection Summary

HCM 2000 Control Delay	7.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	70.3	Sum of lost time (s)	13.4
Intersection Capacity Utilization	56.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Queues
 20: Trafalgar Road & Hwy 401 (Westbound Ramp)

Scenario 1 - SAT Peak Hour
 Premier Gateway



Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	542	393	1084	1500
v/c Ratio	0.58	0.87	0.50	0.70
Control Delay	30.7	48.8	13.9	17.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	30.7	48.8	13.9	17.9
Queue Length 50th (m)	45.4	74.3	67.0	112.3
Queue Length 95th (m)	62.0	117.5	107.6	178.0
Internal Link Dist (m)	383.1		312.7	749.5
Turn Bay Length (m)				
Base Capacity (vph)	1281	610	2169	2149
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.42	0.64	0.50	0.70
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
 20: Trafalgar Road & Hwy 401 (Westbound Ramp)

Scenario 1 - SAT Peak Hour

Premier Gateway



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔↔	↗	↕↕			↕↕
Traffic Volume (vph)	145	771	1062	0	0	1470
Future Volume (vph)	145	771	1062	0	0	1470
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0			6.0
Lane Util. Factor	0.97	0.91	0.95			0.95
Frt	0.89	0.85	1.00			1.00
Flt Protected	0.99	1.00	1.00			1.00
Satd. Flow (prot)	3159	1441	3539			3505
Flt Permitted	0.99	1.00	1.00			1.00
Satd. Flow (perm)	3159	1441	3539			3505
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	148	787	1084	0	0	1500
RTOR Reduction (vph)	57	57	0	0	0	0
Lane Group Flow (vph)	485	336	1084	0	0	1500
Heavy Vehicles (%)	4%	2%	2%	0%	0%	3%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	29.8	29.8	66.4			66.4
Effective Green, g (s)	29.8	29.8	66.4			66.4
Actuated g/C Ratio	0.28	0.28	0.61			0.61
Clearance Time (s)	6.0	6.0	6.0			6.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	870	396	2171			2150
v/s Ratio Prot	0.15		0.31			c0.43
v/s Ratio Perm		c0.23				
v/c Ratio	0.56	0.85	0.50			0.70
Uniform Delay, d1	33.6	37.1	11.6			14.1
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	0.8	15.4	0.8			1.9
Delay (s)	34.3	52.4	12.5			16.0
Level of Service	C	D	B			B
Approach Delay (s)	41.9		12.5			16.0
Approach LOS	D		B			B

Intersection Summary			
HCM 2000 Control Delay		21.8	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio		0.74	
Actuated Cycle Length (s)		108.2	Sum of lost time (s) 12.0
Intersection Capacity Utilization		71.2%	ICU Level of Service C
Analysis Period (min)		15	
c Critical Lane Group			

Queues
 21: Trafalgar Road & Hwy 401 (Eastbound Ramp)

Scenario 1 - SAT Peak Hour
 Premier Gateway



Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	403	183	1529	807
v/c Ratio	0.72	0.48	0.59	0.31
Control Delay	49.7	10.3	8.4	5.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	49.7	10.3	8.4	5.6
Queue Length 50th (m)	43.3	0.0	73.2	28.1
Queue Length 95th (m)	60.1	21.2	113.9	45.1
Internal Link Dist (m)	204.3		1138.2	312.7
Turn Bay Length (m)				
Base Capacity (vph)	797	468	2571	2621
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.51	0.39	0.59	0.31
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
 21: Trafalgar Road & Hwy 401 (Eastbound Ramp)

Scenario 1 - SAT Peak Hour
 Premier Gateway



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	298	241	0	1407	742	0
Future Volume (vph)	298	241	0	1407	742	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		6.0	6.0	
Lane Util. Factor	0.97	0.91		0.95	0.95	
Frt	0.97	0.85		1.00	1.00	
Flt Protected	0.96	1.00		1.00	1.00	
Satd. Flow (prot)	3359	1413		3471	3539	
Flt Permitted	0.96	1.00		1.00	1.00	
Satd. Flow (perm)	3359	1413		3471	3539	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	324	262	0	1529	807	0
RTOR Reduction (vph)	19	153	0	0	0	0
Lane Group Flow (vph)	384	30	0	1529	807	0
Heavy Vehicles (%)	2%	4%	0%	4%	2%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	18.1	18.1		83.1	83.1	
Effective Green, g (s)	18.1	18.1		83.1	83.1	
Actuated g/C Ratio	0.16	0.16		0.74	0.74	
Clearance Time (s)	5.0	5.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	541	227		2570	2621	
v/s Ratio Prot	c0.11			c0.44	0.23	
v/s Ratio Perm		0.02				
v/c Ratio	0.71	0.13		0.59	0.31	
Uniform Delay, d1	44.6	40.3		6.7	4.9	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.2	0.3		1.0	0.3	
Delay (s)	48.8	40.6		7.8	5.2	
Level of Service	D	D		A	A	
Approach Delay (s)	46.2			7.8	5.2	
Approach LOS	D			A	A	

Intersection Summary

HCM 2000 Control Delay	14.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	112.2	Sum of lost time (s)	11.0
Intersection Capacity Utilization	71.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Queues

22: Winston Churchill Boulevard & Hwy 401 (Westbound Ramp)



Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	731	271	718	880
v/c Ratio	0.84	0.54	0.33	0.41
Control Delay	50.5	12.1	11.7	12.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	50.5	12.1	11.7	12.6
Queue Length 50th (m)	85.0	9.7	41.8	54.6
Queue Length 95th (m)	108.1	37.5	57.4	73.5
Internal Link Dist (m)	284.7		32.1	320.2
Turn Bay Length (m)				
Base Capacity (vph)	998	546	2175	2154
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.73	0.50	0.33	0.41

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 22: Winston Churchill Boulevard & Hwy 401 (Westbound Ramp)

Scenario 1 - SAT Peak Hour

Premier Gateway



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	680	292	696	0	0	854
Future Volume (vph)	680	292	696	0	0	854
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	8.0			8.0
Lane Util. Factor	0.97	0.91	0.95			0.95
Frt	0.99	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3383	1324	3539			3505
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3383	1324	3539			3505
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	701	301	718	0	0	880
RTOR Reduction (vph)	3	166	0	0	0	0
Lane Group Flow (vph)	728	105	718	0	0	880
Heavy Vehicles (%)	3%	11%	2%	0%	0%	3%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	29.5	29.5	71.1			71.1
Effective Green, g (s)	29.5	29.5	71.1			71.1
Actuated g/C Ratio	0.26	0.26	0.62			0.62
Clearance Time (s)	7.0	7.0	8.0			8.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	863	337	2176			2155
v/s Ratio Prot	c0.22		0.20			c0.25
v/s Ratio Perm		0.08				
v/c Ratio	0.84	0.31	0.33			0.41
Uniform Delay, d1	40.9	34.8	10.7			11.4
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	7.6	0.5	0.4			0.6
Delay (s)	48.4	35.4	11.2			12.0
Level of Service	D	D	B			B
Approach Delay (s)	44.9		11.2			12.0
Approach LOS	D		B			B

Intersection Summary			
HCM 2000 Control Delay	24.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	115.6	Sum of lost time (s)	15.0
Intersection Capacity Utilization	93.3%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Queues

23: Winston Churchill Boulevard & Hwy 401 (Eastbound Ramp)



Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	354	168	845	1159
v/c Ratio	0.70	0.60	0.22	0.31
Control Delay	38.9	26.0	4.2	5.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	38.9	26.0	4.2	5.4
Queue Length 50th (m)	27.0	12.9	16.6	27.6
Queue Length 95th (m)	42.6	37.1	25.8	40.6
Internal Link Dist (m)	152.5		433.2	198.3
Turn Bay Length (m)				
Base Capacity (vph)	824	419	3896	3774
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.43	0.40	0.22	0.31

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 23: Winston Churchill Boulevard & Hwy 401 (Eastbound Ramp)

Scenario 1 - SAT Peak Hour
 Premier Gateway



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	207	305	0	828	1130	6
Future Volume (vph)	207	305	0	828	1130	6
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		4.5	7.0	
Lane Util. Factor	0.97	0.91		0.91	0.91	
Frt	0.94	0.85		1.00	1.00	
Flt Protected	0.97	1.00		1.00	1.00	
Satd. Flow (prot)	3215	1455		5136	5132	
Flt Permitted	0.97	1.00		1.00	1.00	
Satd. Flow (perm)	3215	1455		5136	5132	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	211	311	0	845	1153	6
RTOR Reduction (vph)	97	97	0	0	0	0
Lane Group Flow (vph)	257	71	0	845	1159	0
Heavy Vehicles (%)	7%	1%	0%	1%	1%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	13.8	13.8		82.6	80.1	
Effective Green, g (s)	13.8	13.8		82.6	80.1	
Actuated g/C Ratio	0.13	0.13		0.76	0.74	
Clearance Time (s)	8.0	8.0		4.5	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	407	184		3895	3774	
v/s Ratio Prot	c0.08			0.16	c0.23	
v/s Ratio Perm		0.05				
v/c Ratio	0.63	0.39		0.22	0.31	
Uniform Delay, d1	45.1	43.7		3.8	4.9	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.2	1.3		0.1	0.2	
Delay (s)	48.3	45.0		3.9	5.1	
Level of Service	D	D		A	A	
Approach Delay (s)	47.3			3.9	5.1	
Approach LOS	D			A	A	

Intersection Summary

HCM 2000 Control Delay	13.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.35		
Actuated Cycle Length (s)	108.9	Sum of lost time (s)	15.0
Intersection Capacity Utilization	84.3%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Queues

Scenario 1 - SAT Peak Hour

24: James Snow Parkway & Main Street East

Premier Gateway

Lane Group

Lane Group Flow (vph)

v/c Ratio

Control Delay

Queue Delay

Total Delay

Queue Length 50th (m)

Queue Length 95th (m)

Internal Link Dist (m)

Turn Bay Length (m)

Base Capacity (vph)

Starvation Cap Reductn

Spillback Cap Reductn





























Storage Cap Reductn

Reduced v/c Ratio

Intersection Summary

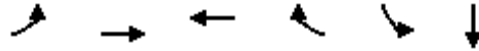
HCM Signalized Intersection Capacity Analysis
 24: James Snow Parkway & Main Street East

Scenario 1 - SAT Peak Hour
 Premier Gateway

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 		 	 	 			 			 	
Traffic Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Future Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)												
Lane Util. Factor												
Frt												
Flt Protected												
Satd. Flow (prot)												
Flt Permitted												
Satd. Flow (perm)												
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	3%	0%	3%	2%	2%	0%	1%
Turn Type	Perm		Perm	Perm			Perm			Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		6
Actuated Green, G (s)												
Effective Green, g (s)												
Actuated g/C Ratio												
Clearance Time (s)												
Vehicle Extension (s)												
Lane Grp Cap (vph)												
v/s Ratio Prot												
v/s Ratio Perm												
v/c Ratio												
Uniform Delay, d1												
Progression Factor												
Incremental Delay, d2												
Delay (s)												
Level of Service												
Approach Delay (s)		0.0			0.0			0.0			0.0	
Approach LOS		A			A			A			A	
Intersection Summary												
HCM 2000 Control Delay		0.0			HCM 2000 Level of Service			A				
HCM 2000 Volume to Capacity ratio		0.00										
Actuated Cycle Length (s)		37.5			Sum of lost time (s)			9.0				
Intersection Capacity Utilization		0.0%			ICU Level of Service			A				
Analysis Period (min)		15										
c Critical Lane Group												

Queues
25: Street B & Steeles Avenue

Scenario 1 - SAT Peak Hour
Premier Gateway



Lane Group	EBL	EBT	WBT	WBR	SBL	SBT
Lane Group Flow (vph)	16	479	519	11	46	30
v/c Ratio	0.07	0.54	0.56	0.02	0.08	0.04
Control Delay	11.3	15.2	15.2	0.1	8.6	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.3	15.2	15.2	0.1	8.6	0.1
Queue Length 50th (m)	0.9	15.8	17.2	0.0	1.9	0.0
Queue Length 95th (m)	3.9	26.1	27.8	0.0	7.1	0.0
Internal Link Dist (m)		388.7	443.0			311.5
Turn Bay Length (m)	50.0			30.0	30.0	
Base Capacity (vph)	349	1356	1430	678	586	753
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.05	0.35	0.36	0.02	0.08	0.04
Intersection Summary						

HCM Signalized Intersection Capacity Analysis
25: Street B & Steeles Avenue

Scenario 1 - SAT Peak Hour
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↗↗	↘	↘	↗↗	↘	↘	↗	↘	↘	↗	↗
Traffic Volume (vph)	15	460	0	0	498	11	0	0	0	44	0	29
Future Volume (vph)	15	460	0	0	498	11	0	0	0	44	0	29
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0	6.0				6.0	6.0	
Lane Util. Factor	1.00	0.95			0.95	1.00				1.00	1.00	
Frt	1.00	1.00			1.00	0.85				1.00	0.85	
Flt Protected	0.95	1.00			1.00	1.00				0.95	1.00	
Satd. Flow (prot)	1671	3139			3312	1482				1703	1509	
Flt Permitted	0.46	1.00			1.00	1.00				0.76	1.00	
Satd. Flow (perm)	809	3139			3312	1482				1357	1509	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	16	479	0	0	519	11	0	0	0	46	0	30
RTOR Reduction (vph)	0	0	0	0	0	8	0	0	0	0	17	0
Lane Group Flow (vph)	16	479	0	0	519	3	0	0	0	46	13	0
Heavy Vehicles (%)	8%	15%	5%	5%	9%	9%	5%	5%	5%	6%	5%	7%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm		Perm	Perm	NA	
Protected Phases		4			8			2				6
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)	11.7	11.7			11.7	11.7				18.1	18.1	
Effective Green, g (s)	11.7	11.7			11.7	11.7				18.1	18.1	
Actuated g/C Ratio	0.28	0.28			0.28	0.28				0.43	0.43	
Clearance Time (s)	6.0	6.0			6.0	6.0				6.0	6.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0				3.0	3.0	
Lane Grp Cap (vph)	226	878			927	414				587	653	
v/s Ratio Prot		0.15			c0.16							0.01
v/s Ratio Perm	0.02					0.00				c0.03		
v/c Ratio	0.07	0.55			0.56	0.01				0.08	0.02	
Uniform Delay, d1	11.1	12.8			12.9	10.9				7.0	6.8	
Progression Factor	1.00	1.00			1.00	1.00				1.00	1.00	
Incremental Delay, d2	0.1	0.7			0.7	0.0				0.3	0.1	
Delay (s)	11.2	13.5			13.6	10.9				7.2	6.8	
Level of Service	B	B			B	B				A	A	
Approach Delay (s)		13.4			13.5			0.0			7.1	
Approach LOS		B			B			A			A	

Intersection Summary

HCM 2000 Control Delay	13.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.27		
Actuated Cycle Length (s)	41.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	27.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
 26: Hornby Road & Street A

Scenario 1 - SAT Peak Hour
 Premier Gateway



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Right Turn Channelized						
Traffic Volume (veh/h)	14	0	0	43	111	4
Future Volume (veh/h)	14	0	0	43	111	4
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	15	0	0	45	116	4
Approach Volume (veh/h)	15			45	120	
Crossing Volume (veh/h)	116			15	0	
High Capacity (veh/h)	1265			1369	1385	
High v/c (veh/h)	0.01			0.03	0.09	
Low Capacity (veh/h)	1052			1147	1161	
Low v/c (veh/h)	0.01			0.04	0.10	
Intersection Summary						
Maximum v/c High			0.09			
Maximum v/c Low			0.10			
Intersection Capacity Utilization			16.1%		ICU Level of Service	A

Queues
27: Trafalgar Road & Street B

Scenario 1 - SAT Peak Hour
Premier Gateway



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	17	63	39	32	11	661	8	4	588	4
v/c Ratio	0.03	0.09	0.07	0.05	0.05	0.63	0.02	0.02	0.55	0.01
Control Delay	9.3	5.4	9.5	6.5	10.8	16.0	0.0	10.2	14.9	0.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.3	5.4	9.5	6.5	10.8	16.0	0.0	10.2	14.9	0.0
Queue Length 50th (m)	0.7	0.9	1.7	0.6	0.6	23.9	0.0	0.2	20.7	0.0
Queue Length 95th (m)	4.0	6.8	6.9	4.8	3.1	36.6	0.0	1.7	32.0	0.0
Internal Link Dist (m)		260.1		649.3		221.2			63.9	
Turn Bay Length (m)	50.0		50.0		50.0		50.0	50.0		50.0
Base Capacity (vph)	559	714	550	701	307	1459	690	275	1473	690
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	0.03	0.09	0.07	0.05	0.04	0.45	0.01	0.01	0.40	0.01

Intersection Summary

HCM Signalized Intersection Capacity Analysis
27: Trafalgar Road & Street B

Scenario 1 - SAT Peak Hour
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	16	19	41	37	13	17	11	635	8	4	564	4
Future Volume (vph)	16	19	41	37	13	17	11	635	8	4	564	4
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.95	1.00	1.00	0.95	1.00
Frt	1.00	0.90		1.00	0.92		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)	1703	1624		1719	1628		1656	3438	1538	1719	3471	1538
Flt Permitted	0.74	1.00		0.72	1.00		0.42	1.00	1.00	0.36	1.00	1.00
Satd. Flow (perm)	1320	1624		1296	1628		725	3438	1538	649	3471	1538
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	17	20	43	39	14	18	11	661	8	4	588	4
RTOR Reduction (vph)	0	25	0	0	10	0	0	0	6	0	0	3
Lane Group Flow (vph)	17	38	0	39	22	0	11	661	2	4	588	1
Heavy Vehicles (%)	6%	5%	5%	5%	8%	6%	9%	5%	5%	5%	4%	5%
Turn Type	Perm	NA		Perm	NA		Perm	NA	Perm	Perm	NA	Perm
Protected Phases		2			6			8				4
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	19.1	19.1		19.1	19.1		13.8	13.8	13.8	13.8	13.8	13.8
Effective Green, g (s)	19.1	19.1		19.1	19.1		13.8	13.8	13.8	13.8	13.8	13.8
Actuated g/C Ratio	0.43	0.43		0.43	0.43		0.31	0.31	0.31	0.31	0.31	0.31
Clearance Time (s)	6.0	6.0		6.0	6.0		6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	561	690		551	692		222	1056	472	199	1066	472
v/s Ratio Prot		0.02			0.01			c0.19				0.17
v/s Ratio Perm	0.01			c0.03			0.02		0.00	0.01		0.00
v/c Ratio	0.03	0.06		0.07	0.03		0.05	0.63	0.01	0.02	0.55	0.00
Uniform Delay, d1	7.5	7.6		7.6	7.5		10.9	13.3	10.8	10.8	13.0	10.8
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.2		0.2	0.1		0.1	1.2	0.0	0.0	0.6	0.0
Delay (s)	7.6	7.7		7.9	7.6		11.0	14.5	10.8	10.9	13.6	10.8
Level of Service	A	A		A	A		B	B	B	B	B	B
Approach Delay (s)		7.7			7.8			14.4			13.6	
Approach LOS		A			A			B			B	

Intersection Summary

HCM 2000 Control Delay	13.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	44.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	36.3%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
28: Eighth Line & Street B

Scenario 1 - SAT Peak Hour
Premier Gateway



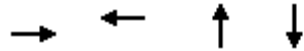
Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (veh/h)	16	6	3	206	119	4
Future Volume (Veh/h)	16	6	3	206	119	4
Sign Control	Stop			Free	Free	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	17	6	3	215	124	4
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type				None	None	
Median storage veh						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	347	126	128			
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	347	126	128			
tC, single (s)	6.5	6.2	4.1			
tC, 2 stage (s)						
tF (s)	3.6	3.3	2.2			
p0 queue free %	97	99	100			
cM capacity (veh/h)	641	916	1440			
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	SB 1	
Volume Total	17	6	3	215	128	
Volume Left	17	0	3	0	0	
Volume Right	0	6	0	0	4	
cSH	641	916	1440	1700	1700	
Volume to Capacity	0.03	0.01	0.00	0.13	0.08	
Queue Length 95th (m)	0.7	0.2	0.1	0.0	0.0	
Control Delay (s)	10.8	9.0	7.5	0.0	0.0	
Lane LOS	B	A	A			
Approach Delay (s)	10.3		0.1		0.0	
Approach LOS	B					
Intersection Summary						
Average Delay			0.7			
Intersection Capacity Utilization			20.8%	ICU Level of Service		A
Analysis Period (min)			15			

Appendix F

2021 Traffic with Remedial Measures Operations Reports and Signal Warrant Analysis



4: Eighth Line & 5 Side Road



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	448	196	126	624
v/c Ratio	0.69	0.35	0.16	0.77
Control Delay	20.3	13.2	7.0	19.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	20.3	13.2	7.0	19.7
Queue Length 50th (m)	34.0	12.2	4.9	43.8
Queue Length 95th (m)	#63.7	25.4	12.2	#95.8
Internal Link Dist (m)	619.4	644.7	2565.8	430.5
Turn Bay Length (m)				
Base Capacity (vph)	653	568	812	810
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.69	0.35	0.16	0.77

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

4: Eighth Line & 5 Side Road

Scenario 1 - AM Peak Hour
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	26	395	10	40	134	13	1	93	27	70	457	72
Future Volume (vph)	26	395	10	40	134	13	1	93	27	70	457	72
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	
Lane Util. Factor		1.00			1.00			1.00			1.00	
Frt		1.00			0.99			0.97			0.98	
Flt Protected		1.00			0.99			1.00			0.99	
Satd. Flow (prot)		1842			1753			1746			1828	
Flt Permitted		0.98			0.88			1.00			0.95	
Satd. Flow (perm)		1802			1555			1741			1749	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	27	411	10	42	140	14	1	97	28	73	476	75
RTOR Reduction (vph)	0	2	0	0	6	0	0	15	0	0	10	0
Lane Group Flow (vph)	0	446	0	0	190	0	0	111	0	0	614	0
Heavy Vehicles (%)	8%	2%	10%	13%	4%	8%	0%	4%	11%	0%	2%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		18.1			18.1			22.9			22.9	
Effective Green, g (s)		18.1			18.1			22.9			22.9	
Actuated g/C Ratio		0.36			0.36			0.46			0.46	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Lane Grp Cap (vph)		652			562			797			801	
v/s Ratio Prot												
v/s Ratio Perm		c0.25			0.12			0.06			c0.35	
v/c Ratio		0.68			0.34			0.14			0.77	
Uniform Delay, d1		13.5			11.6			7.8			11.3	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		5.7			1.6			0.4			6.9	
Delay (s)		19.3			13.2			8.2			18.3	
Level of Service		B			B			A			B	
Approach Delay (s)		19.3			13.2			8.2			18.3	
Approach LOS		B			B			A			B	

Intersection Summary

HCM 2000 Control Delay	17.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	50.0	Sum of lost time (s)	9.0
Intersection Capacity Utilization	70.9%	ICU Level of Service	C
Analysis Period (min)	15		

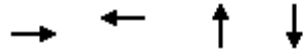
c Critical Lane Group

Queues

Scenario 1 - PM Peak Hour

4: Eighth Line & 5 Side Road

Premier Gateway



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	267	652	480	197
v/c Ratio	0.39	0.79	0.72	0.31
Control Delay	10.4	20.8	20.9	10.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	10.4	20.8	20.9	10.9
Queue Length 50th (m)	13.9	47.1	35.7	10.4
Queue Length 95th (m)	28.3	#100.7	#75.3	22.5
Internal Link Dist (m)	619.4	644.7	2565.8	430.5
Turn Bay Length (m)				
Base Capacity (vph)	693	826	670	645
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.39	0.79	0.72	0.31

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

4: Eighth Line & 5 Side Road

Scenario 1 - PM Peak Hour
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↕			↕			↕			↕		
Traffic Volume (vph)	50	168	38	23	528	75	4	400	57	19	129	41	
Future Volume (vph)	50	168	38	23	528	75	4	400	57	19	129	41	
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		
Lane Util. Factor		1.00			1.00			1.00			1.00		
Frt		0.98			0.98			0.98			0.97		
Flt Protected		0.99			1.00			1.00			0.99		
Satd. Flow (prot)		1763			1840			1788			1790		
Flt Permitted		0.85			0.98			1.00			0.94		
Satd. Flow (perm)		1511			1814			1785			1690		
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Adj. Flow (vph)	52	175	40	24	550	78	4	417	59	20	134	43	
RTOR Reduction (vph)	0	13	0	0	10	0	0	10	0	0	20	0	
Lane Group Flow (vph)	0	254	0	0	642	0	0	470	0	0	177	0	
Heavy Vehicles (%)	5%	5%	2%	12%	1%	1%	0%	4%	8%	0%	3%	2%	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA		
Protected Phases		4			8			2			6		
Permitted Phases	4			8			2			6			
Actuated Green, G (s)		22.5			22.5			18.5			18.5		
Effective Green, g (s)		22.5			22.5			18.5			18.5		
Actuated g/C Ratio		0.45			0.45			0.37			0.37		
Clearance Time (s)		4.5			4.5			4.5			4.5		
Lane Grp Cap (vph)		679			816			660			625		
v/s Ratio Prot													
v/s Ratio Perm		0.17			0.35			0.26			0.10		
v/c Ratio		0.37			0.79			0.71			0.28		
Uniform Delay, d1		9.1			11.7			13.5			11.1		
Progression Factor		1.00			1.00			1.00			1.00		
Incremental Delay, d2		1.6			7.6			6.4			1.1		
Delay (s)		10.7			19.3			19.9			12.2		
Level of Service		B			B			B			B		
Approach Delay (s)		10.7			19.3			19.9			12.2		
Approach LOS		B			B			B			B		
Intersection Summary													
HCM 2000 Control Delay			17.1									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.75										
Actuated Cycle Length (s)			50.0									Sum of lost time (s)	9.0
Intersection Capacity Utilization			68.0%									ICU Level of Service	C
Analysis Period (min)			15										

c Critical Lane Group

**Signal Justification Calculation for Forecasted Volumes
(OTM Book 12 - Justification 7)**



Horizon Year: 2021 (Total Traffic)
 Region/City/Township: Town of Halton Hills - Halton Region

Major Street: 5 Sideroad
 Minor Street: Fifth Line

North/South?: N

Number of Approach Lanes: 1
 Tee Intersection?: N
 Flow Conditions: Restricted
 PM Forecast Only? N

Warrant Results		
150% Satisfied	No	Justification for new intersections with forecast traffic
120% Satisfied	No	Justification for existing intersections with forecast traffic

Time Period	Major Street 5 Sideroad						Minor Street Fifth Line						Peds Crossing
	Eastbound			Westbound			Northbound			Southbound			
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
AM Peak Hour	11	644	12	24	180	3	4	21	20	39	49	27	
PM Peak Hour	37	216	4	20	528	26	6	41	23	1	28	13	
Average Hourly Volume	12	215	4	11	177	7	3	16	11	10	19	10	0

Warrant	AHV
1A - All	494
1B - Minor	68
2A - Major	426
2B - Cross	32

Warrant 1 - Minimum Vehicular Volume

Warrant	Approach Lanes	1		2 or more		Average Hourly Volume
		Free	Restricted	Free	Restricted	
1A	Flow Conditions		X			494
	All Approaches	480	720	600	900	494
		% Fulfilled				68.6%
1B	Flow Conditions		X			68
	Minor Street Approaches	120	170	120	170	68
		% Fulfilled				40.0%

Warrant 2 - Delay To Cross Traffic

Warrant	Approach Lanes	1		2 or more		Average Hourly Volume
		Free	Restricted	Free	Restricted	
2A	Flow Conditions		X			426
	Major Street Approaches	480	720	600	900	426
		% Fulfilled				59.2%
2B	Flow Conditions		X			32
	Traffic Crossing Major Street	50	75	50	75	32
		% Fulfilled				42.3%

**Signal Justification Calculation for Forecasted Volumes
(OTM Book 12 - Justification 7)**



Horizon Year: 2021 (Total Traffic)
 Region/City/Township: Town of Halton Hills - Halton Region

Major Street: 5 Sideroad
 Minor Street: Eighth Line

North/South?: N

Number of Approach Lanes: 1
 Tee Intersection?: N
 Flow Conditions: Restricted
 PM Forecast Only? N

Warrant Results		
150% Satisfied	No	Justification for new intersections with forecast traffic
120% Satisfied	No	Justification for existing intersections with forecast traffic

Time Period	Major Street 5 Sideroad						Minor Street Eighth Line						Peds Crossing
	Eastbound			Westbound			Northbound			Southbound			
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
AM Peak Hour	26	395	10	40	134	13	1	93	27	70	457	72	
PM Peak Hour	50	168	38	23	528	75	4	389	57	19	120	41	
Average Hourly Volume	19	141	12	16	166	22	1	121	21	22	144	28	0

Warrant	AHV
1A - All	713
1B - Minor	338
2A - Major	375
2B - Cross	168

Warrant 1 - Minimum Vehicular Volume

Warrant	Approach Lanes	1		2 or more		Average Hourly Volume
		Free	Restricted	Free	Restricted	
1A	Flow Conditions		X			713
	All Approaches	480	720	600	900	% Fulfilled 99.0%
1B	Flow Conditions		X			338
	Minor Street Approaches	120	170	120	170	% Fulfilled 198.5%

Warrant 2 - Delay To Cross Traffic

Warrant	Approach Lanes	1		2 or more		Average Hourly Volume
		Free	Restricted	Free	Restricted	
2A	Flow Conditions		X			375
	Major Street Approaches	480	720	600	900	% Fulfilled 52.1%
2B	Flow Conditions		X			168
	Traffic Crossing Major Street	50	75	50	75	% Fulfilled 223.7%

**Signal Justification Calculation for Forecasted Volumes
(OTM Book 12 - Justification 7)**



Horizon Year: 2021 (Total Traffic)
 Region/City/Township: Town of Halton Hills - Halton Region

Major Street: 5 Sideroad
 Minor Street: Sixth Line

North/South?: N

Number of Approach Lanes: 1
 Tee Intersection?: N
 Flow Conditions: Restricted
 PM Forecast Only? N

Warrant Results		
150% Satisfied	No	Justification for new intersections with forecast traffic
120% Satisfied	No	Justification for existing intersections with forecast traffic

Time Period	Major Street 5 Sideroad						Minor Street Sixth Line						Peds Crossing
	Eastbound			Westbound			Northbound			Southbound			
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
AM Peak Hour	8	678	1	9	192	3	1	10	32	21	18	17	
PM Peak Hour	3	231	2	17	582	23	8	28	15	6	14	6	
Average Hourly Volume	3	227	1	7	194	7	2	10	12	7	8	6	0

Warrant	AHV
1A - All	481
1B - Minor	44
2A - Major	437
2B - Cross	19

Warrant 1 - Minimum Vehicular Volume

Warrant	Approach Lanes	1		2 or more		Average Hourly Volume
		Free	Restricted	Free	Restricted	
1A	Flow Conditions		X			481
	All Approaches	480	720	600	900	
		% Fulfilled				
1B	Flow Conditions		X			44
	Minor Street Approaches	120	170	120	170	
		% Fulfilled				

Warrant 2 - Delay To Cross Traffic

Warrant	Approach Lanes	1		2 or more		Average Hourly Volume
		Free	Restricted	Free	Restricted	
2A	Flow Conditions		X			437
	Major Street Approaches	480	720	600	900	
		% Fulfilled				
2B	Flow Conditions		X			19
	Traffic Crossing Major Street	50	75	50	75	
		% Fulfilled				

**Signal Justification Calculation for Forecasted Volumes
(OTM Book 12 - Justification 7)**



Horizon Year: 2021 (Total Traffic)
 Region/City/Township: Town of Halton Hills - Halton Region

Major Street: Eighth Line
 Minor Street: Street B

North/South?: Y

Number of Approach Lanes: 1
 Tee Intersection?: Y
 Flow Conditions: Restricted
 PM Forecast Only? N

Warrant Results		
150% Satisfied	No	Justification for new intersections with forecast traffic
120% Satisfied	No	Justification for existing intersections with forecast traffic

Time Period	Major Street Eighth Line						Minor Street Street B						Peds Crossing
	Northbound			Southbound			Eastbound			Westbound			
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
AM Peak Hour	21	109		404	28		5		3				
PM Peak Hour	6	420		102	7		28		11				
Average Hourly Volume	7	132	0	0	127	9	8	0	4	0	0	0	0

Warrant	AHV
1A - All	286
1B - Minor	12
2A - Major	274
2B - Cross	8

Warrant 1 - Minimum Vehicular Volume

Warrant	Approach Lanes	1		2 or more		Average Hourly Volume
		Free	Restricted	Free	Restricted	
1A	Flow Conditions		X			
	All Approaches	480	720	600	900	286
		% Fulfilled				39.7%
1B	Flow Conditions		X			
	Minor Street Approaches	180	255	180	255	12
		% Fulfilled				4.6%

Warrant 2 - Delay To Cross Traffic

Warrant	Approach Lanes	1		2 or more		Average Hourly Volume
		Free	Restricted	Free	Restricted	
2A	Flow Conditions		X			
	Major Street Approaches	480	720	600	900	274
		% Fulfilled				38.1%
2B	Flow Conditions		X			
	Traffic Crossing Major Street	50	75	50	75	8
		% Fulfilled				11.0%

**Signal Justification Calculation for Forecasted Volumes
(OTM Book 12 - Justification 7)**



Horizon Year: 2021 (Total Traffic)
 Region/City/Township: Town of Halton Hills - Halton Region

Major Street: Steeles Avenue
 Minor Street: Eighth Line South

North/South?: N

Number of Approach Lanes: 2 or more
 Tee Intersection?: Y
 Flow Conditions: Restricted
 PM Forecast Only? N

Warrant Results		
150% Satisfied	No	Justification for new intersections with forecast traffic
120% Satisfied	No	Justification for existing intersections with forecast traffic

Time Period	Major Street Steeles Avenue						Minor Street Eighth Line South						Peds Crossing
	Eastbound			Westbound			Northbound			Southbound			
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
AM Peak Hour		1134	1	1	579		1		0				
PM Peak Hour		961	2	1	1601		1		5				
Average Hourly Volume	0	524	1	1	545	0	1	0	1	0	0	0	0

Warrant	AHV
1A - All	1072
1B - Minor	2
2A - Major	1070
2B - Cross	1

Warrant 1 - Minimum Vehicular Volume

Warrant	Approach Lanes	1		2 or more		Average Hourly Volume
		Free	Restricted	Free	Restricted	
1A	Flow Conditions				X	1072
	All Approaches	480	720	600	900	119.1%
					% Fulfilled	119.1%
1B	Flow Conditions				X	2
	Minor Street Approaches	180	255	180	255	0.7%
					% Fulfilled	0.7%

Warrant 2 - Delay To Cross Traffic

Warrant	Approach Lanes	1		2 or more		Average Hourly Volume
		Free	Restricted	Free	Restricted	
2A	Flow Conditions				X	1070
	Major Street Approaches	480	720	600	900	118.9%
					% Fulfilled	118.9%
2B	Flow Conditions				X	1
	Traffic Crossing Major Street	50	75	50	75	0.7%
					% Fulfilled	0.7%

**Signal Justification Calculation for Forecasted Volumes
(OTM Book 12 - Justification 7)**



Horizon Year: 2021 (Total Traffic)
 Region/City/Township: Town of Halton Hills - Halton Region

Major Street: Steeles Avenue
 Minor Street: Hornby Road

North/South?: N

Number of Approach Lanes: 1
 Tee Intersection?: Y
 Flow Conditions: Restricted
 PM Forecast Only? N

Warrant Results		
150% Satisfied	No	Justification for new intersections with forecast traffic
120% Satisfied	No	Justification for existing intersections with forecast traffic

Time Period	Major Street Steeles Avenue						Minor Street Hornby Road						Peds Crossing	
	Eastbound			Westbound			Northbound			Southbound				
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right		
AM Peak Hour	15	838			606	16					6		32	
PM Peak Hour	32	904			1082	15					8		66	
Average Hourly Volume	12	436	0	0	422	8	0	0	0	4	0	25	0	

Warrant	AHV
1A - All	905
1B - Minor	28
2A - Major	877
2B - Cross	4

Warrant 1 - Minimum Vehicular Volume

Warrant	Approach Lanes	1		2 or more		Average Hourly Volume
		Free	Restricted	Free	Restricted	
1A	Flow Conditions		X			
	All Approaches	480	720	600	900	905
		% Fulfilled				125.7%
1B	Flow Conditions		X			
	Minor Street Approaches	180	255	180	255	28
		% Fulfilled				11.0%

Warrant 2 - Delay To Cross Traffic

Warrant	Approach Lanes	1		2 or more		Average Hourly Volume
		Free	Restricted	Free	Restricted	
2A	Flow Conditions		X			
	Major Street Approaches	480	720	600	900	877
		% Fulfilled				121.8%
2B	Flow Conditions		X			
	Traffic Crossing Major Street	50	75	50	75	4
		% Fulfilled				4.7%

**Signal Justification Calculation for Forecasted Volumes
(OTM Book 12 - Justification 7)**



Horizon Year: 2021 (Total Traffic)
 Region/City/Township: Town of Halton Hills - Halton Region

Major Street: Trafalgar Road
 Minor Street: Hornby Road

North/South?: Y

Number of Approach Lanes: 1
 Tee Intersection?: Y
 Flow Conditions: Restricted
 PM Forecast Only? N

Warrant Results		
150% Satisfied	No	Justification for new intersections with forecast traffic
120% Satisfied	No	Justification for existing intersections with forecast traffic

Time Period	Major Street Trafalgar Road						Minor Street Hornby Road						Peds Crossing
	Northbound			Southbound			Eastbound			Westbound			
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
AM Peak Hour	2	373			1343	63	30		6				
PM Peak Hour	3	995			489	77	67		6				
Average Hourly Volume	1	342	0	0	458	35	24	0	3	0	0	0	0

Warrant	AHV
1A - All	864
1B - Minor	27
2A - Major	836
2B - Cross	24

Warrant 1 - Minimum Vehicular Volume

Warrant	Approach Lanes	1		2 or more		Average Hourly Volume
		Free	Restricted	Free	Restricted	
1A	Flow Conditions		X			
	All Approaches	480	720	600	900	864
		% Fulfilled				119.9%
1B	Flow Conditions		X			
	Minor Street Approaches	180	255	180	255	27
		% Fulfilled				10.7%

Warrant 2 - Delay To Cross Traffic

Warrant	Approach Lanes	1		2 or more		Average Hourly Volume
		Free	Restricted	Free	Restricted	
2A	Flow Conditions		X			
	Major Street Approaches	480	720	600	900	836
		% Fulfilled				116.1%
2B	Flow Conditions		X			
	Traffic Crossing Major Street	50	75	50	75	24
		% Fulfilled				32.3%

















Appendix G

2031 Traffic Operations Reports



HCM Unsignalized Intersection Capacity Analysis
1: Fifth Line & 5 Side Road

Scenario 2 - AM Peak Hour
Premier Gateway

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	13	918	14	28	245	4	5	26	24	46	59	32
Future Volume (Veh/h)	13	918	14	28	245	4	5	26	24	46	59	32
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	14	956	15	29	255	4	5	27	25	48	61	33
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	259			971			1370	1308	964	1345	1314	257
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	259			971			1370	1308	964	1345	1314	257
tC, single (s)	4.2			4.2			7.3	6.7	6.3	7.2	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.3			2.3			3.7	4.2	3.4	3.6	4.0	3.3
p0 queue free %	99			96			93	81	92	48	59	96
cM capacity (veh/h)	1271			675			71	139	302	93	149	787
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	985	288	57	142								
Volume Left	14	29	5	48								
Volume Right	15	4	25	33								
cSH	1271	675	164	147								
Volume to Capacity	0.01	0.04	0.35	0.97								
Queue Length 95th (m)	0.3	1.1	11.5	56.0								
Control Delay (s)	0.3	1.5	38.1	125.5								
Lane LOS	A	A	E	F								
Approach Delay (s)	0.3	1.5	38.1	125.5								
Approach LOS			E	F								
Intersection Summary												
Average Delay			14.1									
Intersection Capacity Utilization			72.7%		ICU Level of Service				C			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

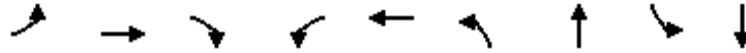
2: Sixth Line & 5 Side Road

Scenario 2 - AM Peak Hour
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	9	959	1	10	260	4	1	12	39	26	22	21
Future Volume (Veh/h)	9	959	1	10	260	4	1	12	39	26	22	21
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	9	999	1	10	271	4	1	13	41	27	23	22
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	275			1000			1344	1312	1000	1358	1311	273
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	275			1000			1344	1312	1000	1358	1311	273
tC, single (s)	4.2			4.1			7.1	6.5	6.4	7.2	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.0	3.4	3.6	4.0	3.3
p0 queue free %	99			99			99	92	85	71	85	97
cM capacity (veh/h)	1238			700			110	156	279	94	157	771
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	1009	285	55	72								
Volume Left	9	10	1	27								
Volume Right	1	4	41	22								
cSH	1238	700	230	156								
Volume to Capacity	0.01	0.01	0.24	0.46								
Queue Length 95th (m)	0.2	0.3	7.2	17.1								
Control Delay (s)	0.2	0.5	25.5	46.5								
Lane LOS	A	A	D	E								
Approach Delay (s)	0.2	0.5	25.5	46.5								
Approach LOS			D	E								
Intersection Summary												
Average Delay			3.6									
Intersection Capacity Utilization			71.2%		ICU Level of Service				C			
Analysis Period (min)			15									

Queues
3: Trafalgar Rd & 5 Side Road



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	64	449	523	142	172	62	533	36	1442
v/c Ratio	0.16	0.69	0.81	0.82	0.26	0.30	0.31	0.09	0.79
Control Delay	18.9	28.4	24.7	60.9	19.2	15.0	17.2	11.5	27.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.9	28.4	24.7	60.9	19.2	15.0	17.2	11.5	27.4
Queue Length 50th (m)	7.1	61.6	46.0	20.8	19.2	5.3	22.8	3.0	83.1
Queue Length 95th (m)	15.9	94.1	#92.8	#53.8	34.0	11.7	32.1	7.8	#105.3
Internal Link Dist (m)		593.5			641.2		240.1		238.0
Turn Bay Length (m)	40.0		40.0	40.0		40.0		50.0	
Base Capacity (vph)	485	777	731	207	778	205	1733	379	1816
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.58	0.72	0.69	0.22	0.30	0.31	0.09	0.79

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
3: Trafalgar Rd & 5 Side Road

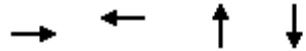
Scenario 2 - AM Peak Hour
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	440	513	139	159	10	61	457	66	35	1359	54
Future Volume (vph)	63	440	513	139	159	10	61	457	66	35	1359	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4	6.4	6.4	6.4		4.0	6.0		4.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1703	1863	1455	1570	1859		1444	4163		1399	4722	
Flt Permitted	0.65	1.00	1.00	0.30	1.00		0.12	1.00		0.44	1.00	
Satd. Flow (perm)	1162	1863	1455	495	1859		188	4163		653	4722	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	64	449	523	142	162	10	62	466	67	36	1387	55
RTOR Reduction (vph)	0	0	140	0	3	0	0	20	0	0	5	0
Lane Group Flow (vph)	64	449	383	142	169	0	62	513	0	36	1437	0
Heavy Vehicles (%)	6%	2%	11%	15%	1%	6%	25%	23%	17%	29%	9%	15%
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	27.4	27.4	27.4	27.4	27.4		37.6	32.3		34.8	30.9	
Effective Green, g (s)	27.4	27.4	27.4	27.4	27.4		37.6	32.3		34.8	30.9	
Actuated g/C Ratio	0.34	0.34	0.34	0.34	0.34		0.47	0.40		0.43	0.39	
Clearance Time (s)	6.4	6.4	6.4	6.4	6.4		4.0	6.0		4.0	6.0	
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0		3.0	5.0		3.0	5.0	
Lane Grp Cap (vph)	397	638	498	169	636		171	1680		320	1823	
v/s Ratio Prot		0.24			0.09		c0.02	0.12		0.01	c0.30	
v/s Ratio Perm	0.06		0.26	c0.29			0.15			0.04		
v/c Ratio	0.16	0.70	0.77	0.84	0.27		0.36	0.31		0.11	0.79	
Uniform Delay, d1	18.3	22.8	23.5	24.3	19.0		13.6	16.2		13.1	21.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	4.4	8.2	32.1	0.5		1.3	0.5		0.2	3.5	
Delay (s)	18.7	27.2	31.7	56.4	19.5		14.9	16.7		13.3	25.2	
Level of Service	B	C	C	E	B		B	B		B	C	
Approach Delay (s)		29.0			36.2			16.5			24.9	
Approach LOS		C			D			B			C	

Intersection Summary		
HCM 2000 Control Delay	25.7	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.77	
Actuated Cycle Length (s)	80.0	Sum of lost time (s) 16.4
Intersection Capacity Utilization	87.9%	ICU Level of Service E
Analysis Period (min)	15	
c Critical Lane Group		

4: Eighth Line & 5 Side Road



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	547	340	189	874
v/c Ratio	0.76	0.70	0.16	0.74
Control Delay	20.0	20.1	7.9	16.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	20.0	20.1	7.9	16.1
Queue Length 50th (m)	37.6	22.1	4.0	30.5
Queue Length 95th (m)	#73.7	#50.3	9.5	51.8
Internal Link Dist (m)	619.4	644.7	2565.8	430.5
Turn Bay Length (m)				
Base Capacity (vph)	927	631	1440	1452
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.59	0.54	0.13	0.60

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

4: Eighth Line & 5 Side Road

Scenario 2 - AM Peak Hour

Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	31	482	12	101	210	15	1	138	42	83	670	86
Future Volume (vph)	31	482	12	101	210	15	1	138	42	83	670	86
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	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frt		1.00			0.99			0.97			0.98	
Flt Protected		1.00			0.98			1.00			1.00	
Satd. Flow (prot)		1840			1646			3163			3372	
Flt Permitted		0.97			0.72			0.95			0.90	
Satd. Flow (perm)		1784			1210			3009			3051	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	32	502	12	105	219	16	1	144	44	86	698	90
RTOR Reduction (vph)	0	2	0	0	4	0	0	27	0	0	18	0
Lane Group Flow (vph)	0	545		0	336		0	162		0	856	
Heavy Vehicles (%)	10%	2%	8%	20%	10%	7%	0%	9%	14%	0%	6%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		17.3			17.3			16.4			16.4	
Effective Green, g (s)		17.3			17.3			16.4			16.4	
Actuated g/C Ratio		0.41			0.41			0.38			0.38	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		722			490			1155			1171	
v/s Ratio Prot												
v/s Ratio Perm		c0.31			0.28			0.05			c0.28	
v/c Ratio		0.76			0.69			0.14			0.73	
Uniform Delay, d1		10.9			10.5			8.6			11.3	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		4.5			4.0			0.1			2.4	
Delay (s)		15.4			14.4			8.6			13.6	
Level of Service		B			B			A			B	
Approach Delay (s)		15.4			14.4			8.6			13.6	
Approach LOS		B			B			A			B	

Intersection Summary

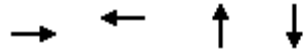
HCM 2000 Control Delay	13.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	42.7	Sum of lost time (s)	9.0
Intersection Capacity Utilization	89.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Queues

Scenario 2 - AM Peak Hour

5: Ninth Line & 5 Side Road

Premier Gateway



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	621	308	266	906
v/c Ratio	0.91	0.47	0.22	0.87
Control Delay	37.3	16.0	11.7	27.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	37.3	16.0	11.7	27.8
Queue Length 50th (m)	63.8	24.7	9.6	48.8
Queue Length 95th (m)	#123.7	44.2	16.8	#85.3
Internal Link Dist (m)	556.9	434.3	3096.2	305.9
Turn Bay Length (m)				
Base Capacity (vph)	717	685	1220	1043
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.87	0.45	0.22	0.87

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

5: Ninth Line & 5 Side Road

Scenario 2 - AM Peak Hour
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	31	535	24	1	276	15	6	232	15	332	496	33
Future Volume (vph)	31	535	24	1	276	15	6	232	15	332	496	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			6.0			6.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frt		0.99			0.99			0.99			0.99	
Flt Protected		1.00			1.00			1.00			0.98	
Satd. Flow (prot)		1807			1680			3187			3400	
Flt Permitted		0.97			1.00			0.93			0.74	
Satd. Flow (perm)		1753			1677			2976			2552	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	33	563	25	1	291	16	6	244	16	349	522	35
RTOR Reduction (vph)	0	2	0	0	3	0	0	8	0	0	5	0
Lane Group Flow (vph)	0	619	0	0	305	0	0	258	0	0	901	0
Heavy Vehicles (%)	10%	4%	4%	0%	13%	0%	50%	12%	0%	0%	6%	3%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		22.9			22.9			24.0			24.0	
Effective Green, g (s)		22.9			22.9			24.0			24.0	
Actuated g/C Ratio		0.39			0.39			0.41			0.41	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.5			3.5			5.5			5.5	
Lane Grp Cap (vph)		681			652			1212			1039	
v/s Ratio Prot												
v/s Ratio Perm		c0.35			0.18			0.09			c0.35	
v/c Ratio		0.91			0.47			0.21			0.87	
Uniform Delay, d1		17.0			13.4			11.3			16.0	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		16.2			0.6			0.4			9.7	
Delay (s)		33.2			14.1			11.7			25.7	
Level of Service		C			B			B			C	
Approach Delay (s)		33.2			14.1			11.7			25.7	
Approach LOS		C			B			B			C	

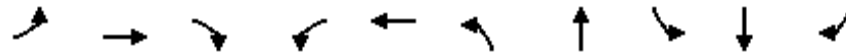
Intersection Summary

HCM 2000 Control Delay	24.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	58.9	Sum of lost time (s)	12.0
Intersection Capacity Utilization	107.9%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Queues
6: Brownridge Road/Fifth Line & Steeles Avenue

Scenario 2 - AM Peak Hour

Premier Gateway



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	180	1430	68	22	704	13	6	27	8	84
v/c Ratio	0.40	0.49	0.06	0.12	0.27	0.07	0.02	0.16	0.03	0.27
Control Delay	9.7	6.8	1.8	7.3	5.1	22.1	0.2	24.4	21.1	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	9.7	6.8	1.8	7.3	5.1	22.1	0.2	24.4	21.1	7.9
Queue Length 50th (m)	10.0	31.8	0.0	1.0	11.9	1.4	0.0	3.0	0.9	0.0
Queue Length 95th (m)	24.6	42.7	3.8	4.1	17.5	5.3	0.0	8.9	3.9	9.3
Internal Link Dist (m)	462.3				679.6		261.2		67.4	
Turn Bay Length (m)	145.0		65.0	30.0		20.0		25.0		25.0
Base Capacity (vph)	455	2940	1083	182	2656	202	265	183	335	334
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	0.40	0.49	0.06	0.12	0.27	0.06	0.02	0.15	0.02	0.25

Intersection Summary

HCM Signalized Intersection Capacity Analysis
6: Brownridge Road/Fifth Line & Steeles Avenue

Scenario 2 - AM Peak Hour
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑↑↑	↗	↖	↑↑↑		↖	↗		↖	↑	↗
Traffic Volume (vph)	173	1373	65	21	629	47	12	0	6	26	8	81
Future Volume (vph)	173	1373	65	21	629	47	12	0	6	26	8	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1671	4217	1524	1456	3794		1444	1077		1308	1900	1468
Flt Permitted	0.37	1.00	1.00	0.17	1.00		0.75	1.00		0.75	1.00	1.00
Satd. Flow (perm)	655	4217	1524	261	3794		1144	1077		1038	1900	1468
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	180	1430	68	22	655	49	12	0	6	27	8	84
RTOR Reduction (vph)	0	0	23	0	12	0	0	5	0	0	0	74
Lane Group Flow (vph)	180	1430	45	22	692	0	13	1	0	27	8	10
Heavy Vehicles (%)	8%	23%	6%	24%	36%	26%	25%	0%	50%	38%	0%	10%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2				6
Permitted Phases	4		4	8			2			6		6
Actuated Green, G (s)	42.0	42.0	42.0	42.0	42.0		7.9	7.9		7.9	7.9	7.9
Effective Green, g (s)	42.0	42.0	42.0	42.0	42.0		7.9	7.9		7.9	7.9	7.9
Actuated g/C Ratio	0.66	0.66	0.66	0.66	0.66		0.12	0.12		0.12	0.12	0.12
Clearance Time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	430	2771	1001	171	2493		141	133		128	234	181
v/s Ratio Prot		c0.34			0.18			0.00				0.00
v/s Ratio Perm	0.27		0.03	0.08			0.01			c0.03		0.01
v/c Ratio	0.42	0.52	0.04	0.13	0.28		0.09	0.01		0.21	0.03	0.06
Uniform Delay, d1	5.2	5.7	3.9	4.1	4.6		24.8	24.6		25.2	24.6	24.7
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	3.0	0.7	0.1	1.5	0.3		0.3	0.0		0.8	0.1	0.1
Delay (s)	8.2	6.4	4.0	5.6	4.9		25.1	24.6		26.0	24.7	24.8
Level of Service	A	A	A	A	A		C	C		C	C	C
Approach Delay (s)		6.5			4.9			24.9			25.1	
Approach LOS		A			A			C			C	

Intersection Summary

HCM 2000 Control Delay	7.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	63.9	Sum of lost time (s)	14.0
Intersection Capacity Utilization	74.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Queues
7: Fifth Line South & Steeles Avenue

Scenario 2 - AM Peak Hour
Premier Gateway



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1504	29	9	743	9	4
v/c Ratio	0.38	0.02	0.03	0.21	0.03	0.01
Control Delay	2.0	1.2	2.6	1.6	24.2	17.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.0	1.2	2.6	1.6	24.2	17.2
Queue Length 50th (m)	0.0	0.0	0.0	0.0	0.8	0.0
Queue Length 95th (m)	44.1	2.2	1.9	18.5	5.2	2.6
Internal Link Dist (m)	679.6			455.7	532.9	
Turn Bay Length (m)		30.0	60.0		15.0	
Base Capacity (vph)	3940	1453	286	3589	321	328
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.02	0.03	0.21	0.03	0.01

Intersection Summary

HCM Signalized Intersection Capacity Analysis

7: Fifth Line South & Steeles Avenue

Scenario 2 - AM Peak Hour
Premier Gateway



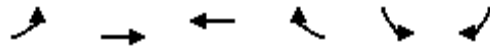
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗	↖	↑↑↑	↖	↗
Traffic Volume (vph)	1414	27	8	698	8	4
Future Volume (vph)	1414	27	8	698	8	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0	8.0	6.0	6.0
Lane Util. Factor	0.91	1.00	1.00	0.91	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	4217	1553	1805	3842	1597	1615
Flt Permitted	1.00	1.00	0.16	1.00	0.95	1.00
Satd. Flow (perm)	4217	1553	307	3842	1597	1615
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	1504	29	9	743	9	4
RTOR Reduction (vph)	0	7	0	0	0	4
Lane Group Flow (vph)	1504	22	9	743	9	0
Heavy Vehicles (%)	23%	4%	0%	35%	13%	0%
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	4			8		
Permitted Phases		4	8		2	2
Actuated Green, G (s)	49.5	49.5	49.5	49.5	1.6	1.6
Effective Green, g (s)	49.5	49.5	49.5	49.5	1.6	1.6
Actuated g/C Ratio	0.76	0.76	0.76	0.76	0.02	0.02
Clearance Time (s)	8.0	8.0	8.0	8.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	3206	1180	233	2921	39	39
v/s Ratio Prot	c0.36			0.19		
v/s Ratio Perm		0.01	0.03		c0.01	0.00
v/c Ratio	0.47	0.02	0.04	0.25	0.23	0.00
Uniform Delay, d1	2.9	1.9	1.9	2.3	31.1	31.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	0.0	0.3	0.2	3.0	0.0
Delay (s)	3.4	1.9	2.2	2.5	34.2	31.0
Level of Service	A	A	A	A	C	C
Approach Delay (s)	3.4			2.5	33.2	
Approach LOS	A			A	C	

Intersection Summary

HCM 2000 Control Delay	3.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	65.1	Sum of lost time (s)	14.0
Intersection Capacity Utilization	55.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Queues

8: Steeles Avenue & Sixth Line



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	47	1562	716	3	11	45
v/c Ratio	0.14	0.75	0.37	0.00	0.02	0.09
Control Delay	8.5	14.1	9.4	4.7	16.4	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.5	14.1	9.4	4.7	16.4	6.8
Queue Length 50th (m)	2.7	47.7	16.8	0.0	0.8	0.0
Queue Length 95th (m)	7.2	61.7	23.2	1.0	4.6	6.9
Internal Link Dist (m)		455.7	881.3		3042.1	
Turn Bay Length (m)	60.0			30.0	30.0	
Base Capacity (vph)	574	3574	3332	1112	504	477
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.44	0.21	0.00	0.02	0.09

Intersection Summary

HCM Signalized Intersection Capacity Analysis

8: Steeles Avenue & Sixth Line

Scenario 2 - AM Peak Hour
Premier Gateway



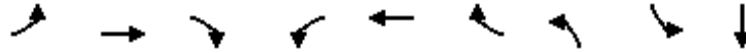
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↵	↑↑↑	↑↑↑	↵	↵	↵
Traffic Volume (vph)	44	1468	673	3	10	42
Future Volume (vph)	44	1468	673	3	10	42
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	4183	3900	1302	1456	1292
Flt Permitted	0.36	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	672	4183	3900	1302	1456	1292
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	47	1562	716	3	11	45
RTOR Reduction (vph)	0	0	0	1	0	29
Lane Group Flow (vph)	47	1562	716	2	11	16
Heavy Vehicles (%)	2%	24%	33%	24%	24%	25%
Turn Type	Perm	NA	NA	Perm	Prot	Perm
Protected Phases		4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	30.0	30.0	30.0	30.0	20.7	20.7
Effective Green, g (s)	30.0	30.0	30.0	30.0	20.7	20.7
Actuated g/C Ratio	0.50	0.50	0.50	0.50	0.35	0.35
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	337	2102	1959	654	504	447
v/s Ratio Prot		c0.37	0.18		0.01	
v/s Ratio Perm	0.07			0.00		c0.01
v/c Ratio	0.14	0.74	0.37	0.00	0.02	0.03
Uniform Delay, d1	7.9	11.8	9.0	7.4	12.8	12.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	1.5	0.1	0.0	0.1	0.1
Delay (s)	8.1	13.2	9.2	7.4	12.9	13.0
Level of Service	A	B	A	A	B	B
Approach Delay (s)		13.1	9.2		13.0	
Approach LOS		B	A		B	

Intersection Summary

HCM 2000 Control Delay	11.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	59.7	Sum of lost time (s)	9.0
Intersection Capacity Utilization	40.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues
9: Sixth Line South/Street A & Steeles Avenue

Scenario 2 - AM Peak Hour
Premier Gateway



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	SBL	SBT
Lane Group Flow (vph)	206	1247	4	3	697	588	3	122	42
v/c Ratio	0.58	0.66	0.01	0.01	0.65	0.75	0.01	0.27	0.06
Control Delay	19.2	21.0	0.0	9.7	31.1	8.8	21.7	23.5	0.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.2	21.0	0.0	9.7	31.1	8.8	21.7	23.5	0.1
Queue Length 50th (m)	20.9	59.0	0.0	0.3	41.3	0.0	0.3	14.9	0.0
Queue Length 95th (m)	26.9	73.6	0.0	1.3	45.8	26.0	2.5	34.3	0.0
Internal Link Dist (m)		881.3			473.0				481.0
Turn Bay Length (m)	50.0		30.0	60.0		30.0	30.0	70.0	
Base Capacity (vph)	372	2249	910	220	1690	897	548	458	708
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.55	0.55	0.00	0.01	0.41	0.66	0.01	0.27	0.06

Intersection Summary

HCM Signalized Intersection Capacity Analysis

9: Sixth Line South/Street A & Steeles Avenue

Scenario 2 - AM Peak Hour
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗	↘	↑↑↑	↗	↘	↗		↘	↗	
Traffic Volume (vph)	196	1185	4	3	662	559	3	0	0	116	0	40
Future Volume (vph)	196	1185	4	3	662	559	3	0	0	116	0	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0	6.0	4.5	6.0	6.0	6.0			6.0	6.0	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	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	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95			0.95	1.00	
Satd. Flow (prot)	1456	4183	1615	1805	3900	1302	1805			1456	1292	
Flt Permitted	0.28	1.00	1.00	0.21	1.00	1.00	0.73			0.76	1.00	
Satd. Flow (perm)	423	4183	1615	403	3900	1302	1386			1160	1292	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	206	1247	4	3	697	588	3	0	0	122	0	42
RTOR Reduction (vph)	0	0	2	0	0	402	0	0	0	0	27	0
Lane Group Flow (vph)	206	1247	2	3	697	186	3	0	0	122	15	0
Heavy Vehicles (%)	24%	24%	0%	0%	33%	24%	0%	0%	0%	24%	0%	25%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm			Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	46.0	40.5	40.5	29.4	28.4	28.4	32.0			32.0	32.0	
Effective Green, g (s)	46.0	40.5	40.5	29.4	28.4	28.4	32.0			32.0	32.0	
Actuated g/C Ratio	0.51	0.45	0.45	0.33	0.32	0.32	0.36			0.36	0.36	
Clearance Time (s)	4.5	6.0	6.0	4.5	6.0	6.0	6.0			6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0			3.0	3.0	
Lane Grp Cap (vph)	366	1882	726	147	1230	410	492			412	459	
v/s Ratio Prot	c0.08	c0.30		0.00	0.18							0.01
v/s Ratio Perm	0.21		0.00	0.01		0.14	0.00			c0.11		
v/c Ratio	0.56	0.66	0.00	0.02	0.57	0.45	0.01			0.30	0.03	
Uniform Delay, d1	13.2	19.4	13.6	20.4	25.7	24.6	18.7			20.9	18.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	
Incremental Delay, d2	2.0	0.9	0.0	0.1	0.6	0.8	0.0			1.8	0.1	
Delay (s)	15.2	20.3	13.6	20.5	26.3	25.4	18.8			22.7	19.0	
Level of Service	B	C	B	C	C	C	B			C	B	
Approach Delay (s)		19.5			25.9			18.8			21.8	
Approach LOS		B			C			B			C	

Intersection Summary

HCM 2000 Control Delay	22.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	54.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
 10: Steeles Avenue & Hornby Road

Scenario 2 - AM Peak Hour
 Premier Gateway



Movement	EBL	EBT	WBT	WBR	SBL	SBR				
Lane Configurations	↶	↑↑↑	↑↑↑	↷	↶	↷				
Traffic Volume (veh/h)	18	1283	1156	19	8	39				
Future Volume (Veh/h)	18	1283	1156	19	8	39				
Sign Control		Free	Free		Stop					
Grade		0%	0%		0%					
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				
Hourly flow rate (vph)	19	1336	1204	20	8	41				
Pedestrians										
Lane Width (m)										
Walking Speed (m/s)										
Percent Blockage										
Right turn flare (veh)										
Median type		None	None							
Median storage (veh)										
Upstream signal (m)										
pX, platoon unblocked										
vC, conflicting volume	1224				1687	401				
vC1, stage 1 conf vol										
vC2, stage 2 conf vol										
vCu, unblocked vol	1224				1687	401				
tC, single (s)	4.2				7.1	7.1				
tC, 2 stage (s)										
tF (s)	2.3				3.6	3.4				
p0 queue free %	97				89	93				
cM capacity (veh/h)	544				73	582				
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	SB 1	SB 2
Volume Total	19	445	445	445	401	401	401	20	8	41
Volume Left	19	0	0	0	0	0	0	0	8	0
Volume Right	0	0	0	0	0	0	0	20	0	41
cSH	544	1700	1700	1700	1700	1700	1700	1700	73	582
Volume to Capacity	0.03	0.26	0.26	0.26	0.24	0.24	0.24	0.01	0.11	0.07
Queue Length 95th (m)	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.8	1.8
Control Delay (s)	11.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	60.5	11.7
Lane LOS	B								F	B
Approach Delay (s)	0.2				0.0				19.6	
Approach LOS									C	
Intersection Summary										
Average Delay			0.5							
Intersection Capacity Utilization			34.8%		ICU Level of Service				A	
Analysis Period (min)			15							

HCM Unsignalized Intersection Capacity Analysis
 11: Trafalgar Rd & Hornby Rd

Scenario 2 - AM Peak Hour
 Premier Gateway



Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations							
Traffic Volume (veh/h)	57	8	3	496	1837	174	
Future Volume (Veh/h)	57	8	3	496	1837	174	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	
Hourly flow rate (vph)	58	8	3	506	1874	178	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				None	None		
Median storage veh							
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume	2138	714	1874				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	2138	714	1874				
tC, single (s)	7.2	7.2	4.8				
tC, 2 stage (s)							
tF (s)	3.7	3.4	2.5				
p0 queue free %	0	98	99				
cM capacity (veh/h)	34	350	215				
Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	66	104	202	202	750	750	553
Volume Left	58	3	0	0	0	0	0
Volume Right	8	0	0	0	0	0	178
cSH	38	215	1700	1700	1700	1700	1700
Volume to Capacity	1.74	0.01	0.12	0.12	0.44	0.44	0.33
Queue Length 95th (m)	56.2	0.3	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	584.6	1.0	0.0	0.0	0.0	0.0	0.0
Lane LOS	F	A					
Approach Delay (s)	584.6	0.2			0.0		
Approach LOS	F						
Intersection Summary							
Average Delay	14.7						
Intersection Capacity Utilization	49.7%			ICU Level of Service	A		
Analysis Period (min)	15						

Queues
12: Trafalgar Road & Steeles Avenue

Scenario 2 - AM Peak Hour
Premier Gateway



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	42	699	424	669	573	70	957	1030	503	206	1549
v/c Ratio	0.24	0.78	0.84	1.53	0.45	0.14	1.43	0.59	0.62	0.73	1.31
Control Delay	31.6	61.1	29.6	290.7	41.7	0.6	243.6	35.8	15.6	36.4	186.6
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	31.6	61.1	29.6	290.7	41.7	0.6	243.6	35.8	15.6	36.4	186.6
Queue Length 50th (m)	8.0	73.8	32.4	~145.5	52.0	0.0	~202.4	89.5	41.3	30.6	~220.5
Queue Length 95th (m)	16.3	87.2	#86.0	#185.6	62.7	0.0	#255.4	110.6	86.2	48.7	#252.1
Internal Link Dist (m)		443.0			287.3			749.5			265.5
Turn Bay Length (m)	115.0		40.0	130.0		70.0	100.0		65.0		
Base Capacity (vph)	172	1008	527	437	1336	518	667	1755	805	304	1186
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	0.24	0.69	0.80	1.53	0.43	0.14	1.43	0.59	0.62	0.68	1.31

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
12: Trafalgar Road & Steeles Avenue

Scenario 2 - AM Peak Hour

Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	671	407	642	550	67	919	989	483	198	1477	10
Future Volume (vph)	40	671	407	642	550	67	919	989	483	198	1477	10
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	5.0	7.0	7.0	5.0	8.0	8.0	4.0	8.0	
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1165	4433	1233	3335	4183	1335	2714	4287	1495	1687	4778	
Flt Permitted	0.43	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.27	1.00	
Satd. Flow (perm)	522	4433	1233	3335	4183	1335	2714	4287	1495	472	4778	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	42	699	424	669	573	70	957	1030	503	206	1539	10
RTOR Reduction (vph)	0	0	253	0	0	49	0	0	195	0	1	0
Lane Group Flow (vph)	42	699	171	669	573	21	957	1030	308	206	1548	0
Heavy Vehicles (%)	55%	17%	31%	5%	24%	21%	29%	21%	8%	7%	8%	80%
Turn Type	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4			8			2	6		
Actuated Green, G (s)	35.7	30.1	30.1	19.0	44.5	44.5	35.7	58.6	58.6	48.5	35.2	
Effective Green, g (s)	35.7	30.1	30.1	19.0	44.5	44.5	35.7	58.6	58.6	48.5	35.2	
Actuated g/C Ratio	0.25	0.21	0.21	0.13	0.31	0.31	0.25	0.40	0.40	0.33	0.24	
Clearance Time (s)	4.0	7.0	7.0	5.0	7.0	7.0	5.0	8.0	8.0	4.0	8.0	
Vehicle Extension (s)	3.0	3.0	3.0	4.0	3.0	3.0	4.0	0.2	0.2	3.0	0.2	
Lane Grp Cap (vph)	153	920	255	437	1283	409	668	1732	604	269	1159	
v/s Ratio Prot	0.01	c0.16		c0.20	0.14		c0.35	0.24		0.07	c0.32	
v/s Ratio Perm	0.06		0.14			0.02			0.21	0.19		
v/c Ratio	0.27	0.76	0.67	1.53	0.45	0.05	1.43	0.59	0.51	0.77	1.34	
Uniform Delay, d1	42.7	54.0	52.9	63.0	40.4	35.4	54.6	33.9	32.4	36.6	54.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	1.0	3.7	6.8	250.2	0.2	0.1	203.2	1.5	3.1	12.2	157.1	
Delay (s)	43.7	57.7	59.7	313.2	40.6	35.5	257.9	35.4	35.5	48.8	212.0	
Level of Service	D	E	E	F	D	D	F	D	D	D	F	
Approach Delay (s)		57.9			179.4			120.9			192.8	
Approach LOS		E			F			F			F	

Intersection Summary

HCM 2000 Control Delay	140.2	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.25		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	110.8%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Queues
13: Toronto Premier Outlets & Steeles Avenue

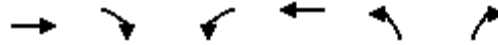
Scenario 2 - AM Peak Hour
Premier Gateway



Lane Group	EBT	EBR	WBT	NBL	NBR
Lane Group Flow (vph)	1351	53	1263	49	14
v/c Ratio	0.48	0.06	0.45	0.07	0.05
Control Delay	7.5	1.9	7.3	19.9	11.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	7.5	1.9	7.3	19.9	11.2
Queue Length 50th (m)	27.8	0.0	25.5	2.4	0.0
Queue Length 95th (m)	36.9	3.3	33.9	6.1	4.1
Internal Link Dist (m)	287.3		176.7	95.1	
Turn Bay Length (m)		130.0			40.0
Base Capacity (vph)	2803	935	2778	660	273
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.48	0.06	0.45	0.07	0.05
Intersection Summary					

HCM Signalized Intersection Capacity Analysis
13: Toronto Premier Outlets & Steeles Avenue

Scenario 2 - AM Peak Hour
Premier Gateway



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗	↖	↑↑↑	↖	↗
Traffic Volume (vph)	1297	51	0	1212	47	13
Future Volume (vph)	1297	51	0	1212	47	13
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	0.91	1.00		0.91	0.97	1.00
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)	4673	1524		4631	3303	1313
Flt Permitted	1.00	1.00		1.00	0.95	1.00
Satd. Flow (perm)	4673	1524		4631	3303	1313
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	1351	53	0	1262	49	14
RTOR Reduction (vph)	0	21	0	0	0	11
Lane Group Flow (vph)	1351	32	0	1263	49	3
Heavy Vehicles (%)	11%	6%	0%	12%	6%	23%
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	36.0	36.0		36.0	12.0	12.0
Effective Green, g (s)	36.0	36.0		36.0	12.0	12.0
Actuated g/C Ratio	0.60	0.60		0.60	0.20	0.20
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	0.2	0.2		0.2	4.0	4.0
Lane Grp Cap (vph)	2803	914		2778	660	262
v/s Ratio Prot	c0.29			0.27	c0.01	
v/s Ratio Perm		0.02				0.00
v/c Ratio	0.48	0.03		0.45	0.07	0.01
Uniform Delay, d1	6.8	4.9		6.6	19.5	19.2
Progression Factor	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.6	0.1		0.5	0.2	0.1
Delay (s)	7.3	5.0		7.1	19.7	19.3
Level of Service	A	A		A	B	B
Approach Delay (s)	7.3			7.1	19.6	
Approach LOS	A			A	B	

Intersection Summary

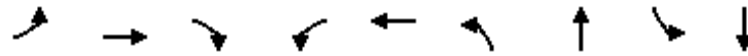
HCM 2000 Control Delay	7.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	43.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues

Scenario 2 - AM Peak Hour

14: Toronto Premium Outlets/Eighth Line & Steeles Avenue

Premier Gateway



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	177	1199	18	39	761	4	12	253	588
v/c Ratio	0.48	0.62	0.03	0.14	0.56	0.01	0.02	0.63	0.50
Control Delay	15.5	21.6	0.1	12.1	23.7	32.5	9.4	33.7	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.5	21.6	0.1	12.1	23.7	32.5	9.4	33.7	7.1
Queue Length 50th (m)	12.0	52.6	0.0	2.4	31.0	0.3	0.1	31.0	6.5
Queue Length 95th (m)	33.8	93.2	0.0	9.7	58.4	2.0	3.4	#80.8	23.9
Internal Link Dist (m)		176.7			846.8		194.1		472.6
Turn Bay Length (m)	105.0		55.0	30.0				20.0	
Base Capacity (vph)	393	1920	674	275	1363	371	780	403	1186
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.62	0.03	0.14	0.56	0.01	0.02	0.63	0.50

Intersection Summary

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
 14: Toronto Premium Outlets/Eighth Line & Steeles Avenue

Scenario 2 - AM Peak Hour

Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑↑↑	↗	↖	↑↑↑		↖↗	↑		↖	↑↗	
Traffic Volume (vph)	166	1127	17	37	632	84	4	1	10	238	6	547
Future Volume (vph)	166	1127	17	37	632	84	4	1	10	238	6	547
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	4.0	6.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91		0.97	1.00		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.86		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1597	4631	1369	1752	4220		2801	1501		1752	2929	
Flt Permitted	0.25	1.00	1.00	0.18	1.00		0.95	1.00		0.75	1.00	
Satd. Flow (perm)	423	4631	1369	328	4220		2801	1501		1383	2929	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	177	1199	18	39	672	89	4	1	11	253	6	582
RTOR Reduction (vph)	0	0	11	0	17	0	0	7	0	0	344	0
Lane Group Flow (vph)	177	1199	7	39	744	0	4	5	0	253	244	0
Heavy Vehicles (%)	13%	12%	18%	3%	21%	19%	25%	0%	10%	3%	0%	5%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA		Perm	NA	
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases	4		4	8						6		
Actuated Green, G (s)	39.7	31.6	31.6	30.2	26.1		1.7	30.9		22.2	22.2	
Effective Green, g (s)	39.7	31.6	31.6	30.2	26.1		1.7	30.9		22.2	22.2	
Actuated g/C Ratio	0.47	0.38	0.38	0.36	0.31		0.02	0.37		0.27	0.27	
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	0.2	0.2	3.0	0.2		4.0	4.0		3.0	3.0	
Lane Grp Cap (vph)	335	1750	517	188	1317		56	554		367	777	
v/s Ratio Prot	c0.06	c0.26		0.01	0.18		c0.00	0.00			0.08	
v/s Ratio Perm	0.19		0.00	0.06						c0.18		
v/c Ratio	0.53	0.69	0.01	0.21	0.56		0.07	0.01		0.69	0.31	
Uniform Delay, d1	13.6	21.8	16.3	17.6	24.0		40.2	16.7		27.6	24.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.5	2.2	0.0	0.6	1.8		0.7	0.0		10.1	1.1	
Delay (s)	15.1	24.0	16.3	18.2	25.8		40.9	16.7		37.7	25.6	
Level of Service	B	C	B	B	C		D	B		D	C	
Approach Delay (s)		22.8			25.4			22.7			29.3	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	25.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	83.6	Sum of lost time (s)	24.0
Intersection Capacity Utilization	61.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
 15: Eighth Line South & Steeles Avenue

Scenario 2 - AM Peak Hour
 Premier Gateway



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↙	↑↑↑	↙	↗
Traffic Volume (veh/h)	1377	1	1	754	1	0
Future Volume (Veh/h)	1377	1	1	754	1	0
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	1434	1	1	785	1	0
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			1435		1698	478
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1435		1698	478
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		99	100
cM capacity (veh/h)			479		85	539

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2
Volume Total	574	574	288	1	262	262	262	1	0
Volume Left	0	0	0	1	0	0	0	1	0
Volume Right	0	0	1	0	0	0	0	0	0
cSH	1700	1700	1700	479	1700	1700	1700	85	1700
Volume to Capacity	0.34	0.34	0.17	0.00	0.15	0.15	0.15	0.01	0.00
Queue Length 95th (m)	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.3	0.0
Control Delay (s)	0.0	0.0	0.0	12.5	0.0	0.0	0.0	47.9	0.0
Lane LOS				B				E	A
Approach Delay (s)	0.0			0.0				47.9	
Approach LOS								E	

Intersection Summary		
Average Delay	0.0	
Intersection Capacity Utilization	36.6%	ICU Level of Service
Analysis Period (min)	15	
		A

Queues
16: Steeles Avenue & Ninth Line



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	101	1379	728	287	767	99
v/c Ratio	0.42	0.84	0.68	0.49	0.87	0.14
Control Delay	24.5	33.1	35.2	6.9	32.4	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.5	33.1	35.2	6.9	32.4	3.1
Queue Length 50th (m)	12.0	83.8	45.5	0.0	117.5	0.0
Queue Length 95th (m)	23.4	102.8	59.7	20.4	#194.1	7.8
Internal Link Dist (m)		501.4	674.5		3096.2	
Turn Bay Length (m)	65.0			75.0		
Base Capacity (vph)	238	1639	1075	588	885	711
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.84	0.68	0.49	0.87	0.14

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
 16: Steeles Avenue & Ninth Line

Scenario 2 - AM Peak Hour
 Premier Gateway



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↙	↑↑↑	↑↑↑	↘	↙	↘
Traffic Volume (vph)	96	1310	692	273	729	94
Future Volume (vph)	96	1310	692	273	729	94
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1556	4759	4359	1509	1770	1324
Flt Permitted	0.24	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	392	4759	4359	1509	1770	1324
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	101	1379	728	287	767	99
RTOR Reduction (vph)	0	0	0	217	0	50
Lane Group Flow (vph)	101	1379	728	70	767	49
Heavy Vehicles (%)	16%	9%	19%	7%	2%	22%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	31.8	31.8	22.2	22.2	45.0	45.0
Effective Green, g (s)	31.8	31.8	22.2	22.2	45.0	45.0
Actuated g/C Ratio	0.35	0.35	0.24	0.24	0.50	0.50
Clearance Time (s)	4.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	0.2	0.2	0.2	3.0	3.0
Lane Grp Cap (vph)	209	1666	1065	368	877	656
v/s Ratio Prot	0.03	c0.29	0.17		c0.43	
v/s Ratio Perm	0.14			0.05		0.04
v/c Ratio	0.48	0.83	0.68	0.19	0.87	0.07
Uniform Delay, d1	21.0	27.0	31.1	27.2	20.4	12.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.8	4.9	3.6	1.1	11.8	0.2
Delay (s)	22.8	31.9	34.7	28.3	32.2	12.2
Level of Service	C	C	C	C	C	B
Approach Delay (s)		31.3	32.9		29.9	
Approach LOS		C	C		C	

Intersection Summary

HCM 2000 Control Delay	31.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	90.8	Sum of lost time (s)	18.0
Intersection Capacity Utilization	77.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Queues
17: Ninth Line (South) & Steeles Avenue

Scenario 2 - AM Peak Hour
Premier Gateway



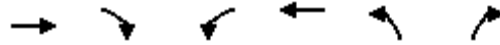
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1567	588	424	806	215	386
v/c Ratio	0.89	0.62	0.89	0.29	0.59	0.60
Control Delay	33.8	5.1	42.3	7.5	39.7	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.8	5.1	42.3	7.5	39.7	8.0
Queue Length 50th (m)	96.9	0.2	53.7	21.0	35.9	0.0
Queue Length 95th (m)	#122.0	22.1	#104.4	27.2	59.7	24.1
Internal Link Dist (m)	674.5			410.9	143.5	
Turn Bay Length (m)		75.0	145.0		60.0	
Base Capacity (vph)	1802	963	518	2878	366	639
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.87	0.61	0.82	0.28	0.59	0.60

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
 17: Ninth Line (South) & Steeles Avenue

Scenario 2 - AM Peak Hour
 Premier Gateway



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↑	↑↑↑	↑	↑
Traffic Volume (vph)	1473	553	399	758	202	363
Future Volume (vph)	1473	553	399	758	202	363
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	4.0	7.0	7.0	7.0
Lane Util. Factor	0.91	1.00	1.00	0.91	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	4759	1583	1787	4322	1770	1615
Flt Permitted	1.00	1.00	0.11	1.00	0.95	1.00
Satd. Flow (perm)	4759	1583	207	4322	1770	1615
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	1567	588	424	806	215	386
RTOR Reduction (vph)	0	369	0	0	0	306
Lane Group Flow (vph)	1567	219	424	806	215	80
Heavy Vehicles (%)	9%	2%	1%	20%	2%	0%
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	32.4	32.4	55.3	55.3	18.0	18.0
Effective Green, g (s)	32.4	32.4	55.3	55.3	18.0	18.0
Actuated g/C Ratio	0.37	0.37	0.63	0.63	0.21	0.21
Clearance Time (s)	7.0	7.0	4.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1766	587	473	2737	364	332
v/s Ratio Prot	0.33		c0.19	0.19	c0.12	
v/s Ratio Perm		0.14	c0.37			0.05
v/c Ratio	0.89	0.37	0.90	0.29	0.59	0.24
Uniform Delay, d1	25.7	20.0	23.5	7.2	31.3	28.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.8	0.4	19.2	0.1	6.9	1.7
Delay (s)	31.6	20.4	42.7	7.3	38.2	30.6
Level of Service	C	C	D	A	D	C
Approach Delay (s)	28.5			19.5	33.3	
Approach LOS	C			B	C	

Intersection Summary			
HCM 2000 Control Delay	26.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	87.3	Sum of lost time (s)	18.0
Intersection Capacity Utilization	76.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Queues

18: James Snow Parkway & Hwy 401 (Westbound Ramp)



Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	648	301	975	668
v/c Ratio	0.65	0.72	0.50	0.32
Control Delay	21.8	28.3	15.6	13.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	21.8	28.3	15.6	13.7
Queue Length 50th (m)	34.2	32.7	30.8	19.1
Queue Length 95th (m)	48.9	59.5	54.9	35.3
Internal Link Dist (m)	390.4		415.8	504.8
Turn Bay Length (m)				
Base Capacity (vph)	1535	636	1945	2110
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.42	0.47	0.50	0.32

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 18: James Snow Parkway & Hwy 401 (Westbound Ramp)

Scenario 2 - AM Peak Hour

Premier Gateway



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↶↶	↶	↷↷↷			↷↷↷
Traffic Volume (vph)	447	454	926	0	0	635
Future Volume (vph)	447	454	926	0	0	635
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.2	8.2	9.3			9.3
Lane Util. Factor	0.97	0.91	0.91			0.91
Frt	0.96	0.85	1.00			1.00
Flt Protected	0.96	1.00	1.00			1.00
Satd. Flow (prot)	3274	1336	4510			4893
Flt Permitted	0.96	1.00	1.00			1.00
Satd. Flow (perm)	3274	1336	4510			4893
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	471	478	975	0	0	668
RTOR Reduction (vph)	22	22	0	0	0	0
Lane Group Flow (vph)	626	279	975	0	0	668
Heavy Vehicles (%)	2%	10%	15%	0%	0%	6%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	19.2	19.2	28.0			28.0
Effective Green, g (s)	19.2	19.2	28.0			28.0
Actuated g/C Ratio	0.30	0.30	0.43			0.43
Clearance Time (s)	8.2	8.2	9.3			9.3
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	971	396	1951			2117
v/s Ratio Prot	0.19		c0.22			0.14
v/s Ratio Perm		c0.21				
v/c Ratio	0.64	0.71	0.50			0.32
Uniform Delay, d1	19.8	20.2	13.3			12.1
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	1.5	5.6	0.9			0.4
Delay (s)	21.3	25.9	14.2			12.4
Level of Service	C	C	B			B
Approach Delay (s)	22.7		14.2			12.4
Approach LOS	C		B			B

Intersection Summary

HCM 2000 Control Delay	16.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.58		
Actuated Cycle Length (s)	64.7	Sum of lost time (s)	17.5
Intersection Capacity Utilization	51.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues

19: James Snow Parkway & Hwy 401 (Eastbound Ramp)



Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	535	245	817	716
v/c Ratio	0.69	0.56	0.33	0.28
Control Delay	23.3	15.6	9.9	9.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	23.3	15.6	9.9	9.6
Queue Length 50th (m)	26.9	14.2	18.4	15.7
Queue Length 95th (m)	41.0	34.7	33.2	28.7
Internal Link Dist (m)	305.5		1282.4	415.8
Turn Bay Length (m)				
Base Capacity (vph)	1465	745	2462	2557
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.37	0.33	0.33	0.28

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 19: James Snow Parkway & Hwy 401 (Eastbound Ramp)

Scenario 2 - AM Peak Hour
 Premier Gateway



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations	←←←	→		↑↑↑	↓↓↓	
Traffic Volume (vph)	453	312	0	801	702	0
Future Volume (vph)	453	312	0	801	702	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		7.4	7.4	
Lane Util. Factor	0.97	0.91		0.91	0.91	
Frt	0.98	0.85		1.00	1.00	
Flt Protected	0.96	1.00		1.00	1.00	
Satd. Flow (prot)	2818	1348		4848	5036	
Flt Permitted	0.96	1.00		1.00	1.00	
Satd. Flow (perm)	2818	1348		4848	5036	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	462	318	0	817	716	0
RTOR Reduction (vph)	21	78	0	0	0	0
Lane Group Flow (vph)	514	167	0	817	716	0
Heavy Vehicles (%)	25%	9%	0%	7%	3%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	16.3	16.3		30.7	30.7	
Effective Green, g (s)	16.3	16.3		30.7	30.7	
Actuated g/C Ratio	0.27	0.27		0.51	0.51	
Clearance Time (s)	6.0	6.0		7.4	7.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	760	363		2464	2559	
v/s Ratio Prot	c0.18			c0.17	0.14	
v/s Ratio Perm		0.12				
v/c Ratio	0.68	0.46		0.33	0.28	
Uniform Delay, d1	19.7	18.4		8.8	8.5	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.4	0.9		0.4	0.3	
Delay (s)	22.1	19.3		9.1	8.8	
Level of Service	C	B		A	A	
Approach Delay (s)	21.2			9.1	8.8	
Approach LOS	C			A	A	

Intersection Summary			
HCM 2000 Control Delay	13.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	60.4	Sum of lost time (s)	13.4
Intersection Capacity Utilization	51.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues
 20: Trafalgar Road & Hwy 401 (Westbound Ramp)

Scenario 2 - AM Peak Hour
 Premier Gateway



Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	410	262	1933	2235
v/c Ratio	0.63	0.87	0.71	0.75
Control Delay	38.5	63.9	17.0	18.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	38.5	63.9	17.0	18.2
Queue Length 50th (m)	40.7	59.5	101.5	123.9
Queue Length 95th (m)	56.7	96.3	150.0	180.6
Internal Link Dist (m)	383.1		312.7	749.5
Turn Bay Length (m)				
Base Capacity (vph)	896	411	2740	2966
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.46	0.64	0.71	0.75
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
 20: Trafalgar Road & Hwy 401 (Westbound Ramp)

Scenario 2 - AM Peak Hour
 Premier Gateway



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔↔	↗	↑↑↑			↑↑↑
Traffic Volume (vph)	144	508	1875	0	0	2168
Future Volume (vph)	144	508	1875	0	0	2168
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0			6.0
Lane Util. Factor	0.97	0.91	0.91			0.91
Frt	0.90	0.85	1.00			1.00
Flt Protected	0.98	1.00	1.00			1.00
Satd. Flow (prot)	2428	1105	4396			4759
Flt Permitted	0.98	1.00	1.00			1.00
Satd. Flow (perm)	2428	1105	4396			4759
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	148	524	1933	0	0	2235
RTOR Reduction (vph)	7	7	0	0	0	0
Lane Group Flow (vph)	403	255	1933	0	0	2235
Heavy Vehicles (%)	38%	33%	18%	0%	0%	9%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	29.2	29.2	68.4			68.4
Effective Green, g (s)	29.2	29.2	68.4			68.4
Actuated g/C Ratio	0.27	0.27	0.62			0.62
Clearance Time (s)	6.0	6.0	6.0			6.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	646	294	2743			2970
v/s Ratio Prot	0.17		0.44			c0.47
v/s Ratio Perm		c0.23				
v/c Ratio	0.62	0.87	0.70			0.75
Uniform Delay, d1	35.4	38.3	13.8			14.6
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	1.9	22.4	1.5			1.8
Delay (s)	37.2	60.8	15.4			16.4
Level of Service	D	E	B			B
Approach Delay (s)	46.4		15.4			16.4
Approach LOS	D		B			B

Intersection Summary

HCM 2000 Control Delay	20.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	109.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Queues
 21: Trafalgar Road & Hwy 401 (Eastbound Ramp)

Scenario 2 - AM Peak Hour
 Premier Gateway



Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	461	208	2600	1318
v/c Ratio	0.82	0.61	0.80	0.40
Control Delay	57.2	32.0	14.6	7.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	57.2	32.0	14.6	7.8
Queue Length 50th (m)	54.5	28.5	142.9	44.1
Queue Length 95th (m)	73.8	57.4	177.1	56.5
Internal Link Dist (m)	204.3		1138.2	312.7
Turn Bay Length (m)				
Base Capacity (vph)	648	381	3259	3256
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.71	0.55	0.80	0.40
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
 21: Trafalgar Road & Hwy 401 (Eastbound Ramp)

Scenario 2 - AM Peak Hour
 Premier Gateway



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	418	237	0	2548	1261	30
Future Volume (vph)	418	237	0	2548	1261	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	
Lane Util. Factor	0.97	0.91		0.91	0.91	
Frt	0.99	0.85		1.00	1.00	
Flt Protected	0.96	1.00		1.00	1.00	
Satd. Flow (prot)	2885	1400		4631	4627	
Flt Permitted	0.96	1.00		1.00	1.00	
Satd. Flow (perm)	2885	1400		4631	4627	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	427	242	0	2600	1287	31
RTOR Reduction (vph)	5	72	0	0	2	0
Lane Group Flow (vph)	456	136	0	2600	1316	0
Heavy Vehicles (%)	22%	5%	0%	12%	12%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	22.5	22.5		82.1	82.1	
Effective Green, g (s)	22.5	22.5		82.1	82.1	
Actuated g/C Ratio	0.19	0.19		0.70	0.70	
Clearance Time (s)	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	556	270		3260	3257	
v/s Ratio Prot	c0.16			c0.56	0.28	
v/s Ratio Perm		0.10				
v/c Ratio	0.82	0.50		0.80	0.40	
Uniform Delay, d1	45.1	42.1		11.6	7.1	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	9.4	1.5		2.1	0.4	
Delay (s)	54.5	43.5		13.8	7.5	
Level of Service	D	D		B	A	
Approach Delay (s)	51.1			13.8	7.5	
Approach LOS	D			B	A	

Intersection Summary

HCM 2000 Control Delay	17.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	116.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	73.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Queues

22: Winston Churchill Boulevard & Hwy 401 (Westbound Ramp)



Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	608	284	1605	1432
v/c Ratio	0.85	0.89	0.70	0.63
Control Delay	59.5	72.3	17.0	15.3
Queue Delay	0.0	0.0	0.6	0.0
Total Delay	59.5	72.3	17.6	15.3
Queue Length 50th (m)	80.5	75.6	151.4	124.3
Queue Length 95th (m)	103.7	#128.5	180.7	149.3
Internal Link Dist (m)	284.7		32.1	320.2
Turn Bay Length (m)				
Base Capacity (vph)	808	360	2302	2280
Starvation Cap Reductn	0	0	327	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.75	0.79	0.81	0.63

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
 22: Winston Churchill Boulevard & Hwy 401 (Westbound Ramp)

Scenario 2 - AM Peak Hour
 Premier Gateway



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔↔	↗	↕↕			↕↕
Traffic Volume (vph)	318	529	1525	0	0	1360
Future Volume (vph)	318	529	1525	0	0	1360
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	8.0			8.0
Lane Util. Factor	0.97	0.91	0.95			0.95
Frt	0.93	0.85	1.00			1.00
Flt Protected	0.97	1.00	1.00			1.00
Satd. Flow (prot)	3022	1289	3471			3438
Flt Permitted	0.97	1.00	1.00			1.00
Satd. Flow (perm)	3022	1289	3471			3438
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	335	557	1605	0	0	1432
RTOR Reduction (vph)	29	29	0	0	0	0
Lane Group Flow (vph)	579	255	1605	0	0	1432
Heavy Vehicles (%)	8%	14%	4%	0%	0%	5%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	30.7	30.7	90.1			90.1
Effective Green, g (s)	30.7	30.7	90.1			90.1
Actuated g/C Ratio	0.23	0.23	0.66			0.66
Clearance Time (s)	7.0	7.0	8.0			8.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	683	291	2302			2281
v/s Ratio Prot	0.19		c0.46			0.42
v/s Ratio Perm		c0.20				
v/c Ratio	0.85	0.87	0.70			0.63
Uniform Delay, d1	50.3	50.7	14.3			13.2
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	9.5	24.0	1.8			1.3
Delay (s)	59.8	74.7	16.1			14.5
Level of Service	E	E	B			B
Approach Delay (s)	64.6		16.1			14.5
Approach LOS	E		B			B

Intersection Summary			
HCM 2000 Control Delay		26.5	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio		0.74	
Actuated Cycle Length (s)		135.8	Sum of lost time (s) 15.0
Intersection Capacity Utilization		109.3%	ICU Level of Service H
Analysis Period (min)		15	
c Critical Lane Group			

Queues

Scenario 2 - AM Peak Hour

23: Winston Churchill Boulevard & Hwy 401 (Eastbound Ramp)

Premier Gateway



Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	745	337	1397	1356
v/c Ratio	0.83	0.81	0.45	0.44
Control Delay	51.7	53.9	14.6	14.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	51.7	53.9	14.6	14.5
Queue Length 50th (m)	94.5	81.6	67.7	65.2
Queue Length 95th (m)	117.6	122.5	99.2	95.7
Internal Link Dist (m)	152.5		433.2	198.3
Turn Bay Length (m)				
Base Capacity (vph)	1191	539	3095	3063
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.63	0.63	0.45	0.44

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 23: Winston Churchill Boulevard & Hwy 401 (Eastbound Ramp)

Scenario 2 - AM Peak Hour
 Premier Gateway



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	589	439	0	1327	1277	11
Future Volume (vph)	589	439	0	1327	1277	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		7.0	7.0	
Lane Util. Factor	0.97	0.91		0.91	0.91	
Frt	0.97	0.85		1.00	1.00	
Flt Protected	0.96	1.00		1.00	1.00	
Satd. Flow (prot)	3296	1427		5036	4983	
Flt Permitted	0.96	1.00		1.00	1.00	
Satd. Flow (perm)	3296	1427		5036	4983	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	620	462	0	1397	1344	12
RTOR Reduction (vph)	13	32	0	0	0	0
Lane Group Flow (vph)	732	305	0	1397	1356	0
Heavy Vehicles (%)	5%	3%	0%	3%	4%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	34.6	34.6		79.2	79.2	
Effective Green, g (s)	34.6	34.6		79.2	79.2	
Actuated g/C Ratio	0.27	0.27		0.61	0.61	
Clearance Time (s)	8.0	8.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	885	383		3096	3064	
v/s Ratio Prot	c0.22			c0.28	0.27	
v/s Ratio Perm		0.21				
v/c Ratio	0.83	0.80		0.45	0.44	
Uniform Delay, d1	44.3	43.8		13.2	13.1	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.4	10.9		0.5	0.5	
Delay (s)	50.7	54.7		13.7	13.6	
Level of Service	D	D		B	B	
Approach Delay (s)	51.9			13.7	13.6	
Approach LOS	D			B	B	

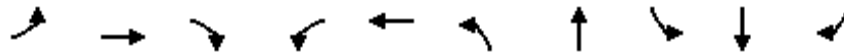
Intersection Summary			
HCM 2000 Control Delay	24.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	128.8	Sum of lost time (s)	15.0
Intersection Capacity Utilization	98.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Queues

Scenario 2 - AM Peak Hour

24: James Snow Parkway & Main Street East

Premier Gateway



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	1018	291	548	100	123	268	1133	162	743	315
v/c Ratio	0.91	0.31	0.55	0.72	0.28	0.79	0.86	0.70	0.73	0.55
Control Delay	49.2	17.6	6.4	76.8	24.6	42.8	48.1	42.6	47.9	8.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.2	17.6	6.4	76.8	24.6	42.8	48.1	42.6	47.9	8.8
Queue Length 50th (m)	119.6	39.1	16.0	23.5	6.6	46.3	97.5	26.2	64.3	0.0
Queue Length 95th (m)	#159.1	57.9	43.1	#46.7	16.0	#83.9	#127.2	#53.7	81.3	26.2
Internal Link Dist (m)		274.7			467.9		430.6		1282.4	
Turn Bay Length (m)	70.0		50.0	105.0		100.0		135.0		135.0
Base Capacity (vph)	1239	1068	1073	173	533	367	1312	246	1019	569
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	0.82	0.27	0.51	0.58	0.23	0.73	0.86	0.66	0.73	0.55

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
 24: James Snow Parkway & Main Street East

Scenario 2 - AM Peak Hour
 Premier Gateway



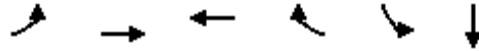
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	967	276	521	95	55	62	255	937	140	154	706	299
Future Volume (vph)	967	276	521	95	55	62	255	937	140	154	706	299
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0	6.0	6.0	6.0		4.5	6.0		4.5	6.0	6.0
Lane Util. Factor	0.97	1.00	1.00	1.00	0.95		1.00	0.91		1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.92		1.00	0.98		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	1900	1583	1752	2967		1752	4986		1703	4848	1524
Flt Permitted	0.95	1.00	1.00	0.58	1.00		0.18	1.00		0.17	1.00	1.00
Satd. Flow (perm)	3433	1900	1583	1073	2967		325	4986		303	4848	1524
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1018	291	548	100	58	65	268	986	147	162	743	315
RTOR Reduction (vph)	0	0	211	0	57	0	0	16	0	0	0	249
Lane Group Flow (vph)	1018	291	337	100	66	0	268	1117	0	162	743	66
Heavy Vehicles (%)	2%	0%	2%	3%	2%	21%	3%	2%	2%	6%	7%	6%
Turn Type	Prot	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases			4	8			2			6		6
Actuated Green, G (s)	36.8	55.8	55.8	14.5	14.5		44.6	29.2		34.6	23.7	23.7
Effective Green, g (s)	36.8	55.8	55.8	14.5	14.5		44.6	29.2		34.6	23.7	23.7
Actuated g/C Ratio	0.33	0.50	0.50	0.13	0.13		0.40	0.26		0.31	0.21	0.21
Clearance Time (s)	4.5	6.0	6.0	6.0	6.0		4.5	6.0		4.5	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	1123	943	785	138	382		337	1295		229	1022	321
v/s Ratio Prot	c0.30	0.15			0.02		c0.12	c0.22		0.07	0.15	
v/s Ratio Perm			0.21	c0.09			0.20			0.15		0.04
v/c Ratio	0.91	0.31	0.43	0.72	0.17		0.80	0.86		0.71	0.73	0.21
Uniform Delay, d1	36.2	16.8	18.1	47.0	43.6		25.7	39.7		30.8	41.3	36.6
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	10.5	0.2	0.4	17.1	0.2		12.2	7.7		9.6	4.5	1.5
Delay (s)	46.6	17.0	18.5	64.2	43.8		37.9	47.4		40.4	45.9	38.1
Level of Service	D	B	B	E	D		D	D		D	D	D
Approach Delay (s)		33.7			52.9			45.6			43.1	
Approach LOS		C			D			D			D	

Intersection Summary

HCM 2000 Control Delay	40.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	112.4	Sum of lost time (s)	21.0
Intersection Capacity Utilization	79.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Queues
25: Street B & Steeles Avenue

Scenario 2 - AM Peak Hour
Premier Gateway



Lane Group	EBL	EBT	WBT	WBR	SBL	SBT
Lane Group Flow (vph)	289	1060	1130	411	104	125
v/c Ratio	0.72	0.41	0.84	0.65	0.37	0.19
Control Delay	26.5	8.7	32.2	12.4	33.8	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.5	8.7	32.2	12.4	33.8	0.7
Queue Length 50th (m)	28.9	30.0	66.7	15.0	16.2	0.0
Queue Length 95th (m)	58.0	38.1	84.6	47.4	32.1	0.0
Internal Link Dist (m)		388.7	443.0			311.5
Turn Bay Length (m)	50.0			30.0	30.0	
Base Capacity (vph)	453	2933	1544	683	280	654
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.64	0.36	0.73	0.60	0.37	0.19
Intersection Summary						

HCM Signalized Intersection Capacity Analysis

25: Street B & Steeles Avenue

Scenario 2 - AM Peak Hour
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗	↘	↑↑↑	↗	↘	↑	↗	↘	↗	↘
Traffic Volume (vph)	277	1018	0	0	1085	395	0	0	0	100	0	120
Future Volume (vph)	277	1018	0	0	1085	395	0	0	0	100	0	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0			6.0	6.0				6.0	6.0	
Lane Util. Factor	1.00	0.91			0.91	1.00				1.00	1.00	
Frt	1.00	1.00			1.00	0.85				1.00	0.85	
Flt Protected	0.95	1.00			1.00	1.00				0.95	1.00	
Satd. Flow (prot)	1456	4183			3990	1302				1456	1302	
Flt Permitted	0.13	1.00			1.00	1.00				0.76	1.00	
Satd. Flow (perm)	200	4183			3990	1302				1160	1302	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	289	1060	0	0	1130	411	0	0	0	104	0	125
RTOR Reduction (vph)	0	0	0	0	0	193	0	0	0	0	95	0
Lane Group Flow (vph)	289	1060	0	0	1130	218	0	0	0	104	30	0
Heavy Vehicles (%)	24%	24%	10%	10%	30%	24%	10%	10%	10%	24%	10%	24%
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm		Perm	Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)	51.3	51.3			28.4	28.4				20.2	20.2	
Effective Green, g (s)	51.3	51.3			28.4	28.4				20.2	20.2	
Actuated g/C Ratio	0.61	0.61			0.34	0.34				0.24	0.24	
Clearance Time (s)	4.5	6.0			6.0	6.0				6.0	6.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0				3.0	3.0	
Lane Grp Cap (vph)	399	2569			1357	442				280	314	
v/s Ratio Prot	c0.16	0.25			c0.28						0.02	
v/s Ratio Perm	0.28					0.17				c0.09		
v/c Ratio	0.72	0.41			0.83	0.49				0.37	0.10	
Uniform Delay, d1	16.8	8.3			25.4	21.8				26.4	24.6	
Progression Factor	1.00	1.00			1.00	1.00				1.00	1.00	
Incremental Delay, d2	6.4	0.1			4.5	0.9				3.7	0.6	
Delay (s)	23.2	8.4			29.9	22.7				30.1	25.2	
Level of Service	C	A			C	C				C	C	
Approach Delay (s)		11.6			28.0			0.0			27.4	
Approach LOS		B			C			A			C	

Intersection Summary

HCM 2000 Control Delay	20.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	83.5	Sum of lost time (s)	16.5
Intersection Capacity Utilization	57.5%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
 26: Hornby Road & Street A

Scenario 2 - AM Peak Hour
 Premier Gateway



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Right Turn Channelized						
Traffic Volume (veh/h)	27	0	0	37	46	130
Future Volume (veh/h)	27	0	0	37	46	130
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	28	0	0	39	48	135
Approach Volume (veh/h)	28			39	183	
Crossing Volume (veh/h)	48			28	0	
High Capacity (veh/h)	1334			1355	1385	
High v/c (veh/h)	0.02			0.03	0.13	
Low Capacity (veh/h)	1115			1134	1161	
Low v/c (veh/h)	0.03			0.03	0.16	
Intersection Summary						
Maximum v/c High			0.13			
Maximum v/c Low			0.16			
Intersection Capacity Utilization			20.4%		ICU Level of Service	A

Queues
27: Trafalgar Road & Street B

Scenario 2 - AM Peak Hour

Premier Gateway



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	31	185	72	194	376	454	311	163	1606	153
v/c Ratio	0.16	0.54	0.38	0.58	0.90	0.21	0.39	0.39	0.93	0.28
Control Delay	31.7	31.6	37.2	37.9	46.3	13.0	3.2	10.7	39.5	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.7	31.6	37.2	37.9	46.3	13.0	3.2	10.7	39.5	5.8
Queue Length 50th (m)	4.6	24.0	11.3	30.4	49.0	15.9	0.0	9.6	103.7	1.0
Queue Length 95th (m)	12.7	46.1	24.9	53.4	#99.0	23.0	13.3	17.0	#138.1	14.0
Internal Link Dist (m)		260.1		649.3		221.2			63.9	
Turn Bay Length (m)	50.0		50.0		50.0		50.0	50.0		50.0
Base Capacity (vph)	188	342	191	332	460	2215	814	449	1724	556
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	0.16	0.54	0.38	0.58	0.82	0.20	0.38	0.36	0.93	0.28

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
27: Trafalgar Road & Street B

Scenario 2 - AM Peak Hour

Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	103	75	69	155	32	361	436	299	156	1542	147
Future Volume (vph)	30	103	75	69	155	32	361	436	299	156	1542	147
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		4.5	6.0	6.0	4.5	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.94		1.00	0.97		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)	1467	1435		1444	1491		1456	4359	1302	1456	4848	1302
Flt Permitted	0.56	1.00		0.58	1.00		0.11	1.00	1.00	0.48	1.00	1.00
Satd. Flow (perm)	866	1435		881	1491		173	4359	1302	736	4848	1302
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	31	107	78	72	161	33	376	454	311	162	1606	153
RTOR Reduction (vph)	0	29	0	0	8	0	0	0	158	0	0	94
Lane Group Flow (vph)	31	156	0	72	186	0	376	454	153	163	1606	59
Heavy Vehicles (%)	23%	24%	24%	25%	24%	25%	24%	19%	24%	24%	7%	24%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		2			6		3	8		7	4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	19.0	19.0		19.0	19.0		56.3	42.9	42.9	39.9	31.0	31.0
Effective Green, g (s)	19.0	19.0		19.0	19.0		56.3	42.9	42.9	39.9	31.0	31.0
Actuated g/C Ratio	0.22	0.22		0.22	0.22		0.64	0.49	0.49	0.46	0.36	0.36
Clearance Time (s)	6.0	6.0		6.0	6.0		4.5	6.0	6.0	4.5	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	188	312		191	324		417	2142	639	409	1721	462
v/s Ratio Prot		0.11			c0.12		c0.21	0.10		0.04	0.33	
v/s Ratio Perm	0.04			0.08			c0.37		0.12	0.14		0.05
v/c Ratio	0.16	0.50		0.38	0.57		0.90	0.21	0.24	0.40	0.93	0.13
Uniform Delay, d1	27.7	30.0		29.1	30.5		23.7	12.6	12.8	14.5	27.2	19.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.9	5.6		5.6	7.2		22.2	0.0	0.2	0.6	9.8	0.1
Delay (s)	29.6	35.6		34.7	37.8		45.8	12.7	13.0	15.1	36.9	19.2
Level of Service	C	D		C	D		D	B	B	B	D	B
Approach Delay (s)		34.7			36.9			23.7			33.7	
Approach LOS		C			D			C			C	

Intersection Summary			
HCM 2000 Control Delay	30.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	87.3	Sum of lost time (s)	16.5
Intersection Capacity Utilization	82.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
28: Eighth Line & Street B

Scenario 2 - AM Peak Hour
Premier Gateway



Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations							
Traffic Volume (veh/h)	29	11	108	144	781	140	
Future Volume (Veh/h)	29	11	108	144	781	140	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	
Hourly flow rate (vph)	30	11	113	150	814	146	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				None	None		
Median storage veh							
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume	1188	480	960				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1188	480	960				
tC, single (s)	7.3	7.4	4.6				
tC, 2 stage (s)							
tF (s)	3.7	3.6	2.4				
p0 queue free %	76	98	81				
cM capacity (veh/h)	123	470	592				
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	30	11	113	75	75	543	417
Volume Left	30	0	113	0	0	0	0
Volume Right	0	11	0	0	0	0	146
cSH	123	470	592	1700	1700	1700	1700
Volume to Capacity	0.24	0.02	0.19	0.04	0.04	0.32	0.25
Queue Length 95th (m)	7.2	0.6	5.6	0.0	0.0	0.0	0.0
Control Delay (s)	43.6	12.8	12.5	0.0	0.0	0.0	0.0
Lane LOS	E	B	B				
Approach Delay (s)	35.3		5.4		0.0		
Approach LOS	E						
Intersection Summary							
Average Delay			2.3				
Intersection Capacity Utilization			45.4%		ICU Level of Service		A
Analysis Period (min)			15				

HCM Unsignalized Intersection Capacity Analysis
1: Fifth Line & 5 Side Road

Scenario 2 - PM Peak Hour
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	44	296	5	24	777	31	8	49	27	1	33	15
Future Volume (Veh/h)	44	296	5	24	777	31	8	49	27	1	33	15
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	46	308	5	25	809	32	8	51	28	1	34	16
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	841			313			1310	1294	310	1331	1280	825
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	841			313			1310	1294	310	1331	1280	825
tC, single (s)	4.1			4.1			7.2	6.5	6.2	7.1	6.5	6.4
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.3	3.5	4.0	3.5
p0 queue free %	94			98			92	66	96	99	78	95
cM capacity (veh/h)	803			1259			96	152	725	89	155	346
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	359	866	87	51								
Volume Left	46	25	8	1								
Volume Right	5	32	28	16								
cSH	803	1259	190	184								
Volume to Capacity	0.06	0.02	0.46	0.28								
Queue Length 95th (m)	1.5	0.5	17.3	8.7								
Control Delay (s)	1.8	0.5	39.0	31.9								
Lane LOS	A	A	E	D								
Approach Delay (s)	1.8	0.5	39.0	31.9								
Approach LOS			E	D								
Intersection Summary												
Average Delay			4.5									
Intersection Capacity Utilization			62.3%		ICU Level of Service				B			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

2: Sixth Line & 5 Side Road

Scenario 2 - PM Peak Hour
Premier Gateway

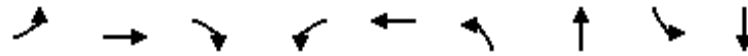


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	4	314	3	21	843	27	9	33	18	8	17	8
Future Volume (Veh/h)	4	314	3	21	843	27	9	33	18	8	17	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	4	327	3	22	878	28	9	34	19	8	18	8
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	906			330			1290	1286	328	1308	1274	892
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	906			330			1290	1286	328	1308	1274	892
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	99			98			93	79	97	93	89	98
cM capacity (veh/h)	759			1241			125	162	718	110	165	325
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	334	928	62	34								
Volume Left	4	22	9	8								
Volume Right	3	28	19	8								
cSH	759	1241	201	165								
Volume to Capacity	0.01	0.02	0.31	0.21								
Queue Length 95th (m)	0.1	0.4	10.0	6.0								
Control Delay (s)	0.2	0.5	30.7	32.4								
Lane LOS	A	A	D	D								
Approach Delay (s)	0.2	0.5	30.7	32.4								
Approach LOS			D	D								
Intersection Summary												
Average Delay			2.6									
Intersection Capacity Utilization			69.0%		ICU Level of Service				C			
Analysis Period (min)			15									

Queues
3: Trafalgar Rd & 5 Side Road

Scenario 2 - PM Peak Hour

Premier Gateway



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	61	189	98	68	643	309	1390	9	657
v/c Ratio	0.73	0.27	0.16	0.15	0.90	0.79	0.63	0.04	0.42
Control Delay	73.3	19.2	4.5	18.1	42.4	32.1	20.5	12.1	23.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.3	19.2	4.5	18.1	42.4	32.1	20.5	12.1	23.9
Queue Length 50th (m)	8.7	21.7	0.0	7.4	100.0	32.4	62.8	0.8	32.9
Queue Length 95th (m)	#31.8	37.2	9.3	16.4	#164.9	#68.8	98.8	3.2	43.8
Internal Link Dist (m)		593.5			641.2		240.1		238.0
Turn Bay Length (m)	40.0		40.0	40.0		40.0		50.0	
Base Capacity (vph)	88	751	656	473	761	391	2200	221	1555
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.25	0.15	0.14	0.84	0.79	0.63	0.04	0.42

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

3: Trafalgar Rd & 5 Side Road

Scenario 2 - PM Peak Hour

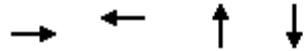
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	185	96	67	585	45	303	1233	129	9	636	8
Future Volume (vph)	60	185	96	67	585	45	303	1233	129	9	636	8
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4	6.4	6.4	6.4		4.0	6.0		4.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1671	1863	1482	1752	1880		1671	4870		1626	4853	
Flt Permitted	0.13	1.00	1.00	0.64	1.00		0.31	1.00		0.15	1.00	
Satd. Flow (perm)	221	1863	1482	1173	1880		550	4870		250	4853	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	61	189	98	68	597	46	309	1258	132	9	649	8
RTOR Reduction (vph)	0	0	62	0	3	0	0	12	0	0	1	0
Lane Group Flow (vph)	61	189	36	68	640	0	309	1378	0	9	656	0
Heavy Vehicles (%)	8%	2%	9%	3%	0%	0%	8%	5%	5%	11%	6%	63%
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	31.9	31.9	31.9	31.9	31.9		43.3	37.9		31.7	30.3	
Effective Green, g (s)	31.9	31.9	31.9	31.9	31.9		43.3	37.9		31.7	30.3	
Actuated g/C Ratio	0.36	0.36	0.36	0.36	0.36		0.49	0.43		0.36	0.35	
Clearance Time (s)	6.4	6.4	6.4	6.4	6.4		4.0	6.0		4.0	6.0	
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0		3.0	5.0		3.0	5.0	
Lane Grp Cap (vph)	80	678	539	427	684		387	2106		112	1678	
v/s Ratio Prot		0.10			c0.34		c0.08	0.28		0.00	0.14	
v/s Ratio Perm	0.28		0.02	0.06			c0.31			0.03		
v/c Ratio	0.76	0.28	0.07	0.16	0.94		0.80	0.65		0.08	0.39	
Uniform Delay, d1	24.5	19.7	18.1	18.8	26.9		15.0	19.7		18.1	21.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	39.1	0.5	0.1	0.4	20.7		10.9	1.6		0.3	0.7	
Delay (s)	63.6	20.2	18.3	19.2	47.6		25.9	21.3		18.5	22.4	
Level of Service	E	C	B	B	D		C	C		B	C	
Approach Delay (s)		27.3			44.8			22.1			22.3	
Approach LOS		C			D			C			C	

Intersection Summary		
HCM 2000 Control Delay	27.4	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.89	
Actuated Cycle Length (s)	87.6	Sum of lost time (s) 16.4
Intersection Capacity Utilization	102.6%	ICU Level of Service G
Analysis Period (min)	15	
c Critical Lane Group		

4: Eighth Line & 5 Side Road



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	369	809	753	268
v/c Ratio	0.47	0.87	0.75	0.29
Control Delay	10.2	23.3	22.2	13.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	10.2	23.3	22.2	13.3
Queue Length 50th (m)	22.0	69.2	38.3	9.8
Queue Length 95th (m)	40.4	#141.2	57.0	18.1
Internal Link Dist (m)	619.4	644.7	2565.8	430.5
Turn Bay Length (m)				
Base Capacity (vph)	952	1141	1190	1106
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.39	0.71	0.63	0.24

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

4: Eighth Line & 5 Side Road

Scenario 2 - PM Peak Hour

Premier Gateway

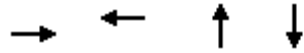


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	60	249	45	41	645	90	5	598	120	23	185	49
Future Volume (vph)	60	249	45	41	645	90	5	598	120	23	185	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frt		0.98			0.98			0.98			0.97	
Flt Protected		0.99			1.00			1.00			1.00	
Satd. Flow (prot)		1770			1836			3363			3405	
Flt Permitted		0.83			0.97			0.95			0.87	
Satd. Flow (perm)		1481			1781			3205			2961	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	62	259	47	43	672	94	5	623	125	24	193	51
RTOR Reduction (vph)	0	9	0	0	8	0	0	28	0	0	34	0
Lane Group Flow (vph)	0	360	0	0	801	0	0	725	0	0	234	0
Heavy Vehicles (%)	5%	5%	2%	12%	1%	1%	0%	4%	8%	0%	3%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		27.6			27.6			16.0			16.0	
Effective Green, g (s)		27.6			27.6			16.0			16.0	
Actuated g/C Ratio		0.52			0.52			0.30			0.30	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		777			934			974			900	
v/s Ratio Prot												
v/s Ratio Perm		0.24			0.45			0.23			0.08	
v/c Ratio		0.46			0.86			0.74			0.26	
Uniform Delay, d1		7.8			10.8			16.5			13.8	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.4			7.9			3.1			0.2	
Delay (s)		8.3			18.7			19.6			14.0	
Level of Service		A			B			B			B	
Approach Delay (s)		8.3			18.7			19.6			14.0	
Approach LOS		A			B			B			B	

Intersection Summary

HCM 2000 Control Delay	16.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	52.6	Sum of lost time (s)	9.0
Intersection Capacity Utilization	77.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Queues
5: Ninth Line & 5 Side Road



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	472	1068	1050	484
v/c Ratio	0.60	1.05	0.97	0.67
Control Delay	18.4	65.2	56.5	34.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	18.4	65.2	56.5	34.4
Queue Length 50th (m)	59.8	~237.6	110.6	44.0
Queue Length 95th (m)	92.4	#317.7	#156.6	62.8
Internal Link Dist (m)	556.9	434.3	3096.2	305.9
Turn Bay Length (m)				
Base Capacity (vph)	791	1018	1077	721
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.60	1.05	0.97	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.

HCM Signalized Intersection Capacity Analysis
5: Ninth Line & 5 Side Road

Scenario 2 - PM Peak Hour
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	56	387	6	8	721	286	22	963	12	35	392	32
Future Volume (vph)	56	387	6	8	721	286	22	963	12	35	392	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			6.0			6.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frt		1.00			0.96			1.00			0.99	
Flt Protected		0.99			1.00			1.00			1.00	
Satd. Flow (prot)		1818			1814			3599			3528	
Flt Permitted		0.77			1.00			0.93			0.63	
Satd. Flow (perm)		1413			1808			3366			2239	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	59	407	6	8	759	301	23	1014	13	37	413	34
RTOR Reduction (vph)	0	0	0	0	6	0	0	1	0	0	5	0
Lane Group Flow (vph)	0	472	0	0	1062	0	0	1049	0	0	479	0
Heavy Vehicles (%)	2%	4%	0%	0%	1%	0%	0%	0%	0%	0%	1%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		56.0			56.0			32.0			32.0	
Effective Green, g (s)		56.0			56.0			32.0			32.0	
Actuated g/C Ratio		0.56			0.56			0.32			0.32	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.5			3.5			5.5			5.5	
Lane Grp Cap (vph)		791			1012			1077			716	
v/s Ratio Prot												
v/s Ratio Perm		0.33			0.59			0.31			0.21	
v/c Ratio		0.60			1.05			0.97			0.67	
Uniform Delay, d1		14.5			22.0			33.6			29.4	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.3			42.1			21.9			4.9	
Delay (s)		15.8			64.1			55.5			34.3	
Level of Service		B			E			E			C	
Approach Delay (s)		15.8			64.1			55.5			34.3	
Approach LOS		B			E			E			C	

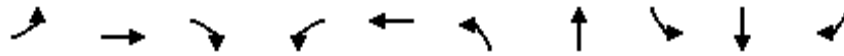
Intersection Summary

HCM 2000 Control Delay	49.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	112.6%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Queues
6: Brownridge Road/Fifth Line & Steeles Avenue

Scenario 2 - PM Peak Hour

Premier Gateway



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	63	733	4	3	1825	57	40	56	4	135
v/c Ratio	0.52	0.24	0.00	0.01	0.56	0.26	0.15	0.28	0.02	0.40
Control Delay	29.8	5.3	0.0	5.0	7.6	25.3	12.4	26.2	21.2	13.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.8	5.3	0.0	5.0	7.6	25.3	12.4	26.2	21.2	13.5
Queue Length 50th (m)	3.9	12.8	0.0	0.1	43.4	5.8	0.9	5.8	0.4	4.4
Queue Length 95th (m)	#23.5	18.2	0.0	1.0	56.7	15.1	8.1	15.0	2.6	17.9
Internal Link Dist (m)		462.3			679.6		261.2		67.4	
Turn Bay Length (m)	145.0		65.0	30.0		20.0		25.0		25.0
Base Capacity (vph)	122	3057	901	353	3246	222	272	200	251	335
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	0.52	0.24	0.00	0.01	0.56	0.26	0.15	0.28	0.02	0.40

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
6: Brownridge Road/Fifth Line & Steeles Avenue

Scenario 2 - PM Peak Hour
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗	↘	↑↑↑		↘	↗		↘	↑	↗
Traffic Volume (vph)	60	704	4	3	1738	14	55	9	30	54	4	130
Future Volume (vph)	60	704	4	3	1738	14	55	9	30	54	4	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.88		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1687	4472	1292	1357	4746		1687	1484		1570	1520	1568
Flt Permitted	0.10	1.00	1.00	0.36	1.00		0.76	1.00		0.73	1.00	1.00
Satd. Flow (perm)	179	4472	1292	516	4746		1341	1484		1208	1520	1568
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	62	733	4	3	1810	15	57	9	31	56	4	135
RTOR Reduction (vph)	0	0	1	0	1	0	0	27	0	0	0	79
Lane Group Flow (vph)	63	733	3	3	1824	0	57	13	0	56	4	56
Heavy Vehicles (%)	7%	16%	25%	33%	9%	29%	7%	0%	17%	15%	25%	3%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2				6
Permitted Phases	4		4	8			2			6		6
Actuated Green, G (s)	39.6	39.6	39.6	39.6	39.6		8.0	8.0		8.0	8.0	8.0
Effective Green, g (s)	39.6	39.6	39.6	39.6	39.6		8.0	8.0		8.0	8.0	8.0
Actuated g/C Ratio	0.64	0.64	0.64	0.64	0.64		0.13	0.13		0.13	0.13	0.13
Clearance Time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	115	2874	830	331	3051		174	192		156	197	203
v/s Ratio Prot		0.16			c0.38			0.01				0.00
v/s Ratio Perm	0.35		0.00	0.01			0.04			c0.05		0.04
v/c Ratio	0.55	0.26	0.00	0.01	0.60		0.33	0.07		0.36	0.02	0.27
Uniform Delay, d1	6.1	4.7	3.9	4.0	6.4		24.4	23.5		24.5	23.4	24.2
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	17.5	0.2	0.0	0.0	0.9		1.1	0.2		1.4	0.0	0.7
Delay (s)	23.5	4.9	3.9	4.0	7.3		25.5	23.7		25.9	23.4	24.9
Level of Service	C	A	A	A	A		C	C		C	C	C
Approach Delay (s)		6.4			7.2			24.7			25.2	
Approach LOS		A			A			C			C	

Intersection Summary

HCM 2000 Control Delay	8.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	61.6	Sum of lost time (s)	14.0
Intersection Capacity Utilization	71.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Queues
7: Fifth Line South & Steeles Avenue

Scenario 2 - PM Peak Hour
Premier Gateway



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	859	1	3	1848	19	9
v/c Ratio	0.22	0.00	0.01	0.45	0.07	0.04
Control Delay	2.7	3.0	3.7	3.7	26.6	16.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.7	3.0	3.7	3.7	26.6	16.1
Queue Length 50th (m)	0.0	0.0	0.0	0.0	1.8	0.0
Queue Length 95th (m)	20.9	0.5	0.9	56.4	7.9	3.9
Internal Link Dist (m)	679.6			455.7	532.9	
Turn Bay Length (m)		30.0	60.0		15.0	
Base Capacity (vph)	3877	1400	524	4087	297	257
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.00	0.01	0.45	0.06	0.04

Intersection Summary

HCM Signalized Intersection Capacity Analysis

7: Fifth Line South & Steeles Avenue

Scenario 2 - PM Peak Hour
Premier Gateway



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗	↖	↑↑↑	↖	↗
Traffic Volume (vph)	807	1	3	1737	18	8
Future Volume (vph)	807	1	3	1737	18	8
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0	8.0	6.0	6.0
Lane Util. Factor	0.91	1.00	1.00	0.91	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	4472	1615	1805	4715	1703	1429
Flt Permitted	1.00	1.00	0.32	1.00	0.95	1.00
Satd. Flow (perm)	4472	1615	603	4715	1703	1429
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	859	1	3	1848	19	9
RTOR Reduction (vph)	0	0	0	0	0	9
Lane Group Flow (vph)	859	1	3	1848	19	0
Heavy Vehicles (%)	16%	0%	0%	10%	6%	13%
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	4			8		
Permitted Phases		4	8		2	2
Actuated Green, G (s)	49.9	49.9	49.9	49.9	3.5	3.5
Effective Green, g (s)	49.9	49.9	49.9	49.9	3.5	3.5
Actuated g/C Ratio	0.74	0.74	0.74	0.74	0.05	0.05
Clearance Time (s)	8.0	8.0	8.0	8.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	3310	1195	446	3490	88	74
v/s Ratio Prot	0.19			c0.39		
v/s Ratio Perm		0.00	0.00		c0.01	0.00
v/c Ratio	0.26	0.00	0.01	0.53	0.22	0.01
Uniform Delay, d1	2.8	2.3	2.3	3.7	30.6	30.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.0	0.0	0.6	1.2	0.0
Delay (s)	3.0	2.3	2.3	4.3	31.9	30.3
Level of Service	A	A	A	A	C	C
Approach Delay (s)	3.0			4.3	31.4	
Approach LOS	A			A	C	

Intersection Summary

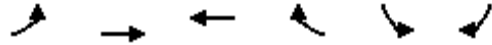
HCM 2000 Control Delay	4.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	67.4	Sum of lost time (s)	14.0
Intersection Capacity Utilization	55.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Queues

Scenario 2 - PM Peak Hour

8: Steeles Avenue & Sixth Line

Premier Gateway



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	60	1167	1810	24	6	43
v/c Ratio	0.53	0.49	0.70	0.03	0.01	0.08
Control Delay	26.8	9.3	11.8	2.7	21.5	13.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.8	9.3	11.8	2.7	21.5	13.7
Queue Length 50th (m)	4.2	29.1	53.8	0.1	0.5	1.5
Queue Length 95th (m)	17.4	37.3	66.5	2.5	3.7	10.2
Internal Link Dist (m)		455.7	881.3		3042.1	
Turn Bay Length (m)	60.0			30.0	30.0	
Base Capacity (vph)	172	3573	3864	1277	560	517
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.33	0.47	0.02	0.01	0.08

Intersection Summary

HCM Signalized Intersection Capacity Analysis
8: Steeles Avenue & Sixth Line

Scenario 2 - PM Peak Hour
Premier Gateway



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	56	1097	1701	23	6	40
Future Volume (vph)	56	1097	1701	23	6	40
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	4359	4715	1553	1805	1615
Flt Permitted	0.11	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	210	4359	4715	1553	1805	1615
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	60	1167	1810	24	6	43
RTOR Reduction (vph)	0	0	0	10	0	17
Lane Group Flow (vph)	60	1167	1810	14	6	26
Heavy Vehicles (%)	2%	19%	10%	4%	0%	0%
Turn Type	Perm	NA	NA	Perm	Prot	Perm
Protected Phases		4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	35.4	35.4	35.4	35.4	20.1	20.1
Effective Green, g (s)	35.4	35.4	35.4	35.4	20.1	20.1
Actuated g/C Ratio	0.55	0.55	0.55	0.55	0.31	0.31
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	115	2392	2587	852	562	503
v/s Ratio Prot		0.27	c0.38		0.00	
v/s Ratio Perm	0.29			0.01		c0.02
v/c Ratio	0.52	0.49	0.70	0.02	0.01	0.05
Uniform Delay, d1	9.2	9.0	10.7	6.6	15.3	15.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	4.2	0.2	0.8	0.0	0.0	0.2
Delay (s)	13.4	9.1	11.5	6.6	15.4	15.7
Level of Service	B	A	B	A	B	B
Approach Delay (s)		9.3	11.4		15.7	
Approach LOS		A	B		B	

Intersection Summary			
HCM 2000 Control Delay	10.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	64.5	Sum of lost time (s)	9.0
Intersection Capacity Utilization	52.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues
9: Sixth Line South/Street A & Steeles Avenue

Scenario 2 - PM Peak Hour
Premier Gateway



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	55	1106	1601	155	9	3	582	204
v/c Ratio	0.37	0.55	0.88	0.25	0.06	0.01	0.88	0.28
Control Delay	26.0	29.3	48.9	14.0	68.6	0.0	51.6	16.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.0	29.3	48.9	14.0	68.6	0.0	51.6	16.5
Queue Length 50th (m)	8.8	85.8	167.6	13.5	2.7	0.0	155.1	21.4
Queue Length 95th (m)	15.9	92.6	184.9	29.9	9.2	0.0	#219.4	43.8
Internal Link Dist (m)		881.3	473.0			145.8		481.0
Turn Bay Length (m)	50.0			30.0	30.0		70.0	
Base Capacity (vph)	148	2056	1851	629	219	410	677	778
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.54	0.86	0.25	0.04	0.01	0.86	0.26

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
 9: Sixth Line South/Street A & Steeles Avenue

Scenario 2 - PM Peak Hour

Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗	↘	↑↑↑	↗	↘	↗		↘	↗	
Traffic Volume (vph)	52	1051	0	0	1521	147	9	0	3	553	0	194
Future Volume (vph)	52	1051	0	0	1521	147	9	0	3	553	0	194
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0			6.0	6.0	6.0	6.0		4.5	6.0	
Lane Util. Factor	1.00	0.91			0.91	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00			1.00	0.85	1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1641	4359			4715	1468	1805	1615		1641	1468	
Flt Permitted	0.06	1.00			1.00	1.00	0.63	1.00		0.61	1.00	
Satd. Flow (perm)	110	4359			4715	1468	1197	1615		1054	1468	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	55	1106	0	0	1601	155	9	0	3	582	0	204
RTOR Reduction (vph)	0	0	0	0	0	53	0	3	0	0	51	0
Lane Group Flow (vph)	55	1106	0	0	1601	102	9	0	0	582	153	0
Heavy Vehicles (%)	10%	19%	0%	0%	10%	10%	0%	0%	0%	10%	0%	10%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	70.8	70.8			58.1	58.1	18.9	18.9		67.2	67.2	
Effective Green, g (s)	70.8	70.8			58.1	58.1	18.9	18.9		67.2	67.2	
Actuated g/C Ratio	0.47	0.47			0.39	0.39	0.13	0.13		0.45	0.45	
Clearance Time (s)	4.5	6.0			6.0	6.0	6.0	6.0		4.5	6.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	135	2057			1826	568	150	203		643	657	
v/s Ratio Prot	0.02	c0.25			c0.34			0.00		c0.26	0.10	
v/s Ratio Perm	0.17					0.07	0.01			c0.14		
v/c Ratio	0.41	0.54			0.88	0.18	0.06	0.00		0.91	0.23	
Uniform Delay, d1	28.9	28.0			42.6	30.2	57.7	57.3		35.7	25.5	
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.0	0.3			5.1	0.2	0.8	0.0		16.2	0.2	
Delay (s)	30.9	28.3			47.7	30.4	58.5	57.3		52.0	25.7	
Level of Service	C	C			D	C	E	E		D	C	
Approach Delay (s)		28.4			46.2			58.2			45.1	
Approach LOS		C			D			E			D	

Intersection Summary			
HCM 2000 Control Delay	40.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	84.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
 10: Steeles Avenue & Hornby Road

Scenario 2 - PM Peak Hour
 Premier Gateway



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↵	↑↑↑	↑↑↑	↵	↵	↵
Traffic Volume (veh/h)	39	1568	1590	18	5	78
Future Volume (Veh/h)	39	1568	1590	18	5	78
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	41	1633	1656	19	5	81
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1675				2282	552
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1675				2282	552
tC, single (s)	4.3				7.2	7.1
tC, 2 stage (s)						
tF (s)	2.3				3.7	3.4
p0 queue free %	88				78	82
cM capacity (veh/h)	345				23	457

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	SB 1	SB 2
Volume Total	41	544	544	544	552	552	552	19	5	81
Volume Left	41	0	0	0	0	0	0	0	5	0
Volume Right	0	0	0	0	0	0	0	19	0	81
cSH	345	1700	1700	1700	1700	1700	1700	1700	23	457
Volume to Capacity	0.12	0.32	0.32	0.32	0.32	0.32	0.32	0.01	0.22	0.18
Queue Length 95th (m)	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	5.1	5.1
Control Delay (s)	16.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	199.0	14.6
Lane LOS	C								F	B
Approach Delay (s)	0.4				0.0				25.3	
Approach LOS									D	

Intersection Summary		
Average Delay		0.8
Intersection Capacity Utilization	42.4%	ICU Level of Service
Analysis Period (min)	15	A

HCM Unsignalized Intersection Capacity Analysis
 11: Trafalgar Rd & Hornby Rd

Scenario 2 - PM Peak Hour
 Premier Gateway



Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations							
Traffic Volume (veh/h)	178	8	4	1416	644	117	
Future Volume (Veh/h)	178	8	4	1416	644	117	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	
Hourly flow rate (vph)	182	8	4	1445	657	119	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				None	None		
Median storage veh							
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume	1206	278	657				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1206	278	657				
tC, single (s)	7.0	7.1	4.3				
tC, 2 stage (s)							
tF (s)	3.6	3.4	2.3				
p0 queue free %	0	99	100				
cM capacity (veh/h)	167	695	874				
Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	190	293	578	578	263	263	250
Volume Left	182	4	0	0	0	0	0
Volume Right	8	0	0	0	0	0	119
cSH	172	874	1700	1700	1700	1700	1700
Volume to Capacity	1.10	0.00	0.34	0.34	0.15	0.15	0.15
Queue Length 95th (m)	76.9	0.1	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	153.2	0.2	0.0	0.0	0.0	0.0	0.0
Lane LOS	F	A					
Approach Delay (s)	153.2	0.0			0.0		
Approach LOS	F						
Intersection Summary							
Average Delay			12.1				
Intersection Capacity Utilization			47.1%		ICU Level of Service		A
Analysis Period (min)			15				

Queues
12: Trafalgar Road & Steeles Avenue

Scenario 2 - PM Peak Hour
Premier Gateway



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	74	826	1011	1001	1030	205	460	1068	906	117	1216
v/c Ratio	0.30	0.50	1.57	1.84	0.44	0.23	1.54	0.85	1.44	0.92	1.28
Control Delay	18.1	36.4	289.8	418.0	24.9	3.1	299.7	58.8	231.1	99.2	180.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.1	36.4	289.8	418.0	24.9	3.1	299.7	58.8	231.1	99.2	180.3
Queue Length 50th (m)	9.3	70.2	~396.6	~235.4	72.8	0.0	~100.3	113.1	~297.7	24.5	~170.9
Queue Length 95th (m)	17.2	84.3	#481.8	#278.4	85.3	13.6	#136.4	131.9	#381.6	#58.9	#202.6
Internal Link Dist (m)		443.0			287.3			749.5			265.5
Turn Bay Length (m)	115.0		40.0	130.0		70.0	100.0		65.0		
Base Capacity (vph)	250	1650	645	544	2330	879	299	1260	631	127	949
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	0.30	0.50	1.57	1.84	0.44	0.23	1.54	0.85	1.44	0.92	1.28

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
12: Trafalgar Road & Steeles Avenue

Scenario 2 - PM Peak Hour
Premier Gateway

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	71	793	971	961	989	197	442	1025	870	112	1146	21	
Future Volume (vph)	71	793	971	961	989	197	442	1025	870	112	1146	21	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	7.0	7.0	5.0	7.0	7.0	5.0	8.0	8.0	4.0	8.0		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.91		
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (prot)	1583	4433	1417	3433	4759	1583	3099	4940	1568	1570	4738		
Flt Permitted	0.27	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.14	1.00		
Satd. Flow (perm)	443	4433	1417	3433	4759	1583	3099	4940	1568	228	4738		
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Adj. Flow (vph)	74	826	1011	1001	1030	205	460	1068	906	117	1194	22	
RTOR Reduction (vph)	0	0	118	0	0	105	0	0	232	0	2	0	
Lane Group Flow (vph)	74	826	893	1001	1030	100	460	1068	674	117	1214	0	
Heavy Vehicles (%)	14%	17%	14%	2%	9%	2%	13%	5%	3%	15%	9%	19%	
Turn Type	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA		
Protected Phases	7	4		3	8		5	2		1	6		
Permitted Phases	4		4			8			2	6			
Actuated Green, G (s)	61.0	54.0	54.0	23.0	71.0	71.0	14.0	37.0	37.0	36.0	29.0		
Effective Green, g (s)	61.0	54.0	54.0	23.0	71.0	71.0	14.0	37.0	37.0	36.0	29.0		
Actuated g/C Ratio	0.42	0.37	0.37	0.16	0.49	0.49	0.10	0.26	0.26	0.25	0.20		
Clearance Time (s)	4.0	7.0	7.0	5.0	7.0	7.0	5.0	8.0	8.0	4.0	8.0		
Vehicle Extension (s)	3.0	3.0	3.0	4.0	3.0	3.0	4.0	0.2	0.2	3.0	0.2		
Lane Grp Cap (vph)	241	1650	527	544	2330	775	299	1260	400	121	947		
v/s Ratio Prot	0.01	0.19		c0.29	0.22		c0.15	0.22		0.05	0.26		
v/s Ratio Perm	0.11		c0.63			0.06			c0.43	0.19			
v/c Ratio	0.31	0.50	1.69	1.84	0.44	0.13	1.54	0.85	1.69	0.97	1.28		
Uniform Delay, d1	25.5	35.1	45.5	61.0	24.1	20.2	65.5	51.3	54.0	48.6	58.0		
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Incremental Delay, d2	0.7	0.2	320.7	385.1	0.1	0.1	258.4	7.2	319.3	70.8	135.2		
Delay (s)	26.3	35.3	366.2	446.1	24.2	20.2	323.9	58.5	373.3	119.3	193.2		
Level of Service	C	D	F	F	C	C	F	E	F	F	F		
Approach Delay (s)		210.0			212.7			225.9			186.7		
Approach LOS		F			F			F			F		
Intersection Summary													
HCM 2000 Control Delay			211.7									HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio			1.74										
Actuated Cycle Length (s)			145.0									Sum of lost time (s)	25.0
Intersection Capacity Utilization			126.8%									ICU Level of Service	H
Analysis Period (min)			15										
c Critical Lane Group													

Queues
13: Toronto Premier Outlets & Steeles Avenue

Scenario 2 - PM Peak Hour
Premier Gateway



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1283	527	93	1908	329	29
v/c Ratio	0.60	0.52	0.30	0.66	0.44	0.09
Control Delay	14.7	3.4	7.3	9.9	22.5	8.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.7	3.4	7.3	9.9	22.5	8.9
Queue Length 50th (m)	41.6	0.0	3.7	48.0	17.1	0.0
Queue Length 95th (m)	55.2	15.7	8.3	62.4	27.6	5.6
Internal Link Dist (m)	287.3			176.7	95.1	
Turn Bay Length (m)		130.0	45.0			40.0
Base Capacity (vph)	2121	1009	308	2881	751	337
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.60	0.52	0.30	0.66	0.44	0.09
Intersection Summary						

HCM Signalized Intersection Capacity Analysis
13: Toronto Premier Outlets & Steeles Avenue

Scenario 2 - PM Peak Hour
Premier Gateway



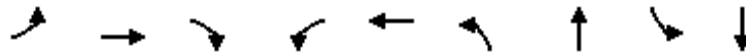
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↑	↑↑↑	↑↑	↑
Traffic Volume (vph)	1232	506	89	1832	316	28
Future Volume (vph)	1232	506	89	1832	316	28
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	4.0	6.0	6.0	6.0
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	4715	1599	1752	4940	3467	1455
Flt Permitted	1.00	1.00	0.14	1.00	0.95	1.00
Satd. Flow (perm)	4715	1599	259	4940	3467	1455
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	1283	527	93	1908	329	29
RTOR Reduction (vph)	0	290	0	0	0	23
Lane Group Flow (vph)	1283	237	93	1908	329	6
Heavy Vehicles (%)	10%	1%	3%	5%	1%	11%
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	27.0	27.0	35.8	35.8	12.2	12.2
Effective Green, g (s)	27.0	27.0	35.8	35.8	12.2	12.2
Actuated g/C Ratio	0.45	0.45	0.60	0.60	0.20	0.20
Clearance Time (s)	6.0	6.0	4.0	6.0	6.0	6.0
Vehicle Extension (s)	0.2	0.2	3.0	0.2	4.0	4.0
Lane Grp Cap (vph)	2121	719	273	2947	704	295
v/s Ratio Prot	0.27		0.03	c0.39	c0.09	
v/s Ratio Perm		0.15	0.18			0.00
v/c Ratio	0.60	0.33	0.34	0.65	0.47	0.02
Uniform Delay, d1	12.5	10.7	6.2	8.0	21.0	19.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.3	1.2	0.7	1.1	2.2	0.1
Delay (s)	13.8	11.9	6.9	9.1	23.3	19.2
Level of Service	B	B	A	A	C	B
Approach Delay (s)	13.2			9.0	22.9	
Approach LOS	B			A	C	

Intersection Summary

HCM 2000 Control Delay	12.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	54.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues

14: Toronto Premium Outlets/Eighth Line & Steeles Avenue



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	416	886	38	198	1849	253	357	102	146
v/c Ratio	0.96	0.36	0.04	0.52	0.97	0.92	0.60	0.78	0.28
Control Delay	75.5	19.7	0.1	17.4	55.7	101.3	21.9	94.7	16.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	75.5	19.7	0.1	17.4	55.7	101.3	21.9	94.7	16.4
Queue Length 50th (m)	102.6	53.0	0.0	20.8	191.9	38.4	35.5	29.2	4.2
Queue Length 95th (m)	#168.7	66.1	0.0	31.6	#229.6	#65.7	70.9	#61.6	14.8
Internal Link Dist (m)		176.7			846.8		194.1		472.6
Turn Bay Length (m)	105.0		55.0	30.0				20.0	
Base Capacity (vph)	444	2454	910	414	1906	274	593	131	520
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.94	0.36	0.04	0.48	0.97	0.92	0.60	0.78	0.28

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
 14: Toronto Premium Outlets/Eighth Line & Steeles Avenue

Scenario 2 - PM Peak Hour

Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗	↘	↑↑↑		↘↗	↗		↘	↑↗	
Traffic Volume (vph)	391	833	36	186	1578	160	238	47	289	96	29	108
Future Volume (vph)	391	833	36	186	1578	160	238	47	289	96	29	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	4.0	6.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91		0.97	1.00		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.87		1.00	0.88	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	4631	1615	1770	4801		3467	1641		1687	3086	
Flt Permitted	0.07	1.00	1.00	0.31	1.00		0.95	1.00		0.54	1.00	
Satd. Flow (perm)	125	4631	1615	575	4801		3467	1641		959	3086	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	416	886	38	198	1679	170	253	50	307	102	31	115
RTOR Reduction (vph)	0	0	18	0	8	0	0	158	0	0	99	0
Lane Group Flow (vph)	416	886	20	198	1841	0	253	199	0	102	47	0
Heavy Vehicles (%)	3%	12%	0%	2%	7%	2%	1%	0%	1%	7%	0%	4%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA		Perm	NA	
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases	4		4	8						6		
Actuated Green, G (s)	89.1	73.7	73.7	66.4	55.0		11.0	37.0		19.0	19.0	
Effective Green, g (s)	89.1	73.7	73.7	66.4	55.0		11.0	37.0		19.0	19.0	
Actuated g/C Ratio	0.64	0.53	0.53	0.48	0.40		0.08	0.27		0.14	0.14	
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	0.2	0.2	3.0	0.2		4.0	4.0		3.0	3.0	
Lane Grp Cap (vph)	432	2453	855	372	1898		274	436		130	421	
v/s Ratio Prot	c0.21	0.19		0.04	0.38		c0.07	0.12			0.02	
v/s Ratio Perm	c0.41		0.01	0.21						c0.11		
v/c Ratio	0.96	0.36	0.02	0.53	0.97		0.92	0.46		0.78	0.11	
Uniform Delay, d1	45.0	19.0	15.6	21.4	41.2		63.6	42.7		58.1	52.6	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	33.6	0.4	0.1	1.5	14.6		34.9	1.0		36.6	0.5	
Delay (s)	78.6	19.4	15.6	22.9	55.9		98.6	43.7		94.7	53.2	
Level of Service	E	B	B	C	E		F	D		F	D	
Approach Delay (s)		37.7			52.7			66.4			70.2	
Approach LOS		D			D			E			E	

Intersection Summary

HCM 2000 Control Delay	51.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.95		
Actuated Cycle Length (s)	139.1	Sum of lost time (s)	24.0
Intersection Capacity Utilization	104.3%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
 15: Eighth Line South & Steeles Avenue

Scenario 2 - PM Peak Hour
 Premier Gateway



Movement	EBT	EBR	WBL	WBT	NBL	NBR				
Lane Configurations	↑↑↑		↵	↑↑↑	↵	↵				
Traffic Volume (veh/h)	1180	3	0	1936	1	6				
Future Volume (Veh/h)	1180	3	0	1936	1	6				
Sign Control	Free			Free	Stop					
Grade	0%			0%	0%					
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				
Hourly flow rate (vph)	1229	3	0	2017	1	6				
Pedestrians										
Lane Width (m)										
Walking Speed (m/s)										
Percent Blockage										
Right turn flare (veh)										
Median type	None			None						
Median storage (veh)										
Upstream signal (m)										
pX, platoon unblocked										
vC, conflicting volume			1232			1903	411			
vC1, stage 1 conf vol										
vC2, stage 2 conf vol										
vCu, unblocked vol			1232			1903	411			
tC, single (s)			4.1			6.8	7.2			
tC, 2 stage (s)										
tF (s)			2.2			3.5	3.5			
p0 queue free %			100			98	99			
cM capacity (veh/h)			573			62	550			
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	
Volume Total	492	492	249	0	672	672	672	1	6	
Volume Left	0	0	0	0	0	0	0	1	0	
Volume Right	0	0	3	0	0	0	0	0	6	
cSH	1700	1700	1700	1700	1700	1700	1700	62	550	
Volume to Capacity	0.29	0.29	0.15	0.00	0.40	0.40	0.40	0.02	0.01	
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.3	
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	64.0	11.6	
Lane LOS								F	B	
Approach Delay (s)	0.0			0.0			19.1			
Approach LOS								C		
Intersection Summary										
Average Delay			0.0							
Intersection Capacity Utilization			47.4%		ICU Level of Service				A	
Analysis Period (min)			15							

Queues
16: Steeles Avenue & Ninth Line



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	166	1116	1887	944	359	115
v/c Ratio	0.77	0.42	0.87	0.78	0.69	0.21
Control Delay	41.2	13.3	30.8	7.3	39.0	6.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.2	13.3	30.8	7.3	39.0	6.1
Queue Length 50th (m)	16.0	45.2	124.3	4.9	64.3	0.0
Queue Length 95th (m)	#49.7	55.5	146.8	42.6	97.5	12.6
Internal Link Dist (m)		501.4	674.5		3096.2	
Turn Bay Length (m)	65.0			75.0		
Base Capacity (vph)	216	2640	2174	1208	520	541
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.42	0.87	0.78	0.69	0.21

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
 16: Steeles Avenue & Ninth Line

Scenario 2 - PM Peak Hour
 Premier Gateway



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	158	1060	1793	897	341	109
Future Volume (vph)	158	1060	1793	897	341	109
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1736	4715	4940	1599	1736	1538
Flt Permitted	0.08	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	152	4715	4940	1599	1736	1538
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	166	1116	1887	944	359	115
RTOR Reduction (vph)	0	0	0	505	0	81
Lane Group Flow (vph)	166	1116	1887	439	359	35
Heavy Vehicles (%)	4%	10%	5%	1%	4%	5%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	56.0	56.0	44.0	44.0	30.0	30.0
Effective Green, g (s)	56.0	56.0	44.0	44.0	30.0	30.0
Actuated g/C Ratio	0.56	0.56	0.44	0.44	0.30	0.30
Clearance Time (s)	4.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	0.2	0.2	0.2	3.0	3.0
Lane Grp Cap (vph)	211	2640	2173	703	520	461
v/s Ratio Prot	c0.06	0.24	c0.38		c0.21	
v/s Ratio Perm	0.38			0.27		0.02
v/c Ratio	0.79	0.42	0.87	0.63	0.69	0.07
Uniform Delay, d1	20.6	12.7	25.4	21.6	30.9	25.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	17.4	0.5	5.0	4.2	7.3	0.3
Delay (s)	38.0	13.2	30.4	25.8	38.2	25.4
Level of Service	D	B	C	C	D	C
Approach Delay (s)		16.4	28.9		35.1	
Approach LOS		B	C		D	

Intersection Summary

HCM 2000 Control Delay	26.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	77.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Queues
17: Ninth Line (South) & Steeles Avenue

Scenario 2 - PM Peak Hour
Premier Gateway



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1149	317	394	2226	665	434
v/c Ratio	0.96	0.51	0.96	0.93	0.91	0.50
Control Delay	64.9	9.2	70.7	40.3	54.0	8.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	64.9	9.2	70.7	40.3	54.0	8.6
Queue Length 50th (m)	112.5	5.6	86.9	201.2	167.2	16.5
Queue Length 95th (m)	#143.5	31.7	#150.3	226.4	#243.6	45.3
Internal Link Dist (m)	674.5			487.1	143.5	
Turn Bay Length (m)		75.0	145.0		60.0	
Base Capacity (vph)	1202	624	420	2406	732	860
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.96	0.51	0.94	0.93	0.91	0.50

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
 17: Ninth Line (South) & Steeles Avenue

Scenario 2 - PM Peak Hour
 Premier Gateway



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↑	↑↑↑	↑	↑
Traffic Volume (vph)	1080	298	370	2092	625	408
Future Volume (vph)	1080	298	370	2092	625	408
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	4.0	7.0	7.0	7.0
Lane Util. Factor	0.91	1.00	1.00	0.91	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	4715	1599	1787	4940	1787	1615
Flt Permitted	1.00	1.00	0.11	1.00	0.95	1.00
Satd. Flow (perm)	4715	1599	203	4940	1787	1615
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	1149	317	394	2226	665	434
RTOR Reduction (vph)	0	216	0	0	0	198
Lane Group Flow (vph)	1149	101	394	2226	665	236
Heavy Vehicles (%)	10%	1%	1%	5%	1%	0%
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	33.1	33.1	62.4	62.4	53.0	53.0
Effective Green, g (s)	33.1	33.1	62.4	62.4	53.0	53.0
Actuated g/C Ratio	0.26	0.26	0.48	0.48	0.41	0.41
Clearance Time (s)	7.0	7.0	4.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1206	409	407	2382	731	661
v/s Ratio Prot	0.24		0.19	c0.45	c0.37	
v/s Ratio Perm		0.06	c0.28			0.15
v/c Ratio	0.95	0.25	0.97	0.93	0.91	0.36
Uniform Delay, d1	47.4	38.3	39.1	31.6	35.9	26.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	15.9	0.3	35.9	7.6	17.4	1.5
Delay (s)	63.2	38.6	75.0	39.2	53.3	27.9
Level of Service	E	D	E	D	D	C
Approach Delay (s)	57.9			44.6	43.3	
Approach LOS	E			D	D	

Intersection Summary			
HCM 2000 Control Delay	48.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	129.4	Sum of lost time (s)	18.0
Intersection Capacity Utilization	91.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Queues

Scenario 2 - PM Peak Hour

18: James Snow Parkway & Hwy 401 (Westbound Ramp)

Premier Gateway



Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	950	326	634	1200
v/c Ratio	0.78	0.58	0.33	0.60
Control Delay	24.9	16.1	15.9	18.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	24.9	16.1	15.9	18.9
Queue Length 50th (m)	58.2	24.5	21.7	47.0
Queue Length 95th (m)	78.7	51.0	33.6	67.6
Internal Link Dist (m)	390.4		415.8	504.8
Turn Bay Length (m)				
Base Capacity (vph)	1497	658	1912	2004
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.63	0.50	0.33	0.60
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
 18: James Snow Parkway & Hwy 401 (Westbound Ramp)

Scenario 2 - PM Peak Hour

Premier Gateway



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔↔	↔	↑↑↑			↑↑↑
Traffic Volume (vph)	868	344	602	0	0	1140
Future Volume (vph)	868	344	602	0	0	1140
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.2	8.2	9.3			9.3
Lane Util. Factor	0.97	0.91	0.91			0.91
Frt	0.99	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3489	1386	4803			5036
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3489	1386	4803			5036
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	914	362	634	0	0	1200
RTOR Reduction (vph)	4	73	0	0	0	0
Lane Group Flow (vph)	946	253	634	0	0	1200
Heavy Vehicles (%)	0%	6%	8%	0%	0%	3%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	24.5	24.5	27.8			27.8
Effective Green, g (s)	24.5	24.5	27.8			27.8
Actuated g/C Ratio	0.35	0.35	0.40			0.40
Clearance Time (s)	8.2	8.2	9.3			9.3
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	1224	486	1912			2005
v/s Ratio Prot	c0.27		0.13			c0.24
v/s Ratio Perm		0.18				
v/c Ratio	0.77	0.52	0.33			0.60
Uniform Delay, d1	20.2	18.0	14.6			16.6
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	3.1	0.9	0.5			1.3
Delay (s)	23.3	18.9	15.0			17.9
Level of Service	C	B	B			B
Approach Delay (s)	22.2		15.0			17.9
Approach LOS	C		B			B

Intersection Summary			
HCM 2000 Control Delay	19.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.68		
Actuated Cycle Length (s)	69.8	Sum of lost time (s)	17.5
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Queues

19: James Snow Parkway & Hwy 401 (Eastbound Ramp)



Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	286	136	736	1700
v/c Ratio	0.55	0.51	0.23	0.52
Control Delay	28.6	29.1	5.9	8.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	28.6	29.1	5.9	8.0
Queue Length 50th (m)	17.3	15.7	13.3	39.3
Queue Length 95th (m)	28.5	33.2	22.6	61.6
Internal Link Dist (m)	305.5		1282.4	415.8
Turn Bay Length (m)				
Base Capacity (vph)	716	360	3239	3271
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.40	0.38	0.23	0.52

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 19: James Snow Parkway & Hwy 401 (Eastbound Ramp)

Scenario 2 - PM Peak Hour
 Premier Gateway



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	146	268	0	721	1666	0
Future Volume (vph)	146	268	0	721	1666	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		7.4	7.4	
Lane Util. Factor	0.97	0.91		0.91	0.91	
Frt	0.93	0.85		1.00	1.00	
Flt Protected	0.97	1.00		1.00	1.00	
Satd. Flow (prot)	2900	1427		5085	5136	
Flt Permitted	0.97	1.00		1.00	1.00	
Satd. Flow (perm)	2900	1427		5085	5136	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	149	273	0	736	1700	0
RTOR Reduction (vph)	18	18	0	0	0	0
Lane Group Flow (vph)	268	118	0	736	1700	0
Heavy Vehicles (%)	26%	3%	0%	2%	1%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	12.2	12.2		45.0	45.0	
Effective Green, g (s)	12.2	12.2		45.0	45.0	
Actuated g/C Ratio	0.17	0.17		0.64	0.64	
Clearance Time (s)	6.0	6.0		7.4	7.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	501	246		3241	3273	
v/s Ratio Prot	c0.09			0.14	c0.33	
v/s Ratio Perm		0.08				
v/c Ratio	0.53	0.48		0.23	0.52	
Uniform Delay, d1	26.6	26.3		5.4	6.9	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.1	1.5		0.2	0.6	
Delay (s)	27.7	27.8		5.6	7.5	
Level of Service	C	C		A	A	
Approach Delay (s)	27.7			5.6	7.5	
Approach LOS	C			A	A	

Intersection Summary			
HCM 2000 Control Delay	10.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	70.6	Sum of lost time (s)	13.4
Intersection Capacity Utilization	65.0%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Queues
20: Trafalgar Road & Hwy 401 (Westbound Ramp)

Scenario 2 - PM Peak Hour
Premier Gateway



Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	861	465	1460	2151
v/c Ratio	0.76	0.91	0.54	0.83
Control Delay	36.4	56.2	18.7	26.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	36.4	56.2	18.7	26.2
Queue Length 50th (m)	89.1	108.6	85.8	161.5
Queue Length 95th (m)	112.6	#174.3	102.5	188.8
Internal Link Dist (m)	383.1		312.7	749.5
Turn Bay Length (m)				
Base Capacity (vph)	1297	583	2682	2607
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.66	0.80	0.54	0.83

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
 20: Trafalgar Road & Hwy 401 (Westbound Ramp)

Scenario 2 - PM Peak Hour

Premier Gateway



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↶↶	↶	↷↷↷			↷↷↷
Traffic Volume (vph)	384	902	1416	0	0	2086
Future Volume (vph)	384	902	1416	0	0	2086
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0			6.0
Lane Util. Factor	0.97	0.91	0.91			0.91
Frt	0.92	0.85	1.00			1.00
Flt Protected	0.98	1.00	1.00			1.00
Satd. Flow (prot)	3184	1413	4940			4803
Flt Permitted	0.98	1.00	1.00			1.00
Satd. Flow (perm)	3184	1413	4940			4803
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	396	930	1460	0	0	2151
RTOR Reduction (vph)	16	16	0	0	0	0
Lane Group Flow (vph)	845	449	1460	0	0	2151
Heavy Vehicles (%)	4%	4%	5%	0%	0%	8%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	40.3	40.3	62.2			62.2
Effective Green, g (s)	40.3	40.3	62.2			62.2
Actuated g/C Ratio	0.35	0.35	0.54			0.54
Clearance Time (s)	6.0	6.0	6.0			6.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	1120	497	2683			2609
v/s Ratio Prot	0.27		0.30			c0.45
v/s Ratio Perm		c0.32				
v/c Ratio	0.75	0.90	0.54			0.82
Uniform Delay, d1	32.7	35.3	17.0			21.6
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	2.9	19.7	0.8			3.1
Delay (s)	35.7	55.0	17.8			24.8
Level of Service	D	D	B			C
Approach Delay (s)	42.5		17.8			24.8
Approach LOS	D		B			C

Intersection Summary			
HCM 2000 Control Delay	27.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	114.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	74.6%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Queues
 21: Trafalgar Road & Hwy 401 (Eastbound Ramp)

Scenario 2 - PM Peak Hour
 Premier Gateway



Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	271	126	1930	2338
v/c Ratio	0.64	0.63	0.52	0.65
Control Delay	49.9	52.6	6.1	7.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	49.9	52.6	6.1	7.6
Queue Length 50th (m)	28.7	25.6	52.7	75.1
Queue Length 95th (m)	42.6	48.0	80.2	114.6
Internal Link Dist (m)	204.3		1138.2	312.7
Turn Bay Length (m)				
Base Capacity (vph)	623	290	3733	3585
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.43	0.43	0.52	0.65
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
 21: Trafalgar Road & Hwy 401 (Eastbound Ramp)

Scenario 2 - PM Peak Hour
 Premier Gateway



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	152	237	0	1891	2028	264
Future Volume (vph)	152	237	0	1891	2028	264
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	
Lane Util. Factor	0.97	0.91		0.91	0.91	
Frt	0.94	0.85		1.00	0.98	
Flt Protected	0.97	1.00		1.00	1.00	
Satd. Flow (prot)	3109	1400		4893	4683	
Flt Permitted	0.97	1.00		1.00	1.00	
Satd. Flow (perm)	3109	1400		4893	4683	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	155	242	0	1930	2069	269
RTOR Reduction (vph)	18	18	0	0	12	0
Lane Group Flow (vph)	253	108	0	1930	2326	0
Heavy Vehicles (%)	10%	5%	0%	6%	10%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	14.7	14.7		86.1	86.1	
Effective Green, g (s)	14.7	14.7		86.1	86.1	
Actuated g/C Ratio	0.13	0.13		0.76	0.76	
Clearance Time (s)	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	405	182		3734	3574	
v/s Ratio Prot	c0.08			0.39	c0.50	
v/s Ratio Perm		0.08				
v/c Ratio	0.62	0.59		0.52	0.65	
Uniform Delay, d1	46.4	46.2		5.2	6.3	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.0	5.1		0.5	0.9	
Delay (s)	49.4	51.3		5.7	7.2	
Level of Service	D	D		A	A	
Approach Delay (s)	50.0			5.7	7.2	
Approach LOS	D			A	A	

Intersection Summary

HCM 2000 Control Delay	10.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	112.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	64.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Queues

22: Winston Churchill Boulevard & Hwy 401 (Westbound Ramp)



Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	836	388	1633	1524
v/c Ratio	0.84	0.89	0.81	0.75
Control Delay	50.7	65.1	27.1	24.4
Queue Delay	0.0	0.0	1.0	0.0
Total Delay	50.7	65.1	28.1	24.4
Queue Length 50th (m)	109.1	107.8	190.5	166.2
Queue Length 95th (m)	134.3	#165.2	240.0	209.6
Internal Link Dist (m)	284.7		32.1	320.2
Turn Bay Length (m)				
Base Capacity (vph)	1164	507	2013	2033
Starvation Cap Reductn	0	0	164	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.72	0.77	0.88	0.75

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
 22: Winston Churchill Boulevard & Hwy 401 (Westbound Ramp)

Scenario 2 - PM Peak Hour
 Premier Gateway



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔↔	↗	↕↕			↕↕
Traffic Volume (vph)	517	646	1551	0	0	1448
Future Volume (vph)	517	646	1551	0	0	1448
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	8.0			8.0
Lane Util. Factor	0.97	0.91	0.95			0.95
Frt	0.95	0.85	1.00			1.00
Flt Protected	0.97	1.00	1.00			1.00
Satd. Flow (prot)	3262	1400	3438			3471
Flt Permitted	0.97	1.00	1.00			1.00
Satd. Flow (perm)	3262	1400	3438			3471
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	544	680	1633	0	0	1524
RTOR Reduction (vph)	14	14	0	0	0	0
Lane Group Flow (vph)	822	374	1633	0	0	1524
Heavy Vehicles (%)	3%	5%	5%	0%	0%	4%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	40.3	40.3	78.2			78.2
Effective Green, g (s)	40.3	40.3	78.2			78.2
Actuated g/C Ratio	0.30	0.30	0.59			0.59
Clearance Time (s)	7.0	7.0	8.0			8.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	984	422	2013			2033
v/s Ratio Prot	0.25		c0.47			0.44
v/s Ratio Perm		c0.27				
v/c Ratio	0.84	0.89	0.81			0.75
Uniform Delay, d1	43.5	44.4	21.8			20.4
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	6.2	19.5	3.7			2.6
Delay (s)	49.7	63.9	25.5			23.0
Level of Service	D	E	C			C
Approach Delay (s)	54.2		25.5			23.0
Approach LOS	D		C			C

Intersection Summary			
HCM 2000 Control Delay		32.7	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio		0.84	
Actuated Cycle Length (s)		133.5	Sum of lost time (s) 15.0
Intersection Capacity Utilization		104.2%	ICU Level of Service G
Analysis Period (min)		15	
c Critical Lane Group			

Queues

Scenario 2 - PM Peak Hour

23: Winston Churchill Boulevard & Hwy 401 (Eastbound Ramp)

Premier Gateway



Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	566	261	1562	1832
v/c Ratio	0.85	0.83	0.45	0.53
Control Delay	62.1	67.9	10.6	11.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	62.1	67.9	10.6	11.5
Queue Length 50th (m)	76.3	70.2	70.5	89.3
Queue Length 95th (m)	98.4	#113.1	85.4	107.2
Internal Link Dist (m)	152.5		433.2	198.3
Turn Bay Length (m)				
Base Capacity (vph)	765	358	3483	3470
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.74	0.73	0.45	0.53

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
 23: Winston Churchill Boulevard & Hwy 401 (Eastbound Ramp)

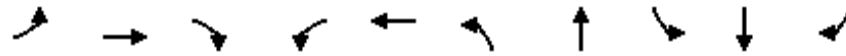
Scenario 2 - PM Peak Hour
 Premier Gateway



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	410	375	0	1484	1687	53
Future Volume (vph)	410	375	0	1484	1687	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		7.0	7.0	
Lane Util. Factor	0.97	0.91		0.91	0.91	
Frt	0.96	0.85		1.00	1.00	
Flt Protected	0.96	1.00		1.00	1.00	
Satd. Flow (prot)	3161	1427		5085	5065	
Flt Permitted	0.96	1.00		1.00	1.00	
Satd. Flow (perm)	3161	1427		5085	5065	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	432	395	0	1562	1776	56
RTOR Reduction (vph)	22	23	0	0	2	0
Lane Group Flow (vph)	544	238	0	1562	1830	0
Heavy Vehicles (%)	10%	3%	0%	2%	2%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	27.8	27.8		93.1	93.1	
Effective Green, g (s)	27.8	27.8		93.1	93.1	
Actuated g/C Ratio	0.20	0.20		0.69	0.69	
Clearance Time (s)	8.0	8.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	646	291		3483	3469	
v/s Ratio Prot	c0.17			0.31	c0.36	
v/s Ratio Perm		0.17				
v/c Ratio	0.84	0.82		0.45	0.53	
Uniform Delay, d1	51.9	51.6		9.7	10.6	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	9.7	16.1		0.4	0.6	
Delay (s)	61.6	67.8		10.1	11.1	
Level of Service	E	E		B	B	
Approach Delay (s)	63.6			10.1	11.1	
Approach LOS	E			B	B	

Intersection Summary

HCM 2000 Control Delay	21.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	135.9	Sum of lost time (s)	15.0
Intersection Capacity Utilization	105.6%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	465	95	337	106	207	480	817	116	958	962
v/c Ratio	0.95	0.18	0.50	0.76	0.54	0.95	0.29	0.32	0.42	1.00
Control Delay	93.7	41.6	7.9	96.3	61.6	51.1	16.0	14.7	29.7	50.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	93.7	41.6	7.9	96.3	61.6	51.1	16.0	14.7	29.7	50.9
Queue Length 50th (m)	75.6	22.5	3.9	32.3	29.1	86.0	44.3	13.0	76.3	~215.3
Queue Length 95th (m)	#112.3	38.4	30.2	#59.0	43.4	#158.8	53.7	21.6	89.5	#312.4
Internal Link Dist (m)		274.7			467.9		430.6		1282.4	
Turn Bay Length (m)	70.0		50.0	105.0		100.0		135.0		135.0
Base Capacity (vph)	487	554	698	161	441	513	2780	364	2269	961
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	0.95	0.17	0.48	0.66	0.47	0.94	0.29	0.32	0.42	1.00

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
 24: James Snow Parkway & Main Street East

Scenario 2 - PM Peak Hour
 Premier Gateway



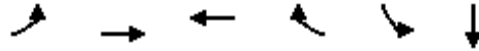
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	442	90	320	101	153	44	456	621	155	110	910	914
Future Volume (vph)	442	90	320	101	153	44	456	621	155	110	910	914
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0	6.0	6.0	6.0		4.5	6.0		4.5	6.0	6.0
Lane Util. Factor	0.97	1.00	1.00	1.00	0.95		1.00	0.91		1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.97		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3502	1900	1615	1805	3474		1805	4895		1752	5187	1599
Flt Permitted	0.95	1.00	1.00	0.70	1.00		0.21	1.00		0.33	1.00	1.00
Satd. Flow (perm)	3502	1900	1615	1321	3474		398	4895		612	5187	1599
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	465	95	337	106	161	46	480	654	163	116	958	962
RTOR Reduction (vph)	0	0	232	0	18	0	0	28	0	0	0	262
Lane Group Flow (vph)	465	95	105	106	189	0	480	789	0	116	958	700
Heavy Vehicles (%)	0%	0%	0%	0%	0%	2%	0%	3%	2%	3%	0%	1%
Turn Type	Prot	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases			4	8			2			6		6
Actuated Green, G (s)	20.5	40.6	40.6	15.6	15.6		94.8	82.9		71.9	64.5	64.5
Effective Green, g (s)	20.5	40.6	40.6	15.6	15.6		94.8	82.9		71.9	64.5	64.5
Actuated g/C Ratio	0.14	0.28	0.28	0.11	0.11		0.64	0.56		0.49	0.44	0.44
Clearance Time (s)	4.5	6.0	6.0	6.0	6.0		4.5	6.0		4.5	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	487	523	444	139	367		502	2753		355	2269	699
v/s Ratio Prot	c0.13	0.05			0.05		c0.17	0.16		0.02	0.18	
v/s Ratio Perm			0.07	c0.08			0.45			0.14		c0.44
v/c Ratio	0.95	0.18	0.24	0.76	0.52		0.96	0.29		0.33	0.42	1.00
Uniform Delay, d1	63.0	40.7	41.4	64.1	62.3		25.1	16.8		20.7	28.6	41.5
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	29.4	0.2	0.3	21.6	1.2		29.1	0.3		0.5	0.6	34.4
Delay (s)	92.4	40.9	41.7	85.7	63.5		54.1	17.1		21.2	29.2	75.8
Level of Service	F	D	D	F	E		D	B		C	C	E
Approach Delay (s)		67.9			71.0			30.8			50.8	
Approach LOS		E			E			C			D	

Intersection Summary

HCM 2000 Control Delay	49.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	147.4	Sum of lost time (s)	21.0
Intersection Capacity Utilization	101.2%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Queues
25: Street B & Steeles Avenue

Scenario 2 - PM Peak Hour
Premier Gateway



Lane Group	EBL	EBT	WBT	WBR	SBL	SBT
Lane Group Flow (vph)	234	1408	1404	108	503	271
v/c Ratio	0.83	0.64	0.92	0.20	0.84	0.33
Control Delay	63.4	28.8	59.2	11.2	49.4	1.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	63.4	28.8	59.2	11.2	49.4	1.6
Queue Length 50th (m)	54.8	113.9	154.6	4.5	130.6	0.0
Queue Length 95th (m)	#96.9	130.1	176.0	19.3	#188.6	3.2
Internal Link Dist (m)		388.7	443.0			311.5
Turn Bay Length (m)	50.0			30.0	30.0	
Base Capacity (vph)	298	2306	1577	544	608	819
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.61	0.89	0.20	0.83	0.33

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

25: Street B & Steeles Avenue

Scenario 2 - PM Peak Hour
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗	↘	↑↑↑	↗	↘	↑	↗	↘	↗	↘
Traffic Volume (vph)	225	1352	0	0	1348	104	0	0	0	483	0	260
Future Volume (vph)	225	1352	0	0	1348	104	0	0	0	483	0	260
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0			6.0	6.0				4.5	6.0	
Lane Util. Factor	1.00	0.91			0.91	1.00				1.00	1.00	
Frt	1.00	1.00			1.00	0.85				1.00	0.85	
Flt Protected	0.95	1.00			1.00	1.00				0.95	1.00	
Satd. Flow (prot)	1626	4433			4715	1455				1626	1468	
Flt Permitted	0.08	1.00			1.00	1.00				0.62	1.00	
Satd. Flow (perm)	132	4433			4715	1455				1068	1468	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	234	1408	0	0	1404	108	0	0	0	503	0	271
RTOR Reduction (vph)	0	0	0	0	0	59	0	0	0	0	157	0
Lane Group Flow (vph)	234	1408	0	0	1404	49	0	0	0	503	114	0
Heavy Vehicles (%)	11%	17%	0%	0%	10%	11%	0%	0%	0%	11%	0%	10%
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm		Perm	pm+pt	NA	
Protected Phases	7	4			8			2		1	6	
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)	72.8	72.8			47.3	47.3				61.9	61.9	
Effective Green, g (s)	72.8	72.8			47.3	47.3				61.9	61.9	
Actuated g/C Ratio	0.50	0.50			0.32	0.32				0.42	0.42	
Clearance Time (s)	4.5	6.0			6.0	6.0				4.5	6.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0				3.0	3.0	
Lane Grp Cap (vph)	279	2199			1520	469				588	619	
v/s Ratio Prot	c0.12	0.32			c0.30					c0.21	0.08	
v/s Ratio Perm	0.30					0.03				c0.15		
v/c Ratio	0.84	0.64			0.92	0.10				0.86	0.18	
Uniform Delay, d1	43.1	27.3			48.0	34.9				35.8	26.6	
Progression Factor	1.00	1.00			1.00	1.00				1.00	1.00	
Incremental Delay, d2	19.3	0.6			9.7	0.1				11.7	0.7	
Delay (s)	62.4	27.9			57.7	34.9				47.5	27.2	
Level of Service	E	C			E	C				D	C	
Approach Delay (s)		32.8			56.1			0.0			40.4	
Approach LOS		C			E			A			D	

Intersection Summary

HCM 2000 Control Delay	43.3	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	146.7	Sum of lost time (s)	21.0
Intersection Capacity Utilization	79.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
 26: Hornby Road & Street A

Scenario 2 - PM Peak Hour
 Premier Gateway



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Right Turn Channelized						
Traffic Volume (veh/h)	129	0	0	56	83	34
Future Volume (veh/h)	129	0	0	56	83	34
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	134	0	0	58	86	35
Approach Volume (veh/h)	134			58	121	
Crossing Volume (veh/h)	86			134	0	
High Capacity (veh/h)	1295			1247	1385	
High v/c (veh/h)	0.10			0.05	0.09	
Low Capacity (veh/h)	1079			1036	1161	
Low v/c (veh/h)	0.12			0.06	0.10	
Intersection Summary						
Maximum v/c High			0.10			
Maximum v/c Low			0.12			
Intersection Capacity Utilization			20.3%		ICU Level of Service	A

Queues
27: Trafalgar Road & Street B

Scenario 2 - PM Peak Hour

Premier Gateway



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	152	538	363	276	100	1167	80	43	596	41
v/c Ratio	0.33	1.04	0.99	0.47	0.37	0.90	0.16	0.21	0.53	0.09
Control Delay	13.1	73.7	64.5	16.0	19.9	38.3	0.6	17.3	26.5	0.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.1	73.7	64.5	16.0	19.9	38.3	0.6	17.3	26.5	0.4
Queue Length 50th (m)	11.9	~73.0	~40.9	20.4	9.5	63.5	0.0	3.9	28.3	0.0
Queue Length 95th (m)	22.4	#132.7	#94.5	42.5	19.5	#93.3	0.0	10.1	39.1	0.0
Internal Link Dist (m)		260.1		649.3		221.2			63.9	
Turn Bay Length (m)	50.0		50.0		50.0		50.0	50.0		50.0
Base Capacity (vph)	460	517	368	586	270	1295	514	206	1193	499
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	0.33	1.04	0.99	0.47	0.37	0.90	0.16	0.21	0.50	0.08

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
27: Trafalgar Road & Street B

Scenario 2 - PM Peak Hour
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	146	158	358	348	111	154	96	1120	77	41	572	39
Future Volume (vph)	146	158	358	348	111	154	96	1120	77	41	572	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0		4.5	6.0		4.5	6.0	6.0	4.5	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.90		1.00	0.91		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)	1641	1534		1626	1563		1641	4940	1468	1641	4759	1468
Flt Permitted	0.59	1.00		0.17	1.00		0.36	1.00	1.00	0.22	1.00	1.00
Satd. Flow (perm)	1019	1534		288	1563		615	4940	1468	386	4759	1468
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	152	165	373	362	116	160	100	1167	80	43	596	41
RTOR Reduction (vph)	0	108	0	0	65	0	0	0	60	0	0	31
Lane Group Flow (vph)	152	430	0	363	211	0	100	1167	20	43	596	10
Heavy Vehicles (%)	10%	11%	11%	11%	11%	11%	10%	5%	10%	10%	9%	10%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	26.4	19.3		35.6	24.0		22.8	18.9	18.9	20.8	17.9	17.9
Effective Green, g (s)	26.4	19.3		35.6	24.0		22.8	18.9	18.9	20.8	17.9	17.9
Actuated g/C Ratio	0.36	0.26		0.48	0.32		0.31	0.26	0.26	0.28	0.24	0.24
Clearance Time (s)	4.5	6.0		4.5	6.0		4.5	6.0	6.0	4.5	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	423	400		352	507		243	1263	375	157	1152	355
v/s Ratio Prot	0.03	0.28		c0.16	0.13		c0.02	c0.24		0.01	0.13	
v/s Ratio Perm	0.09			c0.33			0.10		0.01	0.07		0.01
v/c Ratio	0.36	1.08		1.03	0.42		0.41	0.92	0.05	0.27	0.52	0.03
Uniform Delay, d1	16.8	27.3		18.9	19.5		18.9	26.8	20.8	20.3	24.3	21.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	66.6		56.2	2.5		1.1	11.3	0.1	0.9	0.4	0.0
Delay (s)	17.3	93.9		75.1	22.0		20.0	38.1	20.8	21.3	24.7	21.4
Level of Service	B	F		E	C		C	D	C	C	C	C
Approach Delay (s)		77.0			52.2			35.8			24.2	
Approach LOS		E			D			D			C	

Intersection Summary

HCM 2000 Control Delay	45.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	73.9	Sum of lost time (s)	21.0
Intersection Capacity Utilization	92.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
28: Eighth Line & Street B

















Scenario 2 - PM Peak Hour
Premier Gateway



Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations							
Traffic Volume (veh/h)	139	54	28	569	180	37	
Future Volume (Veh/h)	139	54	28	569	180	37	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	
Hourly flow rate (vph)	145	56	29	593	188	39	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				None	None		
Median storage veh							
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume	562	114	227				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	562	114	227				
tC, single (s)	7.0	7.1	4.3				
tC, 2 stage (s)							
tF (s)	3.6	3.4	2.3				
p0 queue free %	66	94	98				
cM capacity (veh/h)	426	890	1275				
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	145	56	29	296	296	125	102
Volume Left	145	0	29	0	0	0	0
Volume Right	0	56	0	0	0	0	39
cSH	426	890	1275	1700	1700	1700	1700
Volume to Capacity	0.34	0.06	0.02	0.17	0.17	0.07	0.06
Queue Length 95th (m)	11.9	1.6	0.6	0.0	0.0	0.0	0.0
Control Delay (s)	17.7	9.3	7.9	0.0	0.0	0.0	0.0
Lane LOS	C	A	A				
Approach Delay (s)	15.4		0.4			0.0	
Approach LOS	C						
Intersection Summary							
Average Delay			3.2				
Intersection Capacity Utilization			30.1%	ICU Level of Service		A	
Analysis Period (min)			15				

HCM Unsignalized Intersection Capacity Analysis
1: Fifth Line & 5 Side Road

















Scenario 2 - SAT Peak Hour
Premier Gateway

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	44	0	0	91	0	0	0	0	0	0	0
Future Volume (Veh/h)	0	44	0	0	91	0	0	0	0	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	0	46	0	0	95	0	0	0	0	0	0	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	95			46			141	141	46	141	141	95
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	95			46			141	141	46	141	141	95
tC, single (s)	4.1			4.1			7.3	6.5	6.2	7.1	6.5	6.4
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.7	4.0	3.3	3.5	4.0	3.4
p0 queue free %	100			100			100	100	100	100	100	100
cM capacity (veh/h)	1512			1575			796	754	1018	833	754	927
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	46	95	0	0								
Volume Left	0	0	0	0								
Volume Right	0	0	0	0								
cSH	1512	1575	1700	1700								
Volume to Capacity	0.00	0.00	0.00	0.00								
Queue Length 95th (m)	0.0	0.0	0.0	0.0								
Control Delay (s)	0.0	0.0	0.0	0.0								
Lane LOS			A	A								
Approach Delay (s)	0.0	0.0	0.0	0.0								
Approach LOS			A	A								
Intersection Summary												
Average Delay			0.0									
Intersection Capacity Utilization			8.1%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

2: Sixth Line & 5 Side Road

Scenario 2 - SAT Peak Hour
Premier Gateway

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	44	0	0	91	0	0	0	0	0	0	0
Future Volume (Veh/h)	0	44	0	0	91	0	0	0	0	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	0	46	0	0	95	0	0	0	0	0	0	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	95			46			141	141	46	141	141	95
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	95			46			141	141	46	141	141	95
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.4
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.5
p0 queue free %	100			100			100	100	100	100	100	100
cM capacity (veh/h)	1512			1575			833	754	1029	833	754	922
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	46	95	0	0								
Volume Left	0	0	0	0								
Volume Right	0	0	0	0								
cSH	1512	1575	1700	1700								
Volume to Capacity	0.00	0.00	0.00	0.00								
Queue Length 95th (m)	0.0	0.0	0.0	0.0								
Control Delay (s)	0.0	0.0	0.0	0.0								
Lane LOS			A	A								
Approach Delay (s)	0.0	0.0	0.0	0.0								
Approach LOS			A	A								
Intersection Summary												
Average Delay			0.0									
Intersection Capacity Utilization			8.1%		ICU Level of Service				A			
Analysis Period (min)			15									

Queues
3: Trafalgar Rd & 5 Side Road



Lane Group	EBR	WBL	NBL	NBT	SBT
Lane Group Flow (vph)	46	15	95	124	46
v/c Ratio	0.04	0.04	0.09	0.03	0.01
Control Delay	0.1	19.4	3.8	3.2	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	0.1	19.4	3.8	3.2	9.8
Queue Length 50th (m)	0.0	0.8	0.0	0.0	0.4
Queue Length 95th (m)	0.0	6.0	9.3	3.6	3.2
Internal Link Dist (m)				240.1	238.0
Turn Bay Length (m)	40.0	40.0	40.0		
Base Capacity (vph)	1262	843	1029	4045	3109
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.04	0.02	0.09	0.03	0.01
Intersection Summary					

HCM Signalized Intersection Capacity Analysis
3: Trafalgar Rd & 5 Side Road

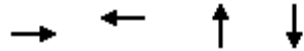
Scenario 2 - SAT Peak Hour
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↗		↖	↑↑↑		↖	↑↑↑	
Traffic Volume (vph)	0	0	44	14	0	0	91	88	31	0	44	0
Future Volume (vph)	0	0	44	14	0	0	91	88	31	0	44	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			6.4	6.4			4.0	6.0			6.0	
Lane Util. Factor			1.00	1.00			1.00	0.91			0.91	
Frt			0.85	1.00			1.00	0.96			1.00	
Flt Protected			1.00	0.95			0.95	1.00			1.00	
Satd. Flow (prot)			1495	1805			1719	4830			4940	
Flt Permitted			1.00	0.77			0.65	1.00			1.00	
Satd. Flow (perm)			1495	1462			1176	4830			4940	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	0	46	15	0	0	95	92	32	0	46	0
RTOR Reduction (vph)	0	0	42	0	0	0	0	9	0	0	0	0
Lane Group Flow (vph)	0	0	4	15	0	0	95	115	0	0	46	0
Heavy Vehicles (%)	8%	2%	8%	0%	0%	0%	5%	4%	1%	13%	5%	67%
Turn Type	Perm		Perm	Perm			pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)			5.2	5.2			45.1	45.1			35.0	
Effective Green, g (s)			5.2	5.2			45.1	45.1			35.0	
Actuated g/C Ratio			0.08	0.08			0.72	0.72			0.56	
Clearance Time (s)			6.4	6.4			4.0	6.0			6.0	
Vehicle Extension (s)			5.0	5.0			3.0	5.0			5.0	
Lane Grp Cap (vph)			123	121			898	3474			2757	
v/s Ratio Prot							c0.01	0.02			0.01	
v/s Ratio Perm			0.00	c0.01			c0.07					
v/c Ratio			0.03	0.12			0.11	0.03			0.02	
Uniform Delay, d1			26.4	26.6			2.8	2.5			6.2	
Progression Factor			1.00	1.00			1.00	1.00			1.00	
Incremental Delay, d2			0.2	1.0			0.1	0.0			0.0	
Delay (s)			26.6	27.6			2.8	2.5			6.2	
Level of Service			C	C			A	A			A	
Approach Delay (s)		26.6			27.6			2.7			6.2	
Approach LOS		C			C			A			A	
Intersection Summary												
HCM 2000 Control Delay			7.7								A	
HCM 2000 Volume to Capacity ratio			0.12									
Actuated Cycle Length (s)			62.7						16.4			
Intersection Capacity Utilization			61.5%								B	
Analysis Period (min)			15									
c Critical Lane Group												

Queues

4: Eighth Line & 5 Side Road



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	32	32	122	29
v/c Ratio	0.07	0.07	0.04	0.01
Control Delay	7.6	7.6	1.9	2.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	7.6	7.6	1.9	2.6
Queue Length 50th (m)	1.0	1.0	0.0	0.0
Queue Length 95th (m)	3.2	3.2	2.8	1.2
Internal Link Dist (m)	619.4	644.7	2565.8	430.5
Turn Bay Length (m)				
Base Capacity (vph)	1320	1292	3173	3370
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.02	0.02	0.04	0.01

Intersection Summary

HCM Signalized Intersection Capacity Analysis

4: Eighth Line & 5 Side Road

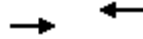
Scenario 2 - SAT Peak Hour
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	0	31	0	16	14	0	0	84	33	0	28	0
Future Volume (vph)	0	31	0	16	14	0	0	84	33	0	28	0
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	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frt		1.00			1.00			0.96			1.00	
Flt Protected		1.00			0.97			1.00			1.00	
Satd. Flow (prot)		1845			1759			3364			3574	
Flt Permitted		1.00			1.00			1.00			1.00	
Satd. Flow (perm)		1845			1805			3364			3574	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	32	0	17	15	0	0	88	34	0	29	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	12	0	0	0	0
Lane Group Flow (vph)	0	32	0	0	32	0	0	110	0	0	29	0
Heavy Vehicles (%)	4%	3%	3%	9%	1%	1%	0%	2%	5%	0%	1%	2%
Turn Type		NA		Perm	NA			NA			NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		1.4			1.4			18.4			18.4	
Effective Green, g (s)		1.4			1.4			18.4			18.4	
Actuated g/C Ratio		0.05			0.05			0.64			0.64	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		89			87			2149			2283	
v/s Ratio Prot		0.02						c0.03			0.01	
v/s Ratio Perm					c0.02							
v/c Ratio		0.36			0.37			0.05			0.01	
Uniform Delay, d1		13.3			13.3			1.9			1.9	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		2.5			2.6			0.0			0.0	
Delay (s)		15.7			15.9			2.0			1.9	
Level of Service		B			B			A			A	
Approach Delay (s)		15.7			15.9			2.0			1.9	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	6.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.07		
Actuated Cycle Length (s)	28.8	Sum of lost time (s)	9.0
Intersection Capacity Utilization	20.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues
5: Ninth Line & 5 Side Road



Lane Group	EBT	WBT
Lane Group Flow (vph)	67	31
v/c Ratio	0.28	0.13
Control Delay	29.8	27.3
Queue Delay	0.0	0.0
Total Delay	29.8	27.3
Queue Length 50th (m)	9.3	4.2
Queue Length 95th (m)	18.0	10.3
Internal Link Dist (m)	556.9	434.3
Turn Bay Length (m)		
Base Capacity (vph)	829	837
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.08	0.04
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

5: Ninth Line & 5 Side Road

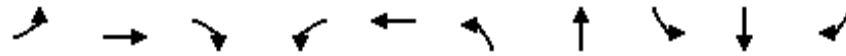
Scenario 2 - SAT Peak Hour
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↕			↕			↕			↕		
Traffic Volume (vph)	0	64	0	0	30	0	0	0	0	0	0	0	
Future Volume (vph)	0	64	0	0	30	0	0	0	0	0	0	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		6.0			6.0								
Lane Util. Factor		1.00			1.00								
Frt		1.00			1.00								
Flt Protected		1.00			1.00								
Satd. Flow (prot)		1881			1900								
Flt Permitted		1.00			1.00								
Satd. Flow (perm)		1881			1900								
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Adj. Flow (vph)	0	67	0	0	31	0	0	0	0	0	0	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	67	0	0	31	0	0	0	0	0	0	0	
Heavy Vehicles (%)	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	
Turn Type		NA			NA								
Protected Phases		4			8			2			6		
Permitted Phases	4			8			2			6			
Actuated Green, G (s)		5.4			5.4								
Effective Green, g (s)		5.4			5.4								
Actuated g/C Ratio		0.08			0.08								
Clearance Time (s)		6.0			6.0								
Vehicle Extension (s)		3.5			3.5								
Lane Grp Cap (vph)		147			148								
v/s Ratio Prot		c0.04			0.02								
v/s Ratio Perm													
v/c Ratio		0.46			0.21								
Uniform Delay, d1		30.3			29.7								
Progression Factor		1.00			1.00								
Incremental Delay, d2		2.6			0.8								
Delay (s)		33.0			30.6								
Level of Service		C			C								
Approach Delay (s)		33.0			30.6			0.0			0.0		
Approach LOS		C			C			A			A		
Intersection Summary													
HCM 2000 Control Delay			32.2									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.04										
Actuated Cycle Length (s)			68.9									Sum of lost time (s)	12.0
Intersection Capacity Utilization			10.8%									ICU Level of Service	A
Analysis Period (min)			15										
c Critical Lane Group													

Queues
6: Brownridge Road/Fifth Line & Steeles Avenue

Scenario 2 - SAT Peak Hour
Premier Gateway



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	36	659	5	3	907	14	7	16	3	46
v/c Ratio	0.09	0.19	0.00	0.01	0.25	0.05	0.02	0.08	0.01	0.11
Control Delay	6.8	4.8	0.0	6.0	5.1	17.6	11.6	18.3	16.3	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.8	4.8	0.0	6.0	5.1	17.6	11.6	18.3	16.3	1.3
Queue Length 50th (m)	1.6	11.1	0.0	0.2	16.2	1.5	0.1	1.7	0.4	0.0
Queue Length 95th (m)	5.5	16.6	0.0	1.0	23.1	4.6	2.6	5.1	1.8	1.4
Internal Link Dist (m)	462.3		679.6			261.2		67.4		
Turn Bay Length (m)	145.0		65.0	30.0		20.0		25.0		25.0
Base Capacity (vph)	385	3547	1199	542	3635	285	359	219	407	432
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	0.09	0.19	0.00	0.01	0.25	0.05	0.02	0.07	0.01	0.11

Intersection Summary

HCM Signalized Intersection Capacity Analysis
6: Brownridge Road/Fifth Line & Steeles Avenue

Scenario 2 - SAT Peak Hour

Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗	↘	↑↑↑		↘	↗		↘	↑	↗
Traffic Volume (vph)	35	633	5	3	867	4	13	1	6	15	3	44
Future Volume (vph)	35	633	5	3	867	4	13	1	6	15	3	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.87		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1656	4848	1615	1805	4969		1671	1656		1289	1900	1615
Flt Permitted	0.30	1.00	1.00	0.39	1.00		0.76	1.00		0.75	1.00	1.00
Satd. Flow (perm)	527	4848	1615	741	4969		1330	1656		1022	1900	1615
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	36	659	5	3	903	4	14	1	6	16	3	46
RTOR Reduction (vph)	0	0	2	0	1	0	0	5	0	0	0	41
Lane Group Flow (vph)	36	659	3	3	906	0	14	2	0	16	3	5
Heavy Vehicles (%)	9%	7%	0%	0%	4%	75%	8%	0%	0%	40%	0%	0%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		6
Actuated Green, G (s)	34.5	34.5	34.5	34.5	34.5		5.8	5.8		5.8	5.8	5.8
Effective Green, g (s)	34.5	34.5	34.5	34.5	34.5		5.8	5.8		5.8	5.8	5.8
Actuated g/C Ratio	0.64	0.64	0.64	0.64	0.64		0.11	0.11		0.11	0.11	0.11
Clearance Time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	334	3080	1026	470	3157		142	176		109	202	172
v/s Ratio Prot		0.14			c0.18			0.00			0.00	
v/s Ratio Perm	0.07		0.00	0.00			0.01			c0.02		0.00
v/c Ratio	0.11	0.21	0.00	0.01	0.29		0.10	0.01		0.15	0.01	0.03
Uniform Delay, d1	3.9	4.2	3.6	3.6	4.4		21.9	21.7		22.0	21.7	21.7
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.6	0.2	0.0	0.0	0.2		0.3	0.0		0.6	0.0	0.1
Delay (s)	4.5	4.3	3.6	3.6	4.6		22.2	21.7		22.6	21.7	21.8
Level of Service	A	A	A	A	A		C	C		C	C	C
Approach Delay (s)		4.3			4.6			22.0			22.0	
Approach LOS		A			A			C			C	

Intersection Summary		
HCM 2000 Control Delay	5.4	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.27	A
Actuated Cycle Length (s)	54.3	Sum of lost time (s)
Intersection Capacity Utilization	68.3%	14.0
Analysis Period (min)	15	ICU Level of Service
c Critical Lane Group		C

Queues
7: Fifth Line South & Steeles Avenue

Scenario 2 - SAT Peak Hour
Premier Gateway



Lane Group	EBT	EBR	WBT	NBL
Lane Group Flow (vph)	688	4	918	3
v/c Ratio	0.15	0.00	0.20	0.01
Control Delay	1.6	2.2	1.7	19.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	1.6	2.2	1.7	19.7
Queue Length 50th (m)	0.0	0.0	0.0	0.3
Queue Length 95th (m)	16.5	0.9	22.1	2.4
Internal Link Dist (m)	679.6		455.7	532.9
Turn Bay Length (m)		30.0		15.0
Base Capacity (vph)	4443	1494	4614	392
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.15	0.00	0.20	0.01
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
7: Fifth Line South & Steeles Avenue

Scenario 2 - SAT Peak Hour
Premier Gateway



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗	↖	↑↑↑	↖	↗
Traffic Volume (vph)	654	4	0	872	3	0
Future Volume (vph)	654	4	0	872	3	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		8.0	6.0	
Lane Util. Factor	0.91	1.00		0.91	1.00	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	1.00	1.00		1.00	0.95	
Satd. Flow (prot)	4803	1615		4988	1805	
Flt Permitted	1.00	1.00		1.00	0.95	
Satd. Flow (perm)	4803	1615		4988	1805	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	688	4	0	918	3	0
RTOR Reduction (vph)	0	1	0	0	0	0
Lane Group Flow (vph)	688	3	0	918	3	0
Heavy Vehicles (%)	8%	0%	0%	4%	0%	0%
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	4			8		
Permitted Phases		4	8		2	2
Actuated Green, G (s)	40.5	40.5		40.5	1.6	
Effective Green, g (s)	40.5	40.5		40.5	1.6	
Actuated g/C Ratio	0.72	0.72		0.72	0.03	
Clearance Time (s)	8.0	8.0		8.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	3467	1165		3600	51	
v/s Ratio Prot	0.14			c0.18		
v/s Ratio Perm		0.00			c0.00	
v/c Ratio	0.20	0.00		0.26	0.06	
Uniform Delay, d1	2.5	2.2		2.7	26.5	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.1	0.0		0.2	0.5	
Delay (s)	2.7	2.2		2.8	27.0	
Level of Service	A	A		A	C	
Approach Delay (s)	2.7			2.8	27.0	
Approach LOS	A			A	C	

Intersection Summary

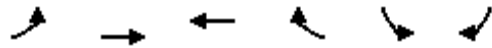
HCM 2000 Control Delay	2.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.25		
Actuated Cycle Length (s)	56.1	Sum of lost time (s)	14.0
Intersection Capacity Utilization	40.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues

Scenario 2 - SAT Peak Hour

8: Steeles Avenue & Sixth Line

Premier Gateway



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	44	652	905	11	10	22
v/c Ratio	0.27	0.46	0.60	0.02	0.01	0.03
Control Delay	16.5	13.6	15.0	6.3	7.2	4.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.5	13.6	15.0	6.3	7.2	4.0
Queue Length 50th (m)	2.7	15.7	23.1	0.0	0.4	0.0
Queue Length 95th (m)	9.2	23.5	32.9	2.3	2.4	2.8
Internal Link Dist (m)		455.7	881.3		3042.1	
Turn Bay Length (m)	60.0			30.0	30.0	
Base Capacity (vph)	511	4526	4778	1607	883	801
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.14	0.19	0.01	0.01	0.03

Intersection Summary

HCM Signalized Intersection Capacity Analysis

8: Steeles Avenue & Sixth Line

Scenario 2 - SAT Peak Hour
Premier Gateway



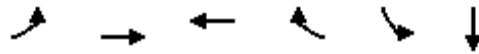
Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	41	613	851	10	9	21
Future Volume (vph)	41	613	851	10	9	21
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1770	4550	4803	1615	1805	1615
Flt Permitted	0.28	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	514	4550	4803	1615	1805	1615
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	44	652	905	11	10	22
RTOR Reduction (vph)	0	0	0	8	0	11
Lane Group Flow (vph)	44	652	905	3	10	11
Heavy Vehicles (%)	2%	14%	8%	0%	0%	0%
Turn Type	Perm	NA	NA	Perm	Prot	Perm
Protected Phases		4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	14.5	14.5	14.5	14.5	22.6	22.6
Effective Green, g (s)	14.5	14.5	14.5	14.5	22.6	22.6
Actuated g/C Ratio	0.31	0.31	0.31	0.31	0.49	0.49
Clearance Time (s)	4.5	4.5	4.5	4.5	4.5	4.5
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	161	1431	1510	507	884	791
v/s Ratio Prot		0.14	c0.19		0.01	
v/s Ratio Perm	0.09			0.00		c0.01
v/c Ratio	0.27	0.46	0.60	0.01	0.01	0.01
Uniform Delay, d1	11.8	12.6	13.3	10.9	6.0	6.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.9	0.2	0.6	0.0	0.0	0.0
Delay (s)	12.8	12.9	14.0	10.9	6.0	6.1
Level of Service	B	B	B	B	A	A
Approach Delay (s)		12.9	14.0		6.1	
Approach LOS		B	B		A	

Intersection Summary

HCM 2000 Control Delay	13.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.24		
Actuated Cycle Length (s)	46.1	Sum of lost time (s)	9.0
Intersection Capacity Utilization	36.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues
9: Sixth Line South/Street A & Steeles Avenue

Scenario 2 - SAT Peak Hour
Premier Gateway



Lane Group	EBL	EBT	WBT	WBR	SBL	SBT
Lane Group Flow (vph)	46	623	827	132	282	99
v/c Ratio	0.37	0.52	0.65	0.26	0.40	0.12
Control Delay	26.6	20.3	22.1	4.9	9.5	4.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.6	20.3	22.1	4.9	9.5	4.7
Queue Length 50th (m)	4.3	22.2	30.8	0.0	15.5	2.2
Queue Length 95th (m)	12.7	30.5	40.5	9.9	30.3	8.8
Internal Link Dist (m)		881.3	473.0			481.0
Turn Bay Length (m)	50.0			30.0	70.0	
Base Capacity (vph)	142	1353	1440	552	701	835
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.32	0.46	0.57	0.24	0.40	0.12

Intersection Summary

HCM Signalized Intersection Capacity Analysis
9: Sixth Line South/Street A & Steeles Avenue

Scenario 2 - SAT Peak Hour
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗	↘	↑↑↑	↗	↘	↗		↘	↗	
Traffic Volume (vph)	43	579	0	0	769	123	0	0	0	262	0	92
Future Volume (vph)	43	579	0	0	769	123	0	0	0	262	0	92
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0	6.0				4.5	6.0	
Lane Util. Factor	1.00	0.91			0.91	1.00				1.00	1.00	
Frt	1.00	1.00			1.00	0.85				1.00	0.85	
Flt Protected	0.95	1.00			1.00	1.00				0.95	1.00	
Satd. Flow (prot)	1687	4510			4803	1524				1703	1509	
Flt Permitted	0.27	1.00			1.00	1.00				0.62	1.00	
Satd. Flow (perm)	474	4510			4803	1524				1104	1509	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	46	623	0	0	827	132	0	0	0	282	0	99
RTOR Reduction (vph)	0	0	0	0	0	97	0	0	0	0	25	0
Lane Group Flow (vph)	46	623	0	0	827	35	0	0	0	282	74	0
Heavy Vehicles (%)	7%	15%	0%	0%	8%	6%	0%	0%	0%	6%	0%	7%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm			pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	15.8	15.8			15.8	15.8				32.2	32.2	
Effective Green, g (s)	15.8	15.8			15.8	15.8				32.2	32.2	
Actuated g/C Ratio	0.26	0.26			0.26	0.26				0.54	0.54	
Clearance Time (s)	6.0	6.0			6.0	6.0				4.5	6.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0				3.0	3.0	
Lane Grp Cap (vph)	124	1187			1264	401				673	809	
v/s Ratio Prot		0.14			c0.17					c0.06	0.05	
v/s Ratio Perm	0.10					0.02				c0.17		
v/c Ratio	0.37	0.52			0.65	0.09				0.42	0.09	
Uniform Delay, d1	18.0	18.9			19.7	16.7				7.9	6.8	
Progression Factor	1.00	1.00			1.00	1.00				1.00	1.00	
Incremental Delay, d2	1.9	0.4			1.2	0.1				0.4	0.2	
Delay (s)	19.9	19.3			20.9	16.8				8.4	7.0	
Level of Service	B	B			C	B				A	A	
Approach Delay (s)		19.4			20.3			0.0			8.0	
Approach LOS		B			C			A			A	

Intersection Summary

HCM 2000 Control Delay	17.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	48.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
 10: Steeles Avenue & Hornby Road

Scenario 2 - SAT Peak Hour
 Premier Gateway



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↵	↑↑↑	↑↑↑	↵	↵	↵
Traffic Volume (veh/h)	40	801	800	12	9	92
Future Volume (Veh/h)	40	801	800	12	9	92
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	43	861	860	13	10	99
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type						
		None	None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	873				1233	287
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	873				1233	287
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	94				94	86
cM capacity (veh/h)	781				162	713

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	SB 1	SB 2
Volume Total	43	287	287	287	287	287	287	13	10	99
Volume Left	43	0	0	0	0	0	0	0	10	0
Volume Right	0	0	0	0	0	0	0	13	0	99
cSH	781	1700	1700	1700	1700	1700	1700	1700	162	713
Volume to Capacity	0.06	0.17	0.17	0.17	0.17	0.17	0.17	0.01	0.06	0.14
Queue Length 95th (m)	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6	3.8
Control Delay (s)	9.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	28.6	10.9
Lane LOS	A								D	B
Approach Delay (s)	0.5				0.0				12.5	
Approach LOS									B	

Intersection Summary		
Average Delay		0.9
Intersection Capacity Utilization	32.1%	ICU Level of Service
Analysis Period (min)	15	A

HCM Unsignalized Intersection Capacity Analysis
 11: Trafalgar Rd & Hornby Rd

Scenario 2 - SAT Peak Hour
 Premier Gateway



Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations							
Traffic Volume (veh/h)	111	1	3	899	739	128	
Future Volume (Veh/h)	111	1	3	899	739	128	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	
Hourly flow rate (vph)	114	1	3	927	762	132	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				None	None		
Median storage veh							
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume	1143	320	762				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1143	320	762				
tC, single (s)	6.9	7.0	4.2				
tC, 2 stage (s)							
tF (s)	3.5	3.4	2.3				
p0 queue free %	40	100	100				
cM capacity (veh/h)	190	664	820				
Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	115	188	371	371	305	305	284
Volume Left	114	3	0	0	0	0	0
Volume Right	1	0	0	0	0	0	132
cSH	191	820	1700	1700	1700	1700	1700
Volume to Capacity	0.60	0.00	0.22	0.22	0.18	0.18	0.17
Queue Length 95th (m)	26.8	0.1	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	48.8	0.2	0.0	0.0	0.0	0.0	0.0
Lane LOS	E	A					
Approach Delay (s)	48.8	0.0			0.0		
Approach LOS	E						
Intersection Summary							
Average Delay			2.9				
Intersection Capacity Utilization			32.3%	ICU Level of Service	A		
Analysis Period (min)			15				

Queues
12: Trafalgar Road & Steeles Avenue

Scenario 2 - SAT Peak Hour
Premier Gateway



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	47	414	486	995	499	82	289	813	1285	107	945
v/c Ratio	0.21	0.40	0.97	1.47	0.26	0.12	0.73	0.43	1.40	0.39	0.67
Control Delay	25.6	49.7	62.3	260.4	31.2	0.7	71.6	35.0	209.5	28.2	49.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	25.6	49.7	62.3	260.4	31.2	0.7	71.6	35.0	209.5	28.2	49.0
Queue Length 50th (m)	7.6	39.1	83.0	~212.2	37.9	0.0	43.6	67.9	~421.2	18.0	94.8
Queue Length 95th (m)	15.5	50.7	#156.7	#255.5	47.9	0.9	59.5	81.3	#507.7	30.3	113.0
Internal Link Dist (m)		443.0			287.3			749.5			265.5
Turn Bay Length (m)	115.0		40.0	130.0		70.0	100.0		65.0		
Base Capacity (vph)	228	1073	512	676	1896	673	441	1875	917	275	1416
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	0.21	0.39	0.95	1.47	0.26	0.12	0.66	0.43	1.40	0.39	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.

HCM Signalized Intersection Capacity Analysis
12: Trafalgar Road & Steeles Avenue

Scenario 2 - SAT Peak Hour
Premier Gateway

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	397	467	955	479	79	277	780	1234	103	893	14
Future Volume (vph)	45	397	467	955	479	79	277	780	1234	103	893	14
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	5.0	7.0	7.0	5.0	8.0	8.0	4.0	8.0	
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1399	4715	1442	3502	4940	1538	3045	4988	1599	1736	4927	
Flt Permitted	0.46	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.33	1.00	
Satd. Flow (perm)	676	4715	1442	3502	4940	1538	3045	4988	1599	608	4927	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	47	414	486	995	499	82	289	812	1285	107	930	15
RTOR Reduction (vph)	0	0	186	0	0	51	0	0	319	0	1	0
Lane Group Flow (vph)	47	414	300	995	499	31	289	813	966	107	944	0
Heavy Vehicles (%)	29%	10%	12%	0%	5%	5%	15%	4%	1%	4%	5%	7%
Turn Type	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4			8			2	6		
Actuated Green, G (s)	37.9	32.3	32.3	28.0	55.7	55.7	18.9	53.7	53.7	47.8	40.8	
Effective Green, g (s)	37.9	32.3	32.3	28.0	55.7	55.7	18.9	53.7	53.7	47.8	40.8	
Actuated g/C Ratio	0.26	0.22	0.22	0.19	0.38	0.38	0.13	0.37	0.37	0.33	0.28	
Clearance Time (s)	4.0	7.0	7.0	5.0	7.0	7.0	5.0	8.0	8.0	4.0	8.0	
Vehicle Extension (s)	3.0	3.0	3.0	4.0	3.0	3.0	4.0	0.2	0.2	3.0	0.2	
Lane Grp Cap (vph)	204	1050	321	676	1897	590	396	1847	592	254	1386	
v/s Ratio Prot	0.01	0.09		c0.28	0.10		c0.09	0.16		0.02	0.19	
v/s Ratio Perm	0.05		c0.21			0.02			c0.60	0.12		
v/c Ratio	0.23	0.39	0.94	1.47	0.26	0.05	0.73	0.44	1.63	0.42	0.68	
Uniform Delay, d1	40.9	48.0	55.3	58.5	30.6	28.1	60.6	34.3	45.6	34.7	46.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.6	0.2	33.5	220.4	0.1	0.0	7.1	0.8	291.8	1.1	2.7	
Delay (s)	41.5	48.3	88.8	278.9	30.7	28.1	67.7	35.1	337.4	35.8	49.0	
Level of Service	D	D	F	F	C	C	E	D	F	D	D	
Approach Delay (s)		68.7			187.2			201.8			47.7	
Approach LOS		E			F			F			D	
Intersection Summary												
HCM 2000 Control Delay			149.6									F
HCM 2000 Volume to Capacity ratio			1.38									
Actuated Cycle Length (s)			145.0						25.0			
Intersection Capacity Utilization			114.7%									H
Analysis Period (min)			15									
c Critical Lane Group												

Queues
13: Toronto Premier Outlets & Steeles Avenue

Scenario 2 - SAT Peak Hour
Premier Gateway

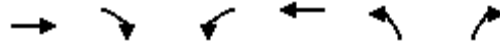


Lane Group	EBT	EBR	WBL	WBT	NBL
Lane Group Flow (vph)	1071	815	53	868	524
v/c Ratio	0.46	0.69	0.14	0.30	0.64
Control Delay	12.6	4.8	5.9	7.2	24.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	12.6	4.8	5.9	7.2	24.9
Queue Length 50th (m)	33.3	0.0	2.2	17.1	28.2
Queue Length 95th (m)	44.7	19.4	5.7	23.4	42.5
Internal Link Dist (m)	287.3			176.7	95.1
Turn Bay Length (m)		130.0	45.0		
Base Capacity (vph)	2327	1188	370	2853	817
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	0.46	0.69	0.14	0.30	0.64
Intersection Summary					

HCM Signalized Intersection Capacity Analysis
 13: Toronto Premier Outlets & Steeles Avenue

Scenario 2 - SAT Peak Hour

Premier Gateway



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↑	↑↑↑	↑↑	↑
Traffic Volume (vph)	1028	782	51	833	503	0
Future Volume (vph)	1028	782	51	833	503	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	4.0	6.0	6.0	
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	
Frt	1.00	0.85	1.00	1.00	1.00	
Flt Protected	1.00	1.00	0.95	1.00	0.95	
Satd. Flow (prot)	4988	1615	1805	5036	3502	
Flt Permitted	1.00	1.00	0.20	1.00	0.95	
Satd. Flow (perm)	4988	1615	379	5036	3502	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	1071	815	53	868	524	0
RTOR Reduction (vph)	0	435	0	0	0	0
Lane Group Flow (vph)	1071	380	53	868	524	0
Heavy Vehicles (%)	4%	0%	0%	3%	0%	0%
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	28.0	28.0	35.6	35.6	12.4	
Effective Green, g (s)	28.0	28.0	35.6	35.6	12.4	
Actuated g/C Ratio	0.47	0.47	0.59	0.59	0.21	
Clearance Time (s)	6.0	6.0	4.0	6.0	6.0	
Vehicle Extension (s)	0.2	0.2	3.0	0.2	4.0	
Lane Grp Cap (vph)	2327	753	310	2988	723	
v/s Ratio Prot	0.21		0.01	c0.17	c0.15	
v/s Ratio Perm		c0.24	0.09			
v/c Ratio	0.46	0.51	0.17	0.29	0.72	
Uniform Delay, d1	10.9	11.2	5.6	6.0	22.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.7	2.4	0.3	0.2	6.2	
Delay (s)	11.5	13.6	5.8	6.2	28.4	
Level of Service	B	B	A	A	C	
Approach Delay (s)	12.4			6.2	28.4	
Approach LOS	B			A	C	

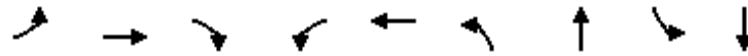
Intersection Summary			
HCM 2000 Control Delay	13.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	61.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Queues

Scenario 2 - SAT Peak Hour

14: Toronto Premium Outlets/Eighth Line & Steeles Avenue

Premier Gateway



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	229	569	37	245	622	391	483	49	164
v/c Ratio	0.54	0.38	0.06	0.54	0.40	0.74	0.57	0.43	0.32
Control Delay	17.2	22.5	0.2	16.9	22.1	41.9	7.6	44.9	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.2	22.5	0.2	16.9	22.1	41.9	7.6	44.9	9.8
Queue Length 50th (m)	19.9	25.6	0.0	21.4	27.6	30.7	10.5	7.3	1.4
Queue Length 95th (m)	33.9	35.3	0.0	36.1	37.7	#48.8	35.8	#18.5	10.1
Internal Link Dist (m)		176.7			846.8		194.1		472.6
Turn Bay Length (m)	105.0		55.0	30.0				20.0	
Base Capacity (vph)	429	1494	644	462	1550	534	846	113	520
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.53	0.38	0.06	0.53	0.40	0.73	0.57	0.43	0.32

Intersection Summary

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
 14: Toronto Premium Outlets/Eighth Line & Steeles Avenue

Scenario 2 - SAT Peak Hour

Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑↑↑	↗	↖	↑↑↑		↖↗	↖		↖	↑↗	
Traffic Volume (vph)	224	558	36	240	572	37	383	40	433	48	20	141
Future Volume (vph)	224	558	36	240	572	37	383	40	433	48	20	141
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	4.0	6.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91		0.97	1.00		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.86		1.00	0.87	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	4893	1615	1805	5036		3502	1639		1736	3107	
Flt Permitted	0.37	1.00	1.00	0.41	1.00		0.95	1.00		0.49	1.00	
Satd. Flow (perm)	691	4893	1615	770	5036		3502	1639		891	3107	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	229	569	37	245	584	38	391	41	442	49	20	144
RTOR Reduction (vph)	0	0	26	0	9	0	0	242	0	0	126	0
Lane Group Flow (vph)	229	569	11	245	613	0	391	241	0	49	38	0
Heavy Vehicles (%)	3%	6%	0%	0%	2%	3%	0%	0%	0%	4%	0%	1%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA		Perm	NA	
Protected Phases	7	4		3	8		5	2				6
Permitted Phases	4		4	8						6		
Actuated Green, G (s)	32.7	24.0	24.0	32.9	24.1		11.8	28.8		10.0	10.0	
Effective Green, g (s)	32.7	24.0	24.0	32.9	24.1		11.8	28.8		10.0	10.0	
Actuated g/C Ratio	0.42	0.31	0.31	0.42	0.31		0.15	0.37		0.13	0.13	
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	0.2	0.2	3.0	0.2		4.0	4.0		3.0	3.0	
Lane Grp Cap (vph)	404	1494	493	438	1544		525	600		113	395	
v/s Ratio Prot	0.06	0.12		c0.06	0.12		c0.11	c0.15			0.01	
v/s Ratio Perm	c0.17		0.01	0.17						0.05		
v/c Ratio	0.57	0.38	0.02	0.56	0.40		0.74	0.40		0.43	0.10	
Uniform Delay, d1	15.4	21.5	19.1	15.4	21.5		32.0	18.5		31.7	30.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.8	0.7	0.1	1.6	0.8		6.0	0.6		11.7	0.5	
Delay (s)	17.3	22.2	19.2	16.9	22.3		38.0	19.1		43.3	30.8	
Level of Service	B	C	B	B	C		D	B		D	C	
Approach Delay (s)		20.7			20.8			27.6			33.7	
Approach LOS		C			C			C			C	

Intersection Summary		
HCM 2000 Control Delay	23.9	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.59	
Actuated Cycle Length (s)	78.6	Sum of lost time (s) 24.0
Intersection Capacity Utilization	87.2%	ICU Level of Service E
Analysis Period (min)	15	
c Critical Lane Group		

HCM Unsignalized Intersection Capacity Analysis
 15: Eighth Line South & Steeles Avenue

Scenario 2 - SAT Peak Hour
 Premier Gateway



Movement	EBT	EBR	WBL	WBT	NBL	NBR				
Lane Configurations	↑↑↑		↵	↑↑↑	↵	↵				
Traffic Volume (veh/h)	1036	3	1	853	3	0				
Future Volume (Veh/h)	1036	3	1	853	3	0				
Sign Control	Free			Free	Stop					
Grade	0%			0%	0%					
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93				
Hourly flow rate (vph)	1114	3	1	917	3	0				
Pedestrians										
Lane Width (m)										
Walking Speed (m/s)										
Percent Blockage										
Right turn flare (veh)										
Median type	None			None						
Median storage (veh)										
Upstream signal (m)										
pX, platoon unblocked										
vC, conflicting volume			1117			1423	373			
vC1, stage 1 conf vol										
vC2, stage 2 conf vol										
vCu, unblocked vol			1117			1423	373			
tC, single (s)			4.1			6.8	6.9			
tC, 2 stage (s)										
tF (s)			2.2			3.5	3.3			
p0 queue free %			100			98	100			
cM capacity (veh/h)			633			129	630			
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	
Volume Total	446	446	226	1	306	306	306	3	0	
Volume Left	0	0	0	1	0	0	0	3	0	
Volume Right	0	0	3	0	0	0	0	0	0	
cSH	1700	1700	1700	633	1700	1700	1700	129	1700	
Volume to Capacity	0.26	0.26	0.13	0.00	0.18	0.18	0.18	0.02	0.00	
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.0	
Control Delay (s)	0.0	0.0	0.0	10.7	0.0	0.0	0.0	33.6	0.0	
Lane LOS				B				D	A	
Approach Delay (s)	0.0			0.0			33.6			
Approach LOS							D			
Intersection Summary										
Average Delay			0.1							
Intersection Capacity Utilization			30.1%		ICU Level of Service				A	
Analysis Period (min)			15							

Queues
16: Steeles Avenue & Ninth Line



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	147	941	756	365	380	127
v/c Ratio	0.33	0.36	0.40	0.44	0.84	0.26
Control Delay	8.3	9.1	15.6	4.0	41.3	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.3	9.1	15.6	4.0	41.3	5.7
Queue Length 50th (m)	7.2	21.7	24.5	0.0	41.8	0.0
Queue Length 95th (m)	14.3	29.4	34.2	15.6	#84.5	10.9
Internal Link Dist (m)		501.4	674.5		3096.2	
Turn Bay Length (m)	65.0			75.0		
Base Capacity (vph)	448	2601	1881	821	451	495
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.36	0.40	0.44	0.84	0.26

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
 16: Steeles Avenue & Ninth Line

Scenario 2 - SAT Peak Hour
 Premier Gateway



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	141	903	726	350	365	122
Future Volume (vph)	141	903	726	350	365	122
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1736	5036	5085	1599	1805	1599
Flt Permitted	0.30	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	546	5036	5085	1599	1805	1599
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	147	941	756	365	380	127
RTOR Reduction (vph)	0	0	0	232	0	96
Lane Group Flow (vph)	147	941	756	133	380	31
Heavy Vehicles (%)	4%	3%	2%	1%	0%	1%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	31.8	31.8	22.2	22.2	15.0	15.0
Effective Green, g (s)	31.8	31.8	22.2	22.2	15.0	15.0
Actuated g/C Ratio	0.52	0.52	0.37	0.37	0.25	0.25
Clearance Time (s)	4.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	0.2	0.2	0.2	3.0	3.0
Lane Grp Cap (vph)	395	2633	1856	583	445	394
v/s Ratio Prot	0.03	c0.19	0.15		c0.21	
v/s Ratio Perm	c0.16			0.08		0.02
v/c Ratio	0.37	0.36	0.41	0.23	0.85	0.08
Uniform Delay, d1	7.7	8.5	14.4	13.4	21.9	17.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	0.4	0.7	0.9	18.5	0.4
Delay (s)	8.3	8.9	15.1	14.3	40.3	18.0
Level of Service	A	A	B	B	D	B
Approach Delay (s)		8.8	14.8		34.7	
Approach LOS		A	B		C	

Intersection Summary

HCM 2000 Control Delay	16.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	60.8	Sum of lost time (s)	18.0
Intersection Capacity Utilization	59.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Queues
17: Ninth Line (South) & Steeles Avenue

Scenario 2 - SAT Peak Hour
Premier Gateway



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1108	255	128	905	253	185
v/c Ratio	0.67	0.36	0.38	0.38	0.47	0.30
Control Delay	20.4	4.2	10.8	10.7	21.9	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.4	4.2	10.8	10.7	21.9	4.8
Queue Length 50th (m)	42.7	0.0	7.1	23.3	25.5	0.0
Queue Length 95th (m)	56.7	14.0	14.3	31.5	45.4	12.7
Internal Link Dist (m)	674.5			176.7	143.5	
Turn Bay Length (m)		75.0	145.0		60.0	
Base Capacity (vph)	1666	704	333	2608	537	610
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.67	0.36	0.38	0.35	0.47	0.30
Intersection Summary						

HCM Signalized Intersection Capacity Analysis
 17: Ninth Line (South) & Steeles Avenue

Scenario 2 - SAT Peak Hour
 Premier Gateway



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗	↖	↑↑↑	↖	↗
Traffic Volume (vph)	1030	237	119	842	235	172
Future Volume (vph)	1030	237	119	842	235	172
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	4.0	7.0	7.0	7.0
Lane Util. Factor	0.91	1.00	1.00	0.91	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	5036	1615	1787	5085	1805	1615
Flt Permitted	1.00	1.00	0.17	1.00	0.95	1.00
Satd. Flow (perm)	5036	1615	312	5085	1805	1615
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	1108	255	128	905	253	185
RTOR Reduction (vph)	0	172	0	0	0	131
Lane Group Flow (vph)	1108	83	128	905	253	54
Heavy Vehicles (%)	3%	0%	1%	2%	0%	0%
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	20.1	20.1	29.5	29.5	18.1	18.1
Effective Green, g (s)	20.1	20.1	29.5	29.5	18.1	18.1
Actuated g/C Ratio	0.33	0.33	0.48	0.48	0.29	0.29
Clearance Time (s)	7.0	7.0	4.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1643	526	278	2435	530	474
v/s Ratio Prot	c0.22		c0.04	0.18	c0.14	
v/s Ratio Perm		0.05	0.18			0.03
v/c Ratio	0.67	0.16	0.46	0.37	0.48	0.11
Uniform Delay, d1	17.9	14.7	9.9	10.2	17.9	15.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.1	0.1	1.2	0.1	3.1	0.5
Delay (s)	19.0	14.9	11.1	10.3	20.9	16.4
Level of Service	B	B	B	B	C	B
Approach Delay (s)	18.3			10.4	19.0	
Approach LOS	B			B	B	

Intersection Summary			
HCM 2000 Control Delay	15.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	61.6	Sum of lost time (s)	18.0
Intersection Capacity Utilization	54.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues

Scenario 2 - SAT Peak Hour

18: James Snow Parkway & Hwy 401 (Westbound Ramp)

Premier Gateway



Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	840	308	606	904
v/c Ratio	0.73	0.57	0.30	0.44
Control Delay	23.4	15.3	14.8	16.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	23.4	15.3	14.8	16.0
Queue Length 50th (m)	48.0	20.9	19.0	30.2
Queue Length 95th (m)	66.0	45.0	32.2	48.7
Internal Link Dist (m)	390.4		415.8	504.8
Turn Bay Length (m)				
Base Capacity (vph)	1616	714	1999	2057
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.52	0.43	0.30	0.44

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 18: James Snow Parkway & Hwy 401 (Westbound Ramp)

Scenario 2 - SAT Peak Hour

Premier Gateway



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↶↶	↶	↷↷↷			↶↶↶
Traffic Volume (vph)	782	332	588	0	0	877
Future Volume (vph)	782	332	588	0	0	877
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.2	8.2	9.3			9.3
Lane Util. Factor	0.97	0.91	0.91			0.91
Frt	0.99	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3456	1400	4940			5085
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3456	1400	4940			5085
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	806	342	606	0	0	904
RTOR Reduction (vph)	5	77	0	0	0	0
Lane Group Flow (vph)	835	231	606	0	0	904
Heavy Vehicles (%)	1%	5%	5%	0%	0%	2%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	21.9	21.9	26.9			26.9
Effective Green, g (s)	21.9	21.9	26.9			26.9
Actuated g/C Ratio	0.33	0.33	0.41			0.41
Clearance Time (s)	8.2	8.2	9.3			9.3
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	1141	462	2004			2063
v/s Ratio Prot	c0.24		0.12			c0.18
v/s Ratio Perm		0.17				
v/c Ratio	0.73	0.50	0.30			0.44
Uniform Delay, d1	19.6	17.8	13.3			14.2
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	2.5	0.9	0.4			0.7
Delay (s)	22.1	18.7	13.7			14.9
Level of Service	C	B	B			B
Approach Delay (s)	21.2		13.7			14.9
Approach LOS	C		B			B

Intersection Summary

HCM 2000 Control Delay	17.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	66.3	Sum of lost time (s)	17.5
Intersection Capacity Utilization	57.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Queues

19: James Snow Parkway & Hwy 401 (Eastbound Ramp)



Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	196	89	616	1406
v/c Ratio	0.41	0.35	0.18	0.41
Control Delay	23.0	18.4	4.7	5.9
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	23.0	18.4	4.7	5.9
Queue Length 50th (m)	9.3	5.3	9.9	27.5
Queue Length 95th (m)	18.4	18.5	15.0	37.9
Internal Link Dist (m)	305.5		1282.4	415.8
Turn Bay Length (m)				
Base Capacity (vph)	718	365	3407	3442
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.27	0.24	0.18	0.41

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 19: James Snow Parkway & Hwy 401 (Eastbound Ramp)

Scenario 2 - SAT Peak Hour

Premier Gateway



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	135	148	0	610	1392	0
Future Volume (vph)	135	148	0	610	1392	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		7.4	7.4	
Lane Util. Factor	0.97	0.91		0.91	0.91	
Frt	0.95	0.85		1.00	1.00	
Flt Protected	0.97	1.00		1.00	1.00	
Satd. Flow (prot)	3059	1470		5085	5136	
Flt Permitted	0.97	1.00		1.00	1.00	
Satd. Flow (perm)	3059	1470		5085	5136	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	136	149	0	616	1406	0
RTOR Reduction (vph)	42	42	0	0	0	0
Lane Group Flow (vph)	154	47	0	616	1406	0
Heavy Vehicles (%)	16%	0%	0%	2%	1%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	10.4	10.4		48.5	48.5	
Effective Green, g (s)	10.4	10.4		48.5	48.5	
Actuated g/C Ratio	0.14	0.14		0.67	0.67	
Clearance Time (s)	6.0	6.0		7.4	7.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	440	211		3411	3445	
v/s Ratio Prot	c0.05			0.12	c0.27	
v/s Ratio Perm		0.03				
v/c Ratio	0.35	0.22		0.18	0.41	
Uniform Delay, d1	27.9	27.4		4.5	5.4	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.5	0.5		0.1	0.4	
Delay (s)	28.4	27.9		4.6	5.8	
Level of Service	C	C		A	A	
Approach Delay (s)	28.2			4.6	5.8	
Approach LOS	C			A	A	

Intersection Summary

HCM 2000 Control Delay	8.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.40		
Actuated Cycle Length (s)	72.3	Sum of lost time (s)	13.4
Intersection Capacity Utilization	57.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Queues

20: Trafalgar Road & Hwy 401 (Westbound Ramp)



Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	648	470	1276	1774
v/c Ratio	0.56	0.88	0.49	0.68
Control Delay	26.9	47.0	18.4	22.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	26.9	47.0	18.4	22.0
Queue Length 50th (m)	53.9	96.7	61.2	98.5
Queue Length 95th (m)	70.0	143.9	98.2	154.8
Internal Link Dist (m)	383.1		312.7	749.5
Turn Bay Length (m)				
Base Capacity (vph)	1655	762	2625	2600
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.39	0.62	0.49	0.68

Intersection Summary

HCM Signalized Intersection Capacity Analysis
20: Trafalgar Road & Hwy 401 (Westbound Ramp)

Scenario 2 - SAT Peak Hour
Premier Gateway



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔↔	↗	↑↑↑			↑↑↑
Traffic Volume (vph)	173	922	1250	0	0	1739
Future Volume (vph)	173	922	1250	0	0	1739
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0			6.0
Lane Util. Factor	0.97	0.91	0.91			0.91
Frt	0.89	0.85	1.00			1.00
Flt Protected	0.99	1.00	1.00			1.00
Satd. Flow (prot)	3151	1441	5036			4988
Flt Permitted	0.99	1.00	1.00			1.00
Satd. Flow (perm)	3151	1441	5036			4988
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	177	941	1276	0	0	1774
RTOR Reduction (vph)	15	15	0	0	0	0
Lane Group Flow (vph)	633	455	1276	0	0	1774
Heavy Vehicles (%)	5%	2%	3%	0%	0%	4%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	37.9	37.9	54.6			54.6
Effective Green, g (s)	37.9	37.9	54.6			54.6
Actuated g/C Ratio	0.36	0.36	0.52			0.52
Clearance Time (s)	6.0	6.0	6.0			6.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	1142	522	2631			2606
v/s Ratio Prot	0.20		0.25			c0.36
v/s Ratio Perm		c0.32				
v/c Ratio	0.55	0.87	0.48			0.68
Uniform Delay, d1	26.6	31.0	16.0			18.5
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	0.6	14.8	0.6			1.5
Delay (s)	27.2	45.9	16.6			19.9
Level of Service	C	D	B			B
Approach Delay (s)	35.0		16.6			19.9
Approach LOS	D		B			B

Intersection Summary			
HCM 2000 Control Delay		23.0	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio		0.76	
Actuated Cycle Length (s)		104.5	Sum of lost time (s) 12.0
Intersection Capacity Utilization		72.2%	ICU Level of Service C
Analysis Period (min)		15	
c Critical Lane Group			

Queues
 21: Trafalgar Road & Hwy 401 (Eastbound Ramp)

Scenario 2 - SAT Peak Hour
 Premier Gateway



Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	527	241	1460	1485
v/c Ratio	0.72	0.72	0.44	0.44
Control Delay	40.2	41.5	8.3	8.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	40.2	41.5	8.3	8.2
Queue Length 50th (m)	48.3	40.1	41.4	41.3
Queue Length 95th (m)	65.6	69.2	68.2	68.3
Internal Link Dist (m)	204.3		1138.2	312.7
Turn Bay Length (m)				
Base Capacity (vph)	1539	667	3356	3350
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.34	0.36	0.44	0.44
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
 21: Trafalgar Road & Hwy 401 (Eastbound Ramp)

Scenario 2 - SAT Peak Hour
 Premier Gateway



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	419	288	0	1343	1199	167
Future Volume (vph)	419	288	0	1343	1199	167
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		6.0	6.0	
Lane Util. Factor	0.97	0.91		0.91	0.91	
Frt	0.98	0.85		1.00	0.98	
Flt Protected	0.96	1.00		1.00	1.00	
Satd. Flow (prot)	3356	1413		4988	4961	
Flt Permitted	0.96	1.00		1.00	1.00	
Satd. Flow (perm)	3356	1413		4988	4961	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	455	313	0	1460	1303	182
RTOR Reduction (vph)	13	34	0	0	11	0
Lane Group Flow (vph)	514	207	0	1460	1474	0
Heavy Vehicles (%)	3%	4%	0%	4%	3%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	20.6	20.6		65.2	65.2	
Effective Green, g (s)	20.6	20.6		65.2	65.2	
Actuated g/C Ratio	0.21	0.21		0.67	0.67	
Clearance Time (s)	5.0	5.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	714	300		3359	3341	
v/s Ratio Prot	c0.15			0.29	c0.30	
v/s Ratio Perm		0.15				
v/c Ratio	0.72	0.69		0.43	0.44	
Uniform Delay, d1	35.4	35.2		7.3	7.3	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.5	6.7		0.4	0.4	
Delay (s)	38.9	41.9		7.7	7.8	
Level of Service	D	D		A	A	
Approach Delay (s)	39.8			7.7	7.8	
Approach LOS	D			A	A	

Intersection Summary

HCM 2000 Control Delay	14.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	96.8	Sum of lost time (s)	11.0
Intersection Capacity Utilization	51.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues

22: Winston Churchill Boulevard & Hwy 401 (Westbound Ramp)



Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	875	333	858	1071
v/c Ratio	0.91	0.68	0.41	0.52
Control Delay	55.4	27.2	14.1	15.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	55.4	27.2	14.1	15.6
Queue Length 50th (m)	106.2	42.0	58.5	79.4
Queue Length 95th (m)	#141.5	80.7	73.0	97.3
Internal Link Dist (m)	284.7		32.1	320.2
Turn Bay Length (m)				
Base Capacity (vph)	1001	502	2069	2069
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.87	0.66	0.41	0.52

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
 22: Winston Churchill Boulevar & Hwy 401 (Westbound Ramp)

Scenario 2 - SAT Peak Hour

Premier Gateway



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔↔	↗	↕↕			↕↕
Traffic Volume (vph)	813	359	832	0	0	1039
Future Volume (vph)	813	359	832	0	0	1039
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	8.0			8.0
Lane Util. Factor	0.97	0.91	0.95			0.95
Frt	0.99	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3382	1324	3505			3505
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3382	1324	3505			3505
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	838	370	858	0	0	1071
RTOR Reduction (vph)	3	113	0	0	0	0
Lane Group Flow (vph)	872	220	858	0	0	1071
Heavy Vehicles (%)	3%	11%	3%	0%	0%	3%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	33.6	33.6	70.0			70.0
Effective Green, g (s)	33.6	33.6	70.0			70.0
Actuated g/C Ratio	0.28	0.28	0.59			0.59
Clearance Time (s)	7.0	7.0	8.0			8.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	958	375	2068			2068
v/s Ratio Prot	c0.26		0.24			c0.31
v/s Ratio Perm		0.17				
v/c Ratio	0.91	0.59	0.41			0.52
Uniform Delay, d1	41.0	36.5	13.2			14.3
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	12.5	2.3	0.6			0.9
Delay (s)	53.5	38.9	13.8			15.3
Level of Service	D	D	B			B
Approach Delay (s)	49.5		13.8			15.3
Approach LOS	D		B			B

Intersection Summary			
HCM 2000 Control Delay		28.0	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio		0.65	
Actuated Cycle Length (s)		118.6	Sum of lost time (s) 15.0
Intersection Capacity Utilization		97.8%	ICU Level of Service F
Analysis Period (min)		15	
c Critical Lane Group			

Queues

23: Winston Churchill Boulevard & Hwy 401 (Eastbound Ramp)



Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	424	201	1010	1404
v/c Ratio	0.73	0.69	0.27	0.39
Control Delay	45.1	42.2	5.9	7.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	45.1	42.2	5.9	7.6
Queue Length 50th (m)	40.8	32.7	24.9	42.0
Queue Length 95th (m)	57.7	60.7	40.1	64.3
Internal Link Dist (m)	152.5		433.2	198.3
Turn Bay Length (m)				
Base Capacity (vph)	829	401	3718	3593
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.51	0.50	0.27	0.39

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 23: Winston Churchill Boulevar & Hwy 401 (Eastbound Ramp)

Scenario 2 - SAT Peak Hour

Premier Gateway

































Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	248	365	0	990	1350	25
Future Volume (vph)	248	365	0	990	1350	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		4.5	7.0	
Lane Util. Factor	0.97	0.91		0.91	0.91	
Frt	0.94	0.85		1.00	1.00	
Flt Protected	0.97	1.00		1.00	1.00	
Satd. Flow (prot)	3215	1455		5136	5122	
Flt Permitted	0.97	1.00		1.00	1.00	
Satd. Flow (perm)	3215	1455		5136	5122	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	253	372	0	1010	1378	26
RTOR Reduction (vph)	54	54	0	0	1	0
Lane Group Flow (vph)	370	147	0	1010	1403	0
Heavy Vehicles (%)	7%	1%	0%	1%	1%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	18.2	18.2		80.6	78.1	
Effective Green, g (s)	18.2	18.2		80.6	78.1	
Actuated g/C Ratio	0.16	0.16		0.72	0.70	
Clearance Time (s)	8.0	8.0		4.5	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	525	237		3719	3594	
v/s Ratio Prot	c0.12			0.20	c0.27	
v/s Ratio Perm		0.10				
v/c Ratio	0.71	0.62		0.27	0.39	
Uniform Delay, d1	44.0	43.3		5.3	6.8	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.3	5.0		0.2	0.3	
Delay (s)	48.3	48.4		5.5	7.1	
Level of Service	D	D		A	A	
Approach Delay (s)	48.3			5.5	7.1	
Approach LOS	D			A	A	

Intersection Summary			
HCM 2000 Control Delay	15.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	111.3	Sum of lost time (s)	15.0
Intersection Capacity Utilization	86.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group
Lane Group Flow (vph)
v/c Ratio
Control Delay
Queue Delay
Total Delay
Queue Length 50th (m)
Queue Length 95th (m)
Internal Link Dist (m)
Turn Bay Length (m)
Base Capacity (vph)
Starvation Cap Reductn
Spillback Cap Reductn
Storage Cap Reductn
Reduced v/c Ratio
Intersection Summary

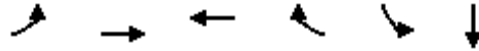
HCM Signalized Intersection Capacity Analysis
 24: James Snow Parkway & Main Street East

Scenario 2 - SAT Peak Hour
 Premier Gateway

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	 		 	 	 			  			  	
Traffic Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Future Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)												
Lane Util. Factor												
Frt												
Flt Protected												
Satd. Flow (prot)												
Flt Permitted												
Satd. Flow (perm)												
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Lane Group Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0
Heavy Vehicles (%)	0%	0%	0%	0%	0%	3%	0%	3%	2%	2%	0%	1%
Turn Type	Perm		Perm	Perm			Perm			Perm		Perm
Protected Phases		4			8			2			6	
Permitted Phases	4		4	8			2			6		6
Actuated Green, G (s)												
Effective Green, g (s)												
Actuated g/C Ratio												
Clearance Time (s)												
Vehicle Extension (s)												
Lane Grp Cap (vph)												
v/s Ratio Prot												
v/s Ratio Perm												
v/c Ratio												
Uniform Delay, d1												
Progression Factor												
Incremental Delay, d2												
Delay (s)												
Level of Service												
Approach Delay (s)		0.0			0.0			0.0			0.0	
Approach LOS		A			A			A			A	
Intersection Summary												
HCM 2000 Control Delay		0.0			HCM 2000 Level of Service			A				
HCM 2000 Volume to Capacity ratio		0.00										
Actuated Cycle Length (s)		37.5			Sum of lost time (s)			9.0				
Intersection Capacity Utilization		0.0%			ICU Level of Service			A				
Analysis Period (min)		15										
c Critical Lane Group												

Queues
25: Street B & Steeles Avenue

Scenario 2 - SAT Peak Hour
Premier Gateway



Lane Group	EBL	EBT	WBT	WBR	SBL	SBT
Lane Group Flow (vph)	136	707	710	92	240	135
v/c Ratio	0.52	0.44	0.64	0.19	0.40	0.14
Control Delay	20.6	16.8	25.9	0.8	13.9	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.6	16.8	25.9	0.8	13.9	0.3
Queue Length 50th (m)	11.4	24.5	31.2	0.0	18.9	0.0
Queue Length 95th (m)	22.2	33.6	42.7	0.0	35.4	0.0
Internal Link Dist (m)		388.7	443.0			311.5
Turn Bay Length (m)	50.0			30.0	30.0	
Base Capacity (vph)	264	1999	1344	561	600	934
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.52	0.35	0.53	0.16	0.40	0.14

Intersection Summary

HCM Signalized Intersection Capacity Analysis

25: Street B & Steeles Avenue

Scenario 2 - SAT Peak Hour
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗	↘	↑↑↑	↗	↘	↑	↗	↘	↗	↘
Traffic Volume (vph)	131	679	0	0	682	88	0	0	0	230	0	130
Future Volume (vph)	131	679	0	0	682	88	0	0	0	230	0	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0			6.0	6.0				4.5	6.0	
Lane Util. Factor	1.00	0.91			0.91	1.00				1.00	1.00	
Frt	1.00	1.00			1.00	0.85				1.00	0.85	
Flt Protected	0.95	1.00			1.00	1.00				0.95	1.00	
Satd. Flow (prot)	1703	4590			4803	1524				1703	1524	
Flt Permitted	0.23	1.00			1.00	1.00				0.61	1.00	
Satd. Flow (perm)	420	4590			4803	1524				1101	1524	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	136	707	0	0	710	92	0	0	0	240	0	135
RTOR Reduction (vph)	0	0	0	0	0	71	0	0	0	0	73	0
Lane Group Flow (vph)	136	707	0	0	710	21	0	0	0	240	62	0
Heavy Vehicles (%)	6%	13%	0%	0%	8%	6%	0%	0%	0%	6%	0%	6%
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt		Perm	pm+pt	NA	
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)	23.6	23.6			14.9	14.9				30.4	30.4	
Effective Green, g (s)	23.6	23.6			14.9	14.9				30.4	30.4	
Actuated g/C Ratio	0.36	0.36			0.23	0.23				0.46	0.46	
Clearance Time (s)	4.5	6.0			6.0	6.0				4.5	6.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0				3.0	3.0	
Lane Grp Cap (vph)	231	1641			1084	344				567	701	
v/s Ratio Prot	c0.04	0.15			0.15					c0.04	0.04	
v/s Ratio Perm	c0.17					0.01				c0.15		
v/c Ratio	0.59	0.43			0.65	0.06				0.42	0.09	
Uniform Delay, d1	15.3	16.1			23.2	20.1				11.4	10.0	
Progression Factor	1.00	1.00			1.00	1.00				1.00	1.00	
Incremental Delay, d2	3.8	0.2			1.4	0.1				0.5	0.2	
Delay (s)	19.1	16.3			24.7	20.1				11.9	10.3	
Level of Service	B	B			C	C				B	B	
Approach Delay (s)		16.7			24.1			0.0			11.3	
Approach LOS		B			C			A			B	

Intersection Summary

HCM 2000 Control Delay	18.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	66.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	46.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
 26: Hornby Road & Street A

Scenario 2 - SAT Peak Hour
 Premier Gateway



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Right Turn Channelized						
Traffic Volume (veh/h)	61	0	0	51	101	29
Future Volume (veh/h)	61	0	0	51	101	29
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	64	0	0	53	105	30
Approach Volume (veh/h)	64			53	135	
Crossing Volume (veh/h)	105			64	0	
High Capacity (veh/h)	1276			1317	1385	
High v/c (veh/h)	0.05			0.04	0.10	
Low Capacity (veh/h)	1062			1100	1161	
Low v/c (veh/h)	0.06			0.05	0.12	
Intersection Summary						
Maximum v/c High			0.10			
Maximum v/c Low			0.12			
Intersection Capacity Utilization			17.1%		ICU Level of Service	A

Queues
27: Trafalgar Road & Street B

Scenario 2 - SAT Peak Hour
Premier Gateway



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	72	263	172	146	84	790	68	35	702	34
v/c Ratio	0.14	0.44	0.36	0.23	0.29	0.53	0.11	0.13	0.59	0.07
Control Delay	11.9	12.5	14.0	11.1	15.3	20.5	0.4	13.3	24.4	0.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.9	12.5	14.0	11.1	15.3	20.5	0.4	13.3	24.4	0.2
Queue Length 50th (m)	5.0	11.9	12.8	6.6	6.7	27.4	0.0	2.7	30.6	0.0
Queue Length 95th (m)	12.4	32.9	25.8	20.0	14.7	46.8	0.0	7.7	41.9	0.0
Internal Link Dist (m)		260.1		649.3		221.2			63.9	
Turn Bay Length (m)	50.0		50.0		50.0		50.0	50.0		50.0
Base Capacity (vph)	515	604	478	648	293	1684	642	278	1473	581
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	0.14	0.44	0.36	0.23	0.29	0.47	0.11	0.13	0.48	0.06

Intersection Summary

HCM Signalized Intersection Capacity Analysis
27: Trafalgar Road & Street B

Scenario 2 - SAT Peak Hour
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	69	82	171	165	66	74	81	758	65	34	674	33
Future Volume (vph)	69	82	171	165	66	74	81	758	65	34	674	33
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0		4.5	6.0		4.5	6.0	6.0	4.5	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.90		1.00	0.92		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)	1703	1610		1703	1659		1703	4940	1524	1703	4988	1524
Flt Permitted	0.66	1.00		0.49	1.00		0.28	1.00	1.00	0.32	1.00	1.00
Satd. Flow (perm)	1190	1610		871	1659		499	4940	1524	579	4988	1524
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	72	85	178	172	69	77	84	790	68	35	702	34
RTOR Reduction (vph)	0	102	0	0	51	0	0	0	49	0	0	26
Lane Group Flow (vph)	72	161	0	172	95	0	84	790	19	35	702	8
Heavy Vehicles (%)	6%	6%	6%	6%	6%	5%	6%	5%	6%	6%	4%	6%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	23.4	20.6		27.8	22.8		23.4	19.2	19.2	18.6	16.8	16.8
Effective Green, g (s)	23.4	20.6		27.8	22.8		23.4	19.2	19.2	18.6	16.8	16.8
Actuated g/C Ratio	0.35	0.30		0.41	0.34		0.35	0.28	0.28	0.28	0.25	0.25
Clearance Time (s)	4.5	6.0		4.5	6.0		4.5	6.0	6.0	4.5	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	433	490		419	559		247	1403	432	189	1239	378
v/s Ratio Prot	0.01	0.10		c0.03	0.06		c0.02	c0.16		0.00	0.14	
v/s Ratio Perm	0.05			c0.14			0.10		0.01	0.05		0.01
v/c Ratio	0.17	0.33		0.41	0.17		0.34	0.56	0.04	0.19	0.57	0.02
Uniform Delay, d1	15.1	18.2		13.2	15.7		15.4	20.6	17.5	18.1	22.2	19.2
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	1.8		0.7	0.7		0.8	0.5	0.0	0.5	0.6	0.0
Delay (s)	15.3	19.9		13.8	16.4		16.2	21.1	17.6	18.6	22.8	19.2
Level of Service	B	B		B	B		B	C	B	B	C	B
Approach Delay (s)		18.9			15.0			20.5			22.5	
Approach LOS		B			B			C			C	

Intersection Summary

HCM 2000 Control Delay	20.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	67.6	Sum of lost time (s)	21.0
Intersection Capacity Utilization	60.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
28: Eighth Line & Street B

Scenario 2 - SAT Peak Hour
Premier Gateway



Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations							
Traffic Volume (veh/h)	66	26	25	277	182	31	
Future Volume (Veh/h)	66	26	25	277	182	31	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	
Hourly flow rate (vph)	69	27	26	289	190	32	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				None	None		
Median storage veh							
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume	402	111	222				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	402	111	222				
tC, single (s)	6.9	7.1	4.3				
tC, 2 stage (s)							
tF (s)	3.6	3.4	2.3				
p0 queue free %	88	97	98				
cM capacity (veh/h)	554	902	1302				
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	69	27	26	144	144	127	95
Volume Left	69	0	26	0	0	0	0
Volume Right	0	27	0	0	0	0	32
cSH	554	902	1302	1700	1700	1700	1700
Volume to Capacity	0.12	0.03	0.02	0.09	0.09	0.07	0.06
Queue Length 95th (m)	3.4	0.7	0.5	0.0	0.0	0.0	0.0
Control Delay (s)	12.4	9.1	7.8	0.0	0.0	0.0	0.0
Lane LOS	B	A	A				
Approach Delay (s)	11.5		0.6			0.0	
Approach LOS	B						
Intersection Summary							
Average Delay			2.1				
Intersection Capacity Utilization			23.0%	ICU Level of Service		A	
Analysis Period (min)			15				

Appendix H

2031 Traffic with Remedial Measures Operations Reports and Signal Warrant Analysis

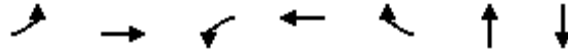


Queues

Scenario 2 - AM Peak Hour

5: Ninth Line & 5 Side Road

Premier Gateway



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	33	588	1	291	16	266	906
v/c Ratio	0.09	0.86	0.01	0.46	0.02	0.21	0.85
Control Delay	12.1	31.3	11.0	16.2	0.2	11.5	26.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.1	31.3	11.0	16.2	0.2	11.5	26.0
Queue Length 50th (m)	2.3	57.5	0.1	23.5	0.0	9.6	48.8
Queue Length 95th (m)	7.0	#110.6	0.9	41.9	0.3	16.8	#85.3
Internal Link Dist (m)		556.9		434.3		3096.2	305.9
Turn Bay Length (m)	30.0		30.0		60.0		
Base Capacity (vph)	399	758	164	699	704	1246	1065
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.78	0.01	0.42	0.02	0.21	0.85

Intersection Summary

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis

5: Ninth Line & 5 Side Road

Scenario 2 - AM Peak Hour
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↗		↕			↕	
Traffic Volume (vph)	31	535	24	1	276	15	6	232	15	332	496	33
Future Volume (vph)	31	535	24	1	276	15	6	232	15	332	496	33
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0		6.0			6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		0.95			0.95	
Frt	1.00	0.99		1.00	1.00	0.85		0.99			0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00		1.00			0.98	
Satd. Flow (prot)	1641	1815		1805	1681	1615		3187			3400	
Flt Permitted	0.56	1.00		0.21	1.00	1.00		0.93			0.74	
Satd. Flow (perm)	960	1815		395	1681	1615		2977			2552	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	33	563	25	1	291	16	6	244	16	349	522	35
RTOR Reduction (vph)	0	2	0	0	0	10	0	8	0	0	5	0
Lane Group Flow (vph)	33	586	0	1	291	6	0	258	0	0	901	0
Heavy Vehicles (%)	10%	4%	4%	0%	13%	0%	50%	12%	0%	0%	6%	3%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	21.7	21.7		21.7	21.7	21.7		24.1			24.1	
Effective Green, g (s)	21.7	21.7		21.7	21.7	21.7		24.1			24.1	
Actuated g/C Ratio	0.38	0.38		0.38	0.38	0.38		0.42			0.42	
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0		6.0			6.0	
Vehicle Extension (s)	3.5	3.5		3.5	3.5	3.5		5.5			5.5	
Lane Grp Cap (vph)	360	681		148	631	606		1241			1064	
v/s Ratio Prot		c0.32			0.17							
v/s Ratio Perm	0.03			0.00		0.00		0.09			c0.35	
v/c Ratio	0.09	0.86		0.01	0.46	0.01		0.21			0.85	
Uniform Delay, d1	11.7	16.6		11.3	13.6	11.3		10.8			15.2	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	
Incremental Delay, d2	0.1	10.8		0.0	0.6	0.0		0.4			8.4	
Delay (s)	11.8	27.4		11.3	14.3	11.3		11.1			23.5	
Level of Service	B	C		B	B	B		B			C	
Approach Delay (s)		26.6			14.1			11.1			23.5	
Approach LOS		C			B			B			C	

Intersection Summary

HCM 2000 Control Delay	21.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	57.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	85.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Queues
27: Trafalgar Road & Street B

Scenario 2 - AM Peak Hour
Premier Gateway



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	31	107	78	72	161	33	376	454	311	163	1606	153
v/c Ratio	0.15	0.32	0.20	0.32	0.48	0.08	0.90	0.21	0.39	0.39	0.93	0.28
Control Delay	31.0	33.0	1.5	34.5	36.4	0.4	46.3	13.0	3.2	10.7	39.5	5.8
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	31.0	33.0	1.5	34.5	36.4	0.4	46.3	13.0	3.2	10.7	39.5	5.8
Queue Length 50th (m)	4.6	16.7	0.0	11.2	26.0	0.0	49.0	15.9	0.0	9.6	103.7	1.0
Queue Length 95th (m)	12.6	32.1	1.2	24.1	46.1	0.0	#99.0	23.0	13.3	17.0	#138.1	14.0
Internal Link Dist (m)		260.1			649.3			221.2			63.9	
Turn Bay Length (m)	50.0			50.0			50.0		50.0	50.0		50.0
Base Capacity (vph)	212	334	397	227	334	395	460	2215	814	449	1724	556
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	0.15	0.32	0.20	0.32	0.48	0.08	0.82	0.20	0.38	0.36	0.93	0.28

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
27: Trafalgar Road & Street B

Scenario 2 - AM Peak Hour

Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	103	75	69	155	32	361	436	299	156	1542	147
Future Volume (vph)	30	103	75	69	155	32	361	436	299	156	1542	147
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.5	6.0	6.0	4.5	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	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)	1467	1532	1302	1444	1532	1292	1456	4359	1302	1456	4848	1302
Flt Permitted	0.63	1.00	1.00	0.69	1.00	1.00	0.11	1.00	1.00	0.48	1.00	1.00
Satd. Flow (perm)	974	1532	1302	1046	1532	1292	173	4359	1302	736	4848	1302
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	31	107	78	72	161	33	376	454	311	162	1606	153
RTOR Reduction (vph)	0	0	61	0	0	26	0	0	158	0	0	94
Lane Group Flow (vph)	31	107	17	72	161	7	376	454	153	163	1606	59
Heavy Vehicles (%)	23%	24%	24%	25%	24%	25%	24%	19%	24%	24%	7%	24%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		2			6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	19.0	19.0	19.0	19.0	19.0	19.0	56.3	42.9	42.9	39.9	31.0	31.0
Effective Green, g (s)	19.0	19.0	19.0	19.0	19.0	19.0	56.3	42.9	42.9	39.9	31.0	31.0
Actuated g/C Ratio	0.22	0.22	0.22	0.22	0.22	0.22	0.64	0.49	0.49	0.46	0.36	0.36
Clearance Time (s)	6.0	6.0	6.0	6.0	6.0	6.0	4.5	6.0	6.0	4.5	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	211	333	283	227	333	281	417	2142	639	409	1721	462
v/s Ratio Prot		0.07			c0.11		c0.21	0.10		0.04	0.33	
v/s Ratio Perm	0.03		0.01	0.07		0.01	c0.37		0.12	0.14		0.05
v/c Ratio	0.15	0.32	0.06	0.32	0.48	0.03	0.90	0.21	0.24	0.40	0.93	0.13
Uniform Delay, d1	27.6	28.7	27.1	28.7	29.9	26.9	23.7	12.6	12.8	14.5	27.2	19.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.5	2.5	0.4	3.6	5.0	0.2	22.2	0.0	0.2	0.6	9.8	0.1
Delay (s)	29.1	31.3	27.5	32.3	34.8	27.0	45.8	12.7	13.0	15.1	36.9	19.2
Level of Service	C	C	C	C	C	C	D	B	B	B	D	B
Approach Delay (s)		29.6			33.2			23.7			33.7	
Approach LOS		C			C			C			C	

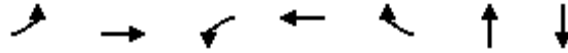
Intersection Summary		
HCM 2000 Control Delay	30.2	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.82	C
Actuated Cycle Length (s)	87.3	Sum of lost time (s)
Intersection Capacity Utilization	80.9%	16.5
Analysis Period (min)	15	ICU Level of Service
		D
c Critical Lane Group		

Queues

Scenario 2 - PM Peak Hour

5: Ninth Line & 5 Side Road

Premier Gateway



Lane Group	EBL	EBT	WBL	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	59	413	8	759	301	1050	484
v/c Ratio	0.66	0.50	0.02	0.89	0.40	0.77	0.45
Control Delay	55.9	18.3	12.2	35.0	14.8	27.8	20.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.9	18.3	12.2	35.0	14.8	27.8	20.9
Queue Length 50th (m)	7.5	47.3	0.7	113.3	28.3	87.2	33.2
Queue Length 95th (m)	#29.4	72.0	3.1	#175.5	47.8	115.6	48.7
Internal Link Dist (m)		556.9		434.3		3096.2	305.9
Turn Bay Length (m)	30.0		30.0		60.0		
Base Capacity (vph)	102	952	411	981	860	1361	1071
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.43	0.02	0.77	0.35	0.77	0.45

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

5: Ninth Line & 5 Side Road

Scenario 2 - PM Peak Hour

Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗	↖		↕			↕	
Traffic Volume (vph)	56	387	6	8	721	286	22	963	12	35	392	32
Future Volume (vph)	56	387	6	8	721	286	22	963	12	35	392	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0		6.0			6.0	
Lane Util. Factor	1.00	1.00		1.00	1.00	1.00		0.95			0.95	
Frt	1.00	1.00		1.00	1.00	0.85		1.00			0.99	
Flt Protected	0.95	1.00		0.95	1.00	1.00		1.00			1.00	
Satd. Flow (prot)	1770	1824		1805	1881	1615		3599			3528	
Flt Permitted	0.11	1.00		0.42	1.00	1.00		0.94			0.75	
Satd. Flow (perm)	198	1824		789	1881	1615		3373			2643	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	59	407	6	8	759	301	23	1014	13	37	413	34
RTOR Reduction (vph)	0	1	0	0	0	20	0	1	0	0	6	0
Lane Group Flow (vph)	59	412	0	8	759	281	0	1049	0	0	478	0
Heavy Vehicles (%)	2%	4%	0%	0%	1%	0%	0%	0%	0%	0%	1%	0%
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Actuated Green, G (s)	38.5	38.5		38.5	38.5	38.5		34.2			34.2	
Effective Green, g (s)	38.5	38.5		38.5	38.5	38.5		34.2			34.2	
Actuated g/C Ratio	0.45	0.45		0.45	0.45	0.45		0.40			0.40	
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0		6.0			6.0	
Vehicle Extension (s)	3.5	3.5		3.5	3.5	3.5		5.5			5.5	
Lane Grp Cap (vph)	90	829		358	855	734		1361			1067	
v/s Ratio Prot		0.23			c0.40							
v/s Ratio Perm	0.30			0.01		0.17		c0.31			0.18	
v/c Ratio	0.66	0.50		0.02	0.89	0.38		0.77			0.45	
Uniform Delay, d1	17.9	16.3		12.7	21.1	15.3		21.9			18.4	
Progression Factor	1.00	1.00		1.00	1.00	1.00		1.00			1.00	
Incremental Delay, d2	16.5	0.6		0.0	11.3	0.4		4.3			1.4	
Delay (s)	34.5	16.8		12.8	32.4	15.7		26.1			19.7	
Level of Service	C	B		B	C	B		C			B	
Approach Delay (s)		19.0			27.5			26.1			19.7	
Approach LOS		B			C			C			B	

Intersection Summary

HCM 2000 Control Delay	24.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	84.7	Sum of lost time (s)	12.0
Intersection Capacity Utilization	99.3%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Queues
27: Trafalgar Road & Street B

Scenario 2 - PM Peak Hour

Premier Gateway



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	152	165	373	363	116	160	100	1167	80	43	596	41
v/c Ratio	0.31	0.37	0.65	0.67	0.20	0.26	0.34	0.83	0.15	0.20	0.52	0.08
Control Delay	13.8	25.8	14.4	21.1	20.8	4.3	17.4	31.3	0.6	16.1	25.7	0.3
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	13.8	25.8	14.4	21.1	20.8	4.3	17.4	31.3	0.6	16.1	25.7	0.3
Queue Length 50th (m)	12.7	20.5	13.9	35.4	13.0	0.0	9.0	61.0	0.0	3.7	27.9	0.0
Queue Length 95th (m)	23.8	37.6	43.4	#60.4	25.7	11.1	18.5	#85.7	0.0	9.6	38.6	0.0
Internal Link Dist (m)		260.1			649.3			221.2			63.9	
Turn Bay Length (m)	50.0			50.0			50.0		50.0	50.0		50.0
Base Capacity (vph)	497	447	571	542	588	615	301	1443	552	210	1257	516
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	0.31	0.37	0.65	0.67	0.20	0.26	0.33	0.81	0.14	0.20	0.47	0.08

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
27: Trafalgar Road & Street B

Scenario 2 - PM Peak Hour
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↑	↗	↖	↑↑↑	↗	↖	↑↑↑	↗
Traffic Volume (vph)	146	158	358	348	111	154	96	1120	77	41	572	39
Future Volume (vph)	146	158	358	348	111	154	96	1120	77	41	572	39
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0	6.0	4.5	6.0	6.0	4.5	6.0	6.0	4.5	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	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)	1641	1712	1455	1626	1712	1455	1641	4940	1468	1641	4759	1468
Flt Permitted	0.68	1.00	1.00	0.53	1.00	1.00	0.34	1.00	1.00	0.22	1.00	1.00
Satd. Flow (perm)	1179	1712	1455	909	1712	1455	583	4940	1468	382	4759	1468
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	152	165	373	362	116	160	100	1167	80	43	596	41
RTOR Reduction (vph)	0	0	190	0	0	107	0	0	58	0	0	31
Lane Group Flow (vph)	152	165	183	363	116	53	100	1167	22	43	596	10
Heavy Vehicles (%)	10%	11%	11%	11%	11%	11%	10%	5%	10%	10%	9%	10%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	25.1	19.6	19.6	34.5	24.5	24.5	25.1	20.2	20.2	20.9	18.1	18.1
Effective Green, g (s)	25.1	19.6	19.6	34.5	24.5	24.5	25.1	20.2	20.2	20.9	18.1	18.1
Actuated g/C Ratio	0.34	0.26	0.26	0.47	0.33	0.33	0.34	0.27	0.27	0.28	0.24	0.24
Clearance Time (s)	4.5	6.0	6.0	4.5	6.0	6.0	4.5	6.0	6.0	4.5	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	434	453	385	524	566	481	267	1348	400	155	1164	359
v/s Ratio Prot	0.03	0.10		c0.10	0.07		c0.02	c0.24		0.01	0.13	
v/s Ratio Perm	0.09		0.13	c0.23		0.04	0.10		0.01	0.07		0.01
v/c Ratio	0.35	0.36	0.47	0.69	0.20	0.11	0.37	0.87	0.05	0.28	0.51	0.03
Uniform Delay, d1	17.8	22.1	22.9	14.1	17.8	17.2	17.3	25.6	19.9	20.1	24.1	21.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	2.3	4.1	3.9	0.8	0.5	0.9	6.1	0.1	1.0	0.4	0.0
Delay (s)	18.3	24.4	27.0	18.0	18.6	17.6	18.2	31.7	19.9	21.1	24.5	21.3
Level of Service	B	C	C	B	B	B	B	C	B	C	C	C
Approach Delay (s)		24.5			18.0			30.0			24.1	
Approach LOS		C			B			C			C	

Intersection Summary

HCM 2000 Control Delay	25.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	74.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	70.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Queues
27: Trafalgar Road & Street B

Scenario 2 - SAT Peak Hour
Premier Gateway



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	72	85	178	172	69	77	84	790	68	35	702	34
v/c Ratio	0.13	0.15	0.30	0.31	0.11	0.11	0.28	0.52	0.11	0.12	0.59	0.07
Control Delay	11.9	20.5	5.0	13.4	18.2	0.4	15.1	20.3	0.4	13.2	24.4	0.2
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	11.9	20.5	5.0	13.4	18.2	0.4	15.1	20.3	0.4	13.2	24.4	0.2
Queue Length 50th (m)	5.1	8.5	0.0	12.9	6.6	0.0	6.7	27.2	0.0	2.7	30.6	0.0
Queue Length 95th (m)	12.5	19.7	12.6	26.0	16.0	0.0	14.6	46.6	0.0	7.6	41.9	0.0
Internal Link Dist (m)		260.1			649.3			221.2			63.9	
Turn Bay Length (m)	50.0			50.0			50.0		50.0	50.0		50.0
Base Capacity (vph)	539	555	601	563	642	671	297	1702	647	281	1475	582
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	0.13	0.15	0.30	0.31	0.11	0.11	0.28	0.46	0.11	0.12	0.48	0.06

Intersection Summary

HCM Signalized Intersection Capacity Analysis
27: Trafalgar Road & Street B

Scenario 2 - SAT Peak Hour
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	69	82	171	165	66	74	81	758	65	34	674	33
Future Volume (vph)	69	82	171	165	66	74	81	758	65	34	674	33
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0	6.0	4.5	6.0	6.0	4.5	6.0	6.0	4.5	6.0	6.0
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	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)	1703	1792	1524	1703	1792	1538	1703	4940	1524	1703	4988	1524
Flt Permitted	0.71	1.00	1.00	0.63	1.00	1.00	0.28	1.00	1.00	0.33	1.00	1.00
Satd. Flow (perm)	1276	1792	1524	1136	1792	1538	493	4940	1524	588	4988	1524
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	72	85	178	172	69	77	84	790	68	35	702	34
RTOR Reduction (vph)	0	0	124	0	0	51	0	0	49	0	0	26
Lane Group Flow (vph)	72	85	54	172	69	26	84	790	19	35	702	8
Heavy Vehicles (%)	6%	6%	6%	6%	6%	5%	6%	5%	6%	6%	4%	6%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2		2	6		6	8		8	4		4
Actuated Green, G (s)	23.2	20.4	20.4	27.6	22.6	22.6	23.7	19.3	19.3	18.5	16.7	16.7
Effective Green, g (s)	23.2	20.4	20.4	27.6	22.6	22.6	23.7	19.3	19.3	18.5	16.7	16.7
Actuated g/C Ratio	0.34	0.30	0.30	0.41	0.33	0.33	0.35	0.29	0.29	0.27	0.25	0.25
Clearance Time (s)	4.5	6.0	6.0	4.5	6.0	6.0	4.5	6.0	6.0	4.5	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	456	541	460	506	599	514	251	1412	435	190	1234	377
v/s Ratio Prot	0.01	0.05		c0.03	0.04		c0.02	c0.16		0.00	0.14	
v/s Ratio Perm	0.05		0.04	c0.11		0.02	0.10		0.01	0.05		0.01
v/c Ratio	0.16	0.16	0.12	0.34	0.12	0.05	0.33	0.56	0.04	0.18	0.57	0.02
Uniform Delay, d1	15.2	17.3	17.0	13.2	15.5	15.2	15.2	20.5	17.4	18.2	22.2	19.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.6	0.5	0.4	0.4	0.2	0.8	0.5	0.0	0.5	0.6	0.0
Delay (s)	15.3	17.9	17.6	13.6	15.9	15.4	16.0	21.0	17.5	18.6	22.9	19.2
Level of Service	B	B	B	B	B	B	B	C	B	B	C	B
Approach Delay (s)		17.2			14.5			20.3			22.5	
Approach LOS		B			B			C			C	

Intersection Summary

HCM 2000 Control Delay	19.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	67.5	Sum of lost time (s)	21.0
Intersection Capacity Utilization	48.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

**Signal Justification Calculation for Forecasted Volumes
(OTM Book 12 - Justification 7)**



Horizon Year: 2031 (Total Traffic)
 Region/City/Township: Town of Halton Hills - Halton Region

Major Street: 5 Sideroad
 Minor Street: Fifth Line

North/South?: N

Number of Approach Lanes: 1
 Tee Intersection?: N
 Flow Conditions: Restricted
 PM Forecast Only? N

Warrant Results		
150% Satisfied	No	Justification for new intersections with forecast traffic
120% Satisfied	No	Justification for existing intersections with forecast traffic

Time Period	Major Street 5 Sideroad						Minor Street Fifth Line						Peds Crossing
	Eastbound			Westbound			Northbound			Southbound			
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
AM Peak Hour	13	918	14	28	245	4	5	26	24	46	59	32	
PM Peak Hour	44	296	5	24	777	31	8	49	27	1	33	15	
Average Hourly Volume	14	304	5	13	256	9	3	19	13	12	23	12	0

Warrant	AHV
1A - All	681
1B - Minor	81
2A - Major	600
2B - Cross	38

Warrant 1 - Minimum Vehicular Volume

Warrant	Approach Lanes	1		2 or more		Average Hourly Volume
		Free	Restricted	Free	Restricted	
1A	Flow Conditions		X			
	All Approaches	480	720	600	900	681
		% Fulfilled				94.6%
1B	Flow Conditions		X			
	Minor Street Approaches	120	170	120	170	81
		% Fulfilled				47.8%

Warrant 2 - Delay To Cross Traffic

Warrant	Approach Lanes	1		2 or more		Average Hourly Volume
		Free	Restricted	Free	Restricted	
2A	Flow Conditions		X			
	Major Street Approaches	480	720	600	900	600
		% Fulfilled				83.3%
2B	Flow Conditions		X			
	Traffic Crossing Major Street	50	75	50	75	38
		% Fulfilled				50.7%

**Signal Justification Calculation for Forecasted Volumes
(OTM Book 12 - Justification 7)**



Horizon Year: 2031 (Total Traffic)
 Region/City/Township: Town of Halton Hills - Halton Region

Major Street: 5 Sideroad
 Minor Street: Eighth Line

North/South?: N

Number of Approach Lanes: 1
 Tee Intersection?: N
 Flow Conditions: Restricted
 PM Forecast Only? N

Warrant Results		
150% Satisfied	No	Justification for new intersections with forecast traffic
120% Satisfied	Yes	Justification for existing intersections with forecast traffic

Time Period	Major Street 5 Sideroad						Minor Street Eighth Line						Peds Crossing
	Eastbound			Westbound			Northbound			Southbound			
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
AM Peak Hour	31	482	12	101	210	15	1	138	42	83	670	86	
PM Peak Hour	60	249	45	41	645	90	5	598	120	23	185	49	
Average Hourly Volume	23	183	14	36	214	26	2	184	41	27	214	34	0

Warrant	AHV
1A - All	995
1B - Minor	500
2A - Major	495
2B - Cross	242

Warrant 1 - Minimum Vehicular Volume

Warrant	Approach Lanes	1		2 or more		Average Hourly Volume
		Free	Restricted	Free	Restricted	
1A	Flow Conditions		X			
	All Approaches	480	720	600	900	995
		% Fulfilled				138.2%
1B	Flow Conditions		X			
	Minor Street Approaches	120	170	120	170	500
		% Fulfilled				294.1%

Warrant 2 - Delay To Cross Traffic

Warrant	Approach Lanes	1		2 or more		Average Hourly Volume
		Free	Restricted	Free	Restricted	
2A	Flow Conditions		X			
	Major Street Approaches	480	720	600	900	495
		% Fulfilled				68.8%
2B	Flow Conditions		X			
	Traffic Crossing Major Street	50	75	50	75	242
		% Fulfilled				322.3%

**Signal Justification Calculation for Forecasted Volumes
(OTM Book 12 - Justification 7)**



Horizon Year: 2031 (Total Traffic)
 Region/City/Township: Town of Halton Hills - Halton Region

Major Street: 5 Sideroad
 Minor Street: Sixth Line

North/South?: N

Number of Approach Lanes: 1
 Tee Intersection?: N
 Flow Conditions: Restricted
 PM Forecast Only? N

Warrant Results		
150% Satisfied	No	Justification for new intersections with forecast traffic
120% Satisfied	No	Justification for existing intersections with forecast traffic

Time Period	Major Street 5 Sideroad						Minor Street Sixth Line						Peds Crossing
	Eastbound			Westbound			Northbound			Southbound			
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
AM Peak Hour	9	959	1	10	260	4	1	12	39	26	22	21	
PM Peak Hour	4	314	3	21	843	27	9	33	18	8	17	8	
Average Hourly Volume	3	318	1	8	276	8	3	11	14	9	10	7	0

Warrant	AHV
1A - All	667
1B - Minor	54
2A - Major	614
2B - Cross	22

Warrant 1 - Minimum Vehicular Volume

Warrant	Approach Lanes	1		2 or more		Average Hourly Volume
		Free	Restricted	Free	Restricted	
1A	Flow Conditions		X			
	All Approaches	480	720	600	900	667
		% Fulfilled				92.7%
1B	Flow Conditions		X			
	Minor Street Approaches	120	170	120	170	54
		% Fulfilled				31.5%

Warrant 2 - Delay To Cross Traffic

Warrant	Approach Lanes	1		2 or more		Average Hourly Volume
		Free	Restricted	Free	Restricted	
2A	Flow Conditions		X			
	Major Street Approaches	480	720	600	900	614
		% Fulfilled				85.2%
2B	Flow Conditions		X			
	Traffic Crossing Major Street	50	75	50	75	22
		% Fulfilled				29.7%

**Signal Justification Calculation for Forecasted Volumes
(OTM Book 12 - Justification 7)**



Horizon Year: 2031 (Total Traffic)
 Region/City/Township: Town of Halton Hills - Halton Region

Major Street: Eighth Line
 Minor Street: Street B

North/South?: Y

Number of Approach Lanes: 1
 Tee Intersection?: Y
 Flow Conditions: Restricted
 PM Forecast Only? N

Warrant Results		
150% Satisfied	No	Justification for new intersections with forecast traffic
120% Satisfied	No	Justification for existing intersections with forecast traffic

Time Period	Major Street Eighth Line						Minor Street Street B						Peds Crossing
	Northbound			Southbound			Eastbound			Westbound			
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
AM Peak Hour	108	145			553	140	29		11				
PM Peak Hour	28	570			137	37	139		54				
Average Hourly Volume	34	179	0	0	173	44	42	0	16	0	0	0	0

Warrant	AHV
1A - All	488
1B - Minor	58
2A - Major	430
2B - Cross	42

Warrant 1 - Minimum Vehicular Volume

1A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	All Approaches	480	720	600	900	

1B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Minor Street Approaches	180	255	180	255	

Warrant 2 - Delay To Cross Traffic

2A	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Major Street Approaches	480	720	600	900	

2B	Approach Lanes	1		2 or more		Average Hourly Volume
	Flow Conditions	Free	Restricted	Free	Restricted	
	Traffic Crossing Major Street	50	75	50	75	

**Signal Justification Calculation for Forecasted Volumes
(OTM Book 12 - Justification 7)**



Horizon Year: 2031 (Total Traffic)
 Region/City/Township: Town of Halton Hills - Halton Region

Major Street: Steeles Avenue
 Minor Street: Eighth Line South

North/South?: N

Number of Approach Lanes: 2 or more
 Tee Intersection?: Y
 Flow Conditions: Restricted
 PM Forecast Only? N

Warrant Results		
150% Satisfied	No	Justification for new intersections with forecast traffic
120% Satisfied	No	Justification for existing intersections with forecast traffic

Time Period	Major Street Steeles Avenue						Minor Street Eighth Line South						Peds Crossing
	Eastbound			Westbound			Northbound			Southbound			
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
AM Peak Hour		1374	1	1	785		1		0				
PM Peak Hour		1216	3	1	1920		1		6				
Average Hourly Volume	0	648	1	1	676	0	1	0	2	0	0	0	0

Warrant	AHV
1A - All	1327
1B - Minor	2
2A - Major	1325
2B - Cross	1

Warrant 1 - Minimum Vehicular Volume

Warrant	Approach Lanes	1		2 or more		Average Hourly Volume
		Free	Restricted	Free	Restricted	
1A	Flow Conditions				X	1327
	All Approaches	480	720	600	900	147.5%
					% Fulfilled	
1B	Flow Conditions				X	2
	Minor Street Approaches	180	255	180	255	0.8%
					% Fulfilled	

Warrant 2 - Delay To Cross Traffic

Warrant	Approach Lanes	1		2 or more		Average Hourly Volume
		Free	Restricted	Free	Restricted	
2A	Flow Conditions				X	1325
	Major Street Approaches	480	720	600	900	147.3%
					% Fulfilled	
2B	Flow Conditions				X	1
	Traffic Crossing Major Street	50	75	50	75	0.7%
					% Fulfilled	

Signal Justification Calculation for Forecasted Volumes (OTM Book 12 - Justification 7)



Horizon Year: 2031 (Total Traffic)
 Region/City/Township: Town of Halton Hills - Halton Region

Major Street: Steeles Avenue
 Minor Street: Hornby Road

North/South?: N

Number of Approach Lanes: 1
 Tee Intersection?: Y
 Flow Conditions: Restricted
 PM Forecast Only? N

Warrant Results		
150% Satisfied	No	Justification for new intersections with forecast traffic
120% Satisfied	No	Justification for existing intersections with forecast traffic

Time Period	Major Street Steeles Avenue						Minor Street Hornby Road						Peds Crossing	
	Eastbound			Westbound			Northbound			Southbound				
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right		
AM Peak Hour	18	1264			1185	19					8		39	
PM Peak Hour	39	1476			1590	18					9		78	
Average Hourly Volume	14	685	0	0	694	9	0	0	0	4	0	29	0	

Warrant	AHV
1A - All	1436
1B - Minor	34
2A - Major	1402
2B - Cross	4

Warrant 1 - Minimum Vehicular Volume

Warrant	Approach Lanes	1		2 or more		Average Hourly Volume
		Free	Restricted	Free	Restricted	
		Flow Conditions				
1A	All Approaches	480	720	600	900	1436
	% Fulfilled					199.4%
1B	Minor Street Approaches	180	255	180	255	34
	% Fulfilled					13.1%

Warrant 2 - Delay To Cross Traffic

Warrant	Approach Lanes	1		2 or more		Average Hourly Volume
		Free	Restricted	Free	Restricted	
		Flow Conditions				
2A	Major Street Approaches	480	720	600	900	1402
	% Fulfilled					194.8%
2B	Traffic Crossing Major Street	50	75	50	75	4
	% Fulfilled					5.7%

**Signal Justification Calculation for Forecasted Volumes
(OTM Book 12 - Justification 7)**



Horizon Year: 2031 (Total Traffic)
 Region/City/Township: Town of Halton Hills - Halton Region

Major Street: Trafalgar Road
 Minor Street: Hornby Road

North/South?: Y

Number of Approach Lanes: 1
 Tee Intersection?: Y
 Flow Conditions: Restricted
 PM Forecast Only? N

Warrant Results		
150% Satisfied	No	Justification for new intersections with forecast traffic
120% Satisfied	No	Justification for existing intersections with forecast traffic

Time Period	Major Street Trafalgar Road						Minor Street Hornby Road						Peds Crossing
	Northbound			Southbound			Eastbound			Westbound			
	Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	
AM Peak Hour	3	496			1837	174	57		8				
PM Peak Hour	4	1416			644	117	178		8				
Average Hourly Volume	2	478	0	0	620	73	59	0	4	0	0	0	0

Warrant	AHV
1A - All	1236
1B - Minor	63
2A - Major	1173
2B - Cross	59

Warrant 1 - Minimum Vehicular Volume

Warrant	Approach Lanes	1		2 or more		Average Hourly Volume
		Free	Restricted	Free	Restricted	
1A	Flow Conditions		X			
	All Approaches	480	720	600	900	1236
		% Fulfilled				171.6%
1B	Flow Conditions		X			
	Minor Street Approaches	180	255	180	255	63
		% Fulfilled				24.6%

Warrant 2 - Delay To Cross Traffic

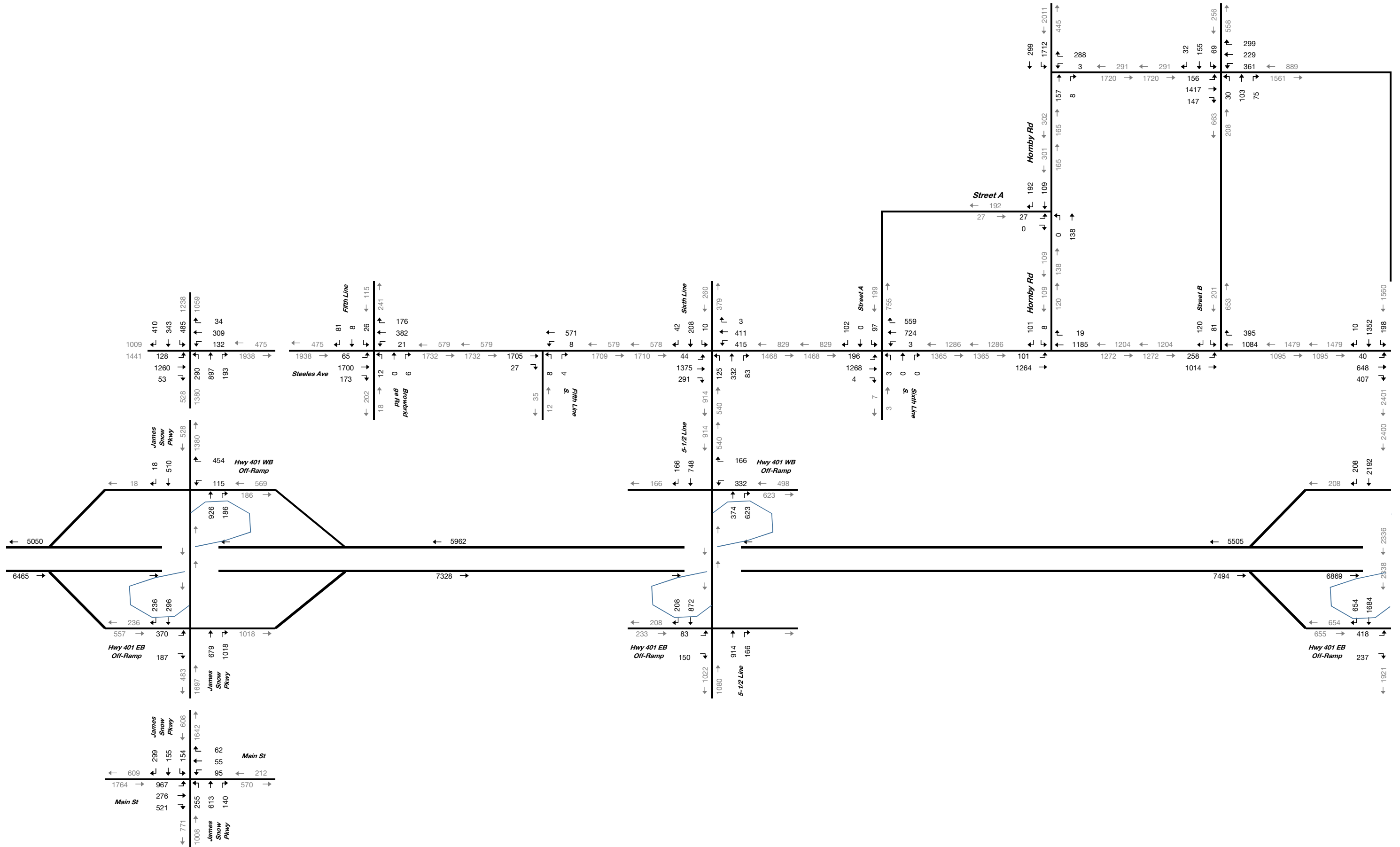
Warrant	Approach Lanes	1		2 or more		Average Hourly Volume
		Free	Restricted	Free	Restricted	
2A	Flow Conditions		X			
	Major Street Approaches	480	720	600	900	1173
		% Fulfilled				162.9%
2B	Flow Conditions		X			
	Traffic Crossing Major Street	50	75	50	75	59
		% Fulfilled				78.3%

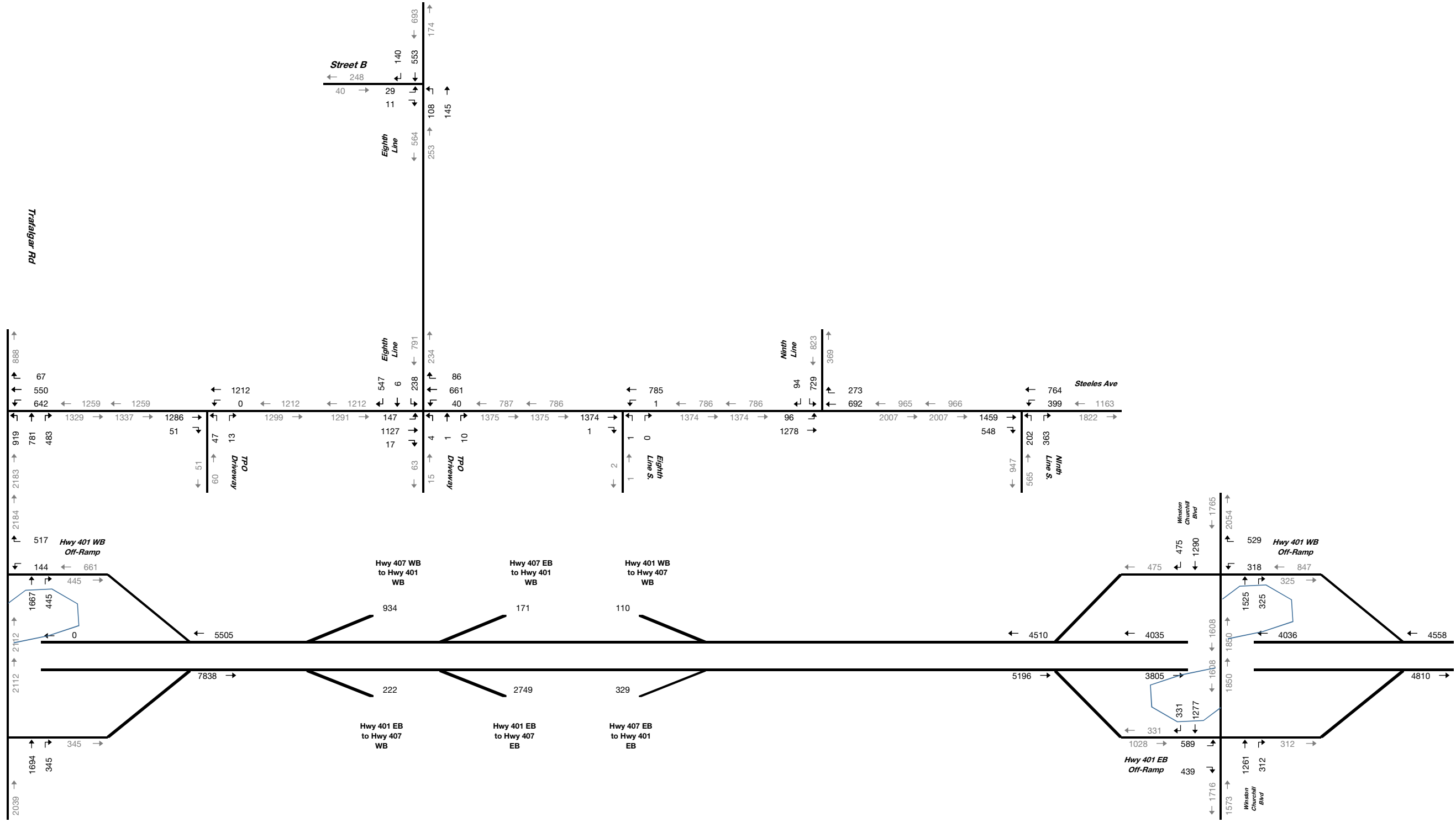
Appendix I

2031 Traffic Volumes with 5½ Line and Traffic Operations Reports

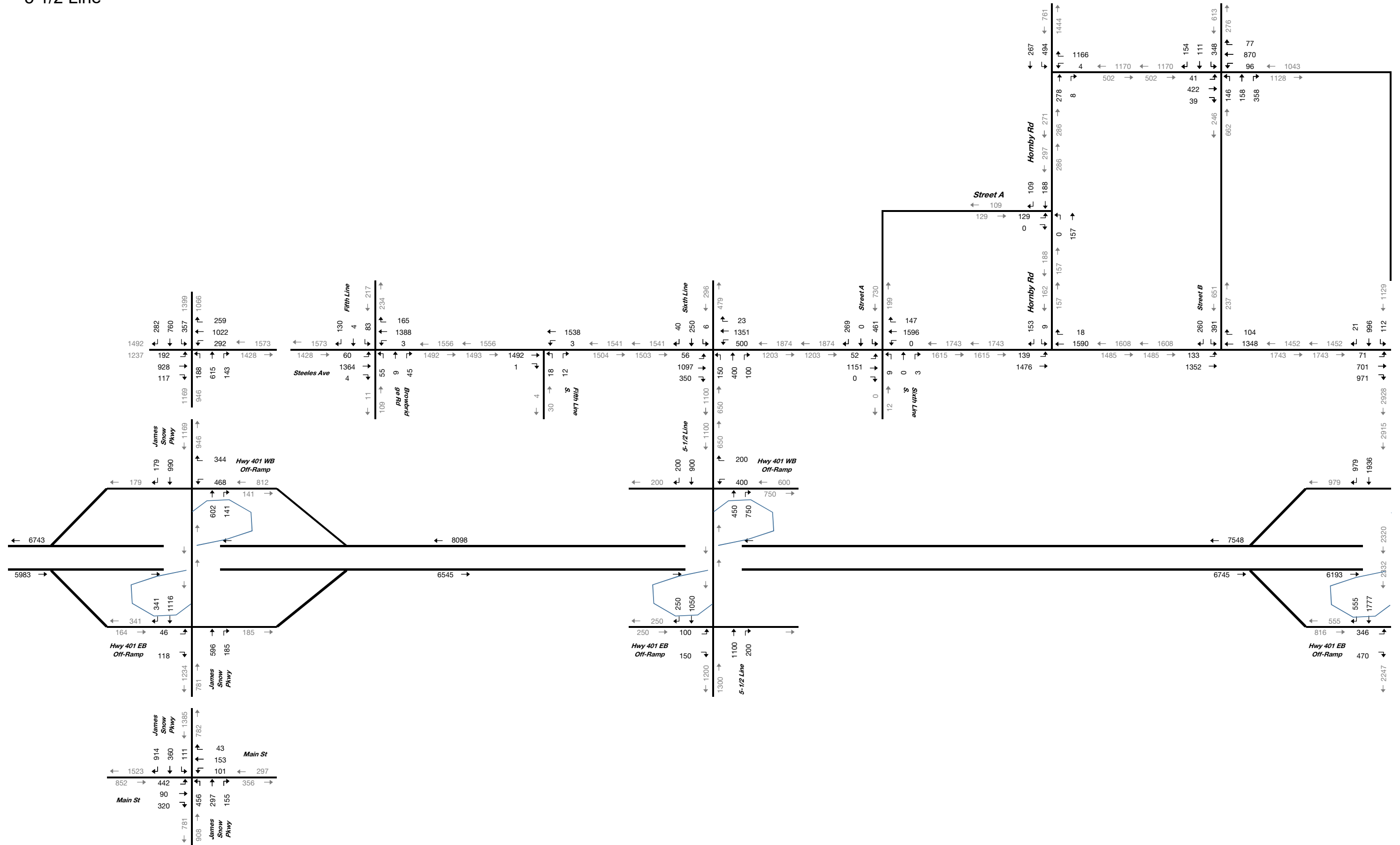


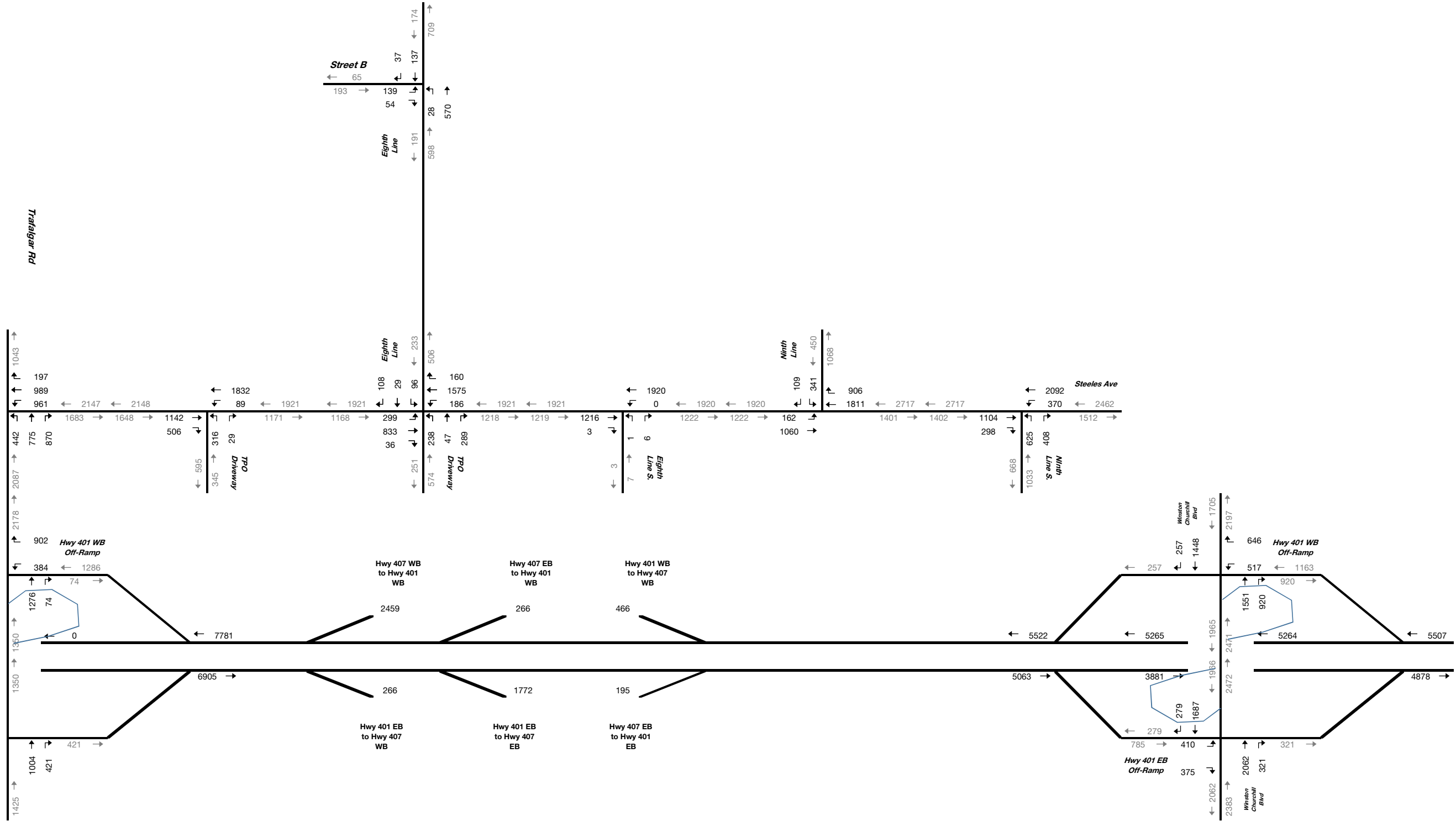
2031 Traffic Volumes - AM Peak Hour
5 1/2 Line



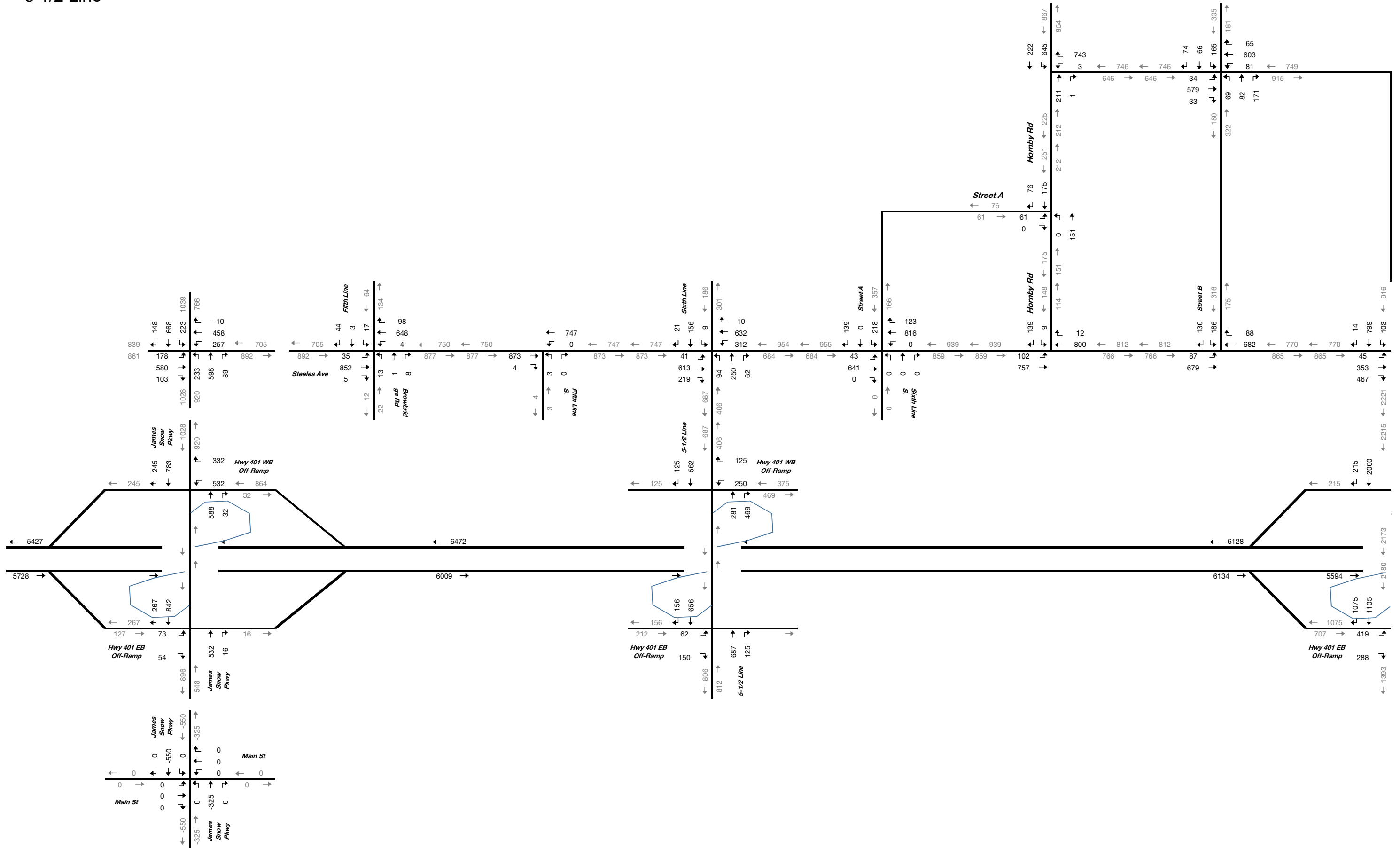


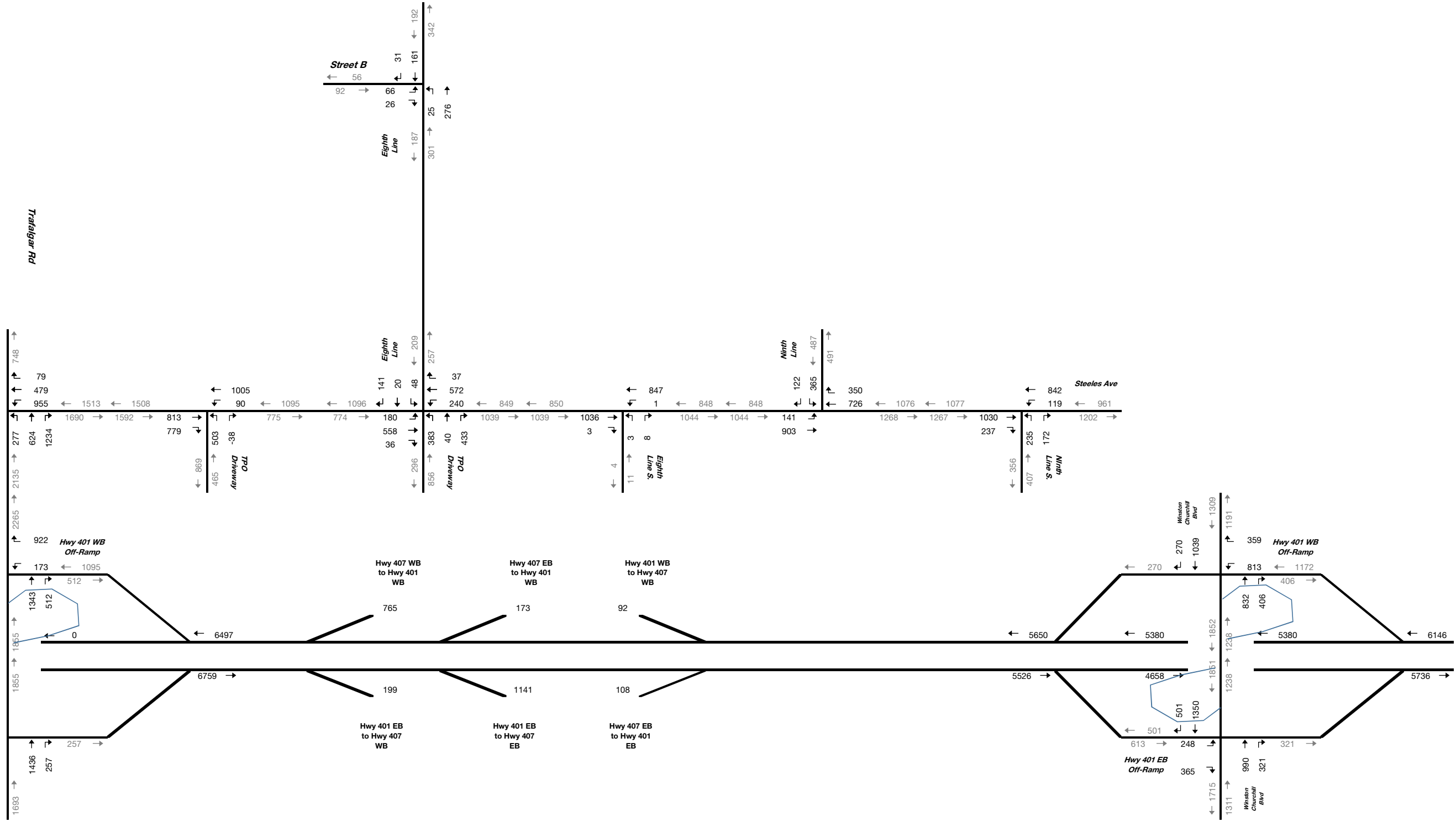
2031 Traffic Volumes - PM Peak Hour
5 1/2 Line





2031 Traffic Volumes - SAT Peak Hour 5 1/2 Line





HCM Unsignalized Intersection Capacity Analysis
1: Fifth Line & 5 Side Road

Scenario 3 - AM Peak Hour
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	13	918	14	28	245	4	5	26	24	46	59	32
Future Volume (Veh/h)	13	918	14	28	245	4	5	26	24	46	59	32
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	14	956	15	29	255	4	5	27	25	48	61	33
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	259			971			1370	1308	964	1345	1314	257
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	259			971			1370	1308	964	1345	1314	257
tC, single (s)	4.2			4.2			7.3	6.7	6.3	7.2	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.3			2.3			3.7	4.2	3.4	3.6	4.0	3.3
p0 queue free %	99			96			93	81	92	48	59	96
cM capacity (veh/h)	1271			675			71	139	302	93	149	787
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	985	288	57	142								
Volume Left	14	29	5	48								
Volume Right	15	4	25	33								
cSH	1271	675	164	147								
Volume to Capacity	0.01	0.04	0.35	0.97								
Queue Length 95th (m)	0.3	1.1	11.5	56.0								
Control Delay (s)	0.3	1.5	38.1	125.5								
Lane LOS	A	A	E	F								
Approach Delay (s)	0.3	1.5	38.1	125.5								
Approach LOS			E	F								
Intersection Summary												
Average Delay			14.1									
Intersection Capacity Utilization			72.7%		ICU Level of Service				C			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis
2: Sixth Line & 5 Side Road

Scenario 3 - AM Peak Hour
Premier Gateway

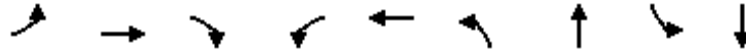


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	9	959	1	10	260	4	1	12	39	26	22	21
Future Volume (Veh/h)	9	959	1	10	260	4	1	12	39	26	22	21
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	9	999	1	10	271	4	1	13	41	27	23	22
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	275			1000			1344	1312	1000	1358	1311	273
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	275			1000			1344	1312	1000	1358	1311	273
tC, single (s)	4.2			4.1			7.1	6.5	6.4	7.2	6.5	6.2
tC, 2 stage (s)												
tF (s)	2.3			2.2			3.5	4.0	3.4	3.6	4.0	3.3
p0 queue free %	99			99			99	92	85	71	85	97
cM capacity (veh/h)	1238			700			110	156	279	94	157	771
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	1009	285	55	72								
Volume Left	9	10	1	27								
Volume Right	1	4	41	22								
cSH	1238	700	230	156								
Volume to Capacity	0.01	0.01	0.24	0.46								
Queue Length 95th (m)	0.2	0.3	7.2	17.1								
Control Delay (s)	0.2	0.5	25.5	46.5								
Lane LOS	A	A	D	E								
Approach Delay (s)	0.2	0.5	25.5	46.5								
Approach LOS			D	E								
Intersection Summary												
Average Delay			3.6									
Intersection Capacity Utilization			71.2%		ICU Level of Service				C			
Analysis Period (min)			15									

Queues
3: Trafalgar Rd & 5 Side Road

Scenario 3 - AM Peak Hour

Premier Gateway



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	64	449	523	142	172	62	533	36	1442
v/c Ratio	0.16	0.69	0.81	0.82	0.26	0.30	0.31	0.09	0.79
Control Delay	18.9	28.4	24.7	60.9	19.2	15.0	17.2	11.5	27.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.9	28.4	24.7	60.9	19.2	15.0	17.2	11.5	27.4
Queue Length 50th (m)	7.1	61.6	46.0	20.8	19.2	5.3	22.8	3.0	83.1
Queue Length 95th (m)	15.9	94.1	#92.8	#53.8	34.0	11.7	32.1	7.8	#105.3
Internal Link Dist (m)		593.5			641.2		240.1		238.0
Turn Bay Length (m)	40.0		40.0	40.0		40.0		50.0	
Base Capacity (vph)	485	777	731	207	778	205	1733	379	1816
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.13	0.58	0.72	0.69	0.22	0.30	0.31	0.09	0.79

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

3: Trafalgar Rd & 5 Side Road

Scenario 3 - AM Peak Hour

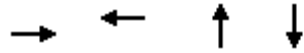
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	63	440	513	139	159	10	61	457	66	35	1359	54
Future Volume (vph)	63	440	513	139	159	10	61	457	66	35	1359	54
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4	6.4	6.4	6.4		4.0	6.0		4.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.98		1.00	0.99	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1703	1863	1455	1570	1859		1444	4163		1399	4722	
Flt Permitted	0.65	1.00	1.00	0.30	1.00		0.12	1.00		0.44	1.00	
Satd. Flow (perm)	1162	1863	1455	495	1859		188	4163		653	4722	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	64	449	523	142	162	10	62	466	67	36	1387	55
RTOR Reduction (vph)	0	0	140	0	3	0	0	20	0	0	5	0
Lane Group Flow (vph)	64	449	383	142	169	0	62	513	0	36	1437	0
Heavy Vehicles (%)	6%	2%	11%	15%	1%	6%	25%	23%	17%	29%	9%	15%
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	27.4	27.4	27.4	27.4	27.4		37.6	32.3		34.8	30.9	
Effective Green, g (s)	27.4	27.4	27.4	27.4	27.4		37.6	32.3		34.8	30.9	
Actuated g/C Ratio	0.34	0.34	0.34	0.34	0.34		0.47	0.40		0.43	0.39	
Clearance Time (s)	6.4	6.4	6.4	6.4	6.4		4.0	6.0		4.0	6.0	
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0		3.0	5.0		3.0	5.0	
Lane Grp Cap (vph)	397	638	498	169	636		171	1680		320	1823	
v/s Ratio Prot		0.24			0.09		c0.02	0.12		0.01	c0.30	
v/s Ratio Perm	0.06		0.26	c0.29			0.15			0.04		
v/c Ratio	0.16	0.70	0.77	0.84	0.27		0.36	0.31		0.11	0.79	
Uniform Delay, d1	18.3	22.8	23.5	24.3	19.0		13.6	16.2		13.1	21.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.4	4.4	8.2	32.1	0.5		1.3	0.5		0.2	3.5	
Delay (s)	18.7	27.2	31.7	56.4	19.5		14.9	16.7		13.3	25.2	
Level of Service	B	C	C	E	B		B	B		B	C	
Approach Delay (s)		29.0			36.2			16.5			24.9	
Approach LOS		C			D			B			C	

Intersection Summary		
HCM 2000 Control Delay	25.7	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.77	
Actuated Cycle Length (s)	80.0	Sum of lost time (s) 16.4
Intersection Capacity Utilization	87.9%	ICU Level of Service E
Analysis Period (min)	15	
c Critical Lane Group		

4: Eighth Line & 5 Side Road



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	547	340	189	874
v/c Ratio	0.76	0.70	0.16	0.74
Control Delay	20.0	20.1	7.9	16.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	20.0	20.1	7.9	16.1
Queue Length 50th (m)	37.6	22.1	4.0	30.5
Queue Length 95th (m)	#73.7	#50.3	9.5	51.8
Internal Link Dist (m)	619.4	644.7	2565.8	430.5
Turn Bay Length (m)				
Base Capacity (vph)	927	631	1440	1452
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.59	0.54	0.13	0.60

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

4: Eighth Line & 5 Side Road

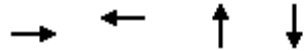
Scenario 3 - AM Peak Hour
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	31	482	12	101	210	15	1	138	42	83	670	86
Future Volume (vph)	31	482	12	101	210	15	1	138	42	83	670	86
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	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frt		1.00			0.99			0.97			0.98	
Flt Protected		1.00			0.98			1.00			1.00	
Satd. Flow (prot)		1840			1646			3163			3372	
Flt Permitted		0.97			0.72			0.95			0.90	
Satd. Flow (perm)		1784			1210			3009			3051	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	32	502	12	105	219	16	1	144	44	86	698	90
RTOR Reduction (vph)	0	2	0	0	4	0	0	27	0	0	18	0
Lane Group Flow (vph)	0	545	0	0	336	0	0	162	0	0	856	0
Heavy Vehicles (%)	10%	2%	8%	20%	10%	7%	0%	9%	14%	0%	6%	1%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		17.3			17.3			16.4			16.4	
Effective Green, g (s)		17.3			17.3			16.4			16.4	
Actuated g/C Ratio		0.41			0.41			0.38			0.38	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		722			490			1155			1171	
v/s Ratio Prot												
v/s Ratio Perm		c0.31			0.28			0.05			c0.28	
v/c Ratio		0.76			0.69			0.14			0.73	
Uniform Delay, d1		10.9			10.5			8.6			11.3	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		4.5			4.0			0.1			2.4	
Delay (s)		15.4			14.4			8.6			13.6	
Level of Service		B			B			A			B	
Approach Delay (s)		15.4			14.4			8.6			13.6	
Approach LOS		B			B			A			B	

Intersection Summary

HCM 2000 Control Delay	13.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.74		
Actuated Cycle Length (s)	42.7	Sum of lost time (s)	9.0
Intersection Capacity Utilization	89.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	621	308	266	906
v/c Ratio	0.91	0.47	0.22	0.87
Control Delay	37.3	16.0	11.7	27.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	37.3	16.0	11.7	27.8
Queue Length 50th (m)	63.8	24.7	9.6	48.8
Queue Length 95th (m)	#123.7	44.2	16.8	#85.3
Internal Link Dist (m)	556.9	434.3	3096.2	305.9
Turn Bay Length (m)				
Base Capacity (vph)	717	685	1220	1043
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.87	0.45	0.22	0.87

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
5: Ninth Line & 5 Side Road

Scenario 3 - AM Peak Hour
Premier Gateway



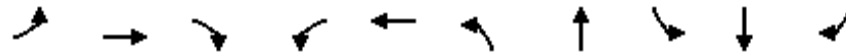
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↕			↕			↕			↕		
Traffic Volume (vph)	31	535	24	1	276	15	6	232	15	332	496	33	
Future Volume (vph)	31	535	24	1	276	15	6	232	15	332	496	33	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		6.0			6.0			6.0			6.0		
Lane Util. Factor		1.00			1.00			0.95			0.95		
Frt		0.99			0.99			0.99			0.99		
Flt Protected		1.00			1.00			1.00			0.98		
Satd. Flow (prot)		1807			1680			3187			3400		
Flt Permitted		0.97			1.00			0.93			0.74		
Satd. Flow (perm)		1753			1677			2976			2552		
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	
Adj. Flow (vph)	33	563	25	1	291	16	6	244	16	349	522	35	
RTOR Reduction (vph)	0	2	0	0	3	0	0	8	0	0	5	0	
Lane Group Flow (vph)	0	619	0	0	305	0	0	258	0	0	901	0	
Heavy Vehicles (%)	10%	4%	4%	0%	13%	0%	50%	12%	0%	0%	6%	3%	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA		
Protected Phases		4			8			2			6		
Permitted Phases	4			8			2			6			
Actuated Green, G (s)		22.9			22.9			24.0			24.0		
Effective Green, g (s)		22.9			22.9			24.0			24.0		
Actuated g/C Ratio		0.39			0.39			0.41			0.41		
Clearance Time (s)		6.0			6.0			6.0			6.0		
Vehicle Extension (s)		3.5			3.5			5.5			5.5		
Lane Grp Cap (vph)		681			652			1212			1039		
v/s Ratio Prot													
v/s Ratio Perm		c0.35			0.18			0.09			c0.35		
v/c Ratio		0.91			0.47			0.21			0.87		
Uniform Delay, d1		17.0			13.4			11.3			16.0		
Progression Factor		1.00			1.00			1.00			1.00		
Incremental Delay, d2		16.2			0.6			0.4			9.7		
Delay (s)		33.2			14.1			11.7			25.7		
Level of Service		C			B			B			C		
Approach Delay (s)		33.2			14.1			11.7			25.7		
Approach LOS		C			B			B			C		
Intersection Summary													
HCM 2000 Control Delay			24.5									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.89										
Actuated Cycle Length (s)			58.9									Sum of lost time (s)	12.0
Intersection Capacity Utilization			107.9%									ICU Level of Service	G
Analysis Period (min)			15										
c	Critical Lane Group												

Queues

Scenario 3 - AM Peak Hour

6: Brownridge Road/Fifth Line & Steeles Avenue

Premier Gateway



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	68	1771	180	22	581	13	6	27	8	84
v/c Ratio	0.13	0.60	0.16	0.19	0.22	0.07	0.02	0.16	0.03	0.27
Control Delay	6.1	8.1	1.4	10.7	3.6	22.1	0.2	24.4	21.1	7.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.1	8.1	1.4	10.7	3.6	22.1	0.2	24.4	21.1	7.9
Queue Length 50th (m)	3.0	44.7	0.0	1.0	6.5	1.4	0.0	3.0	0.9	0.0
Queue Length 95th (m)	8.0	60.2	6.1	5.3	10.8	5.3	0.0	8.9	3.9	9.3
Internal Link Dist (m)		462.3			679.6		261.2		67.4	
Turn Bay Length (m)	145.0		65.0	30.0		20.0		25.0		25.0
Base Capacity (vph)	517	2940	1117	116	2649	202	265	183	335	334
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	0.13	0.60	0.16	0.19	0.22	0.06	0.02	0.15	0.02	0.25

Intersection Summary

HCM Signalized Intersection Capacity Analysis

6: Brownridge Road/Fifth Line & Steeles Avenue

Scenario 3 - AM Peak Hour

Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	65	1700	173	21	382	176	12	0	6	26	8	81
Future Volume (vph)	65	1700	173	21	382	176	12	0	6	26	8	81
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.95		1.00	0.85		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1671	4217	1524	1456	3720		1444	1077		1308	1900	1468
Flt Permitted	0.42	1.00	1.00	0.11	1.00		0.75	1.00		0.75	1.00	1.00
Satd. Flow (perm)	743	4217	1524	167	3720		1144	1077		1038	1900	1468
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	68	1771	180	22	398	183	12	0	6	27	8	84
RTOR Reduction (vph)	0	0	62	0	63	0	0	5	0	0	0	74
Lane Group Flow (vph)	68	1771	118	22	518	0	13	1	0	27	8	10
Heavy Vehicles (%)	8%	23%	6%	24%	36%	26%	25%	0%	50%	38%	0%	10%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2				6
Permitted Phases	4		4	8			2			6		6
Actuated Green, G (s)	42.0	42.0	42.0	42.0	42.0		7.9	7.9		7.9	7.9	7.9
Effective Green, g (s)	42.0	42.0	42.0	42.0	42.0		7.9	7.9		7.9	7.9	7.9
Actuated g/C Ratio	0.66	0.66	0.66	0.66	0.66		0.12	0.12		0.12	0.12	0.12
Clearance Time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	488	2771	1001	109	2445		141	133		128	234	181
v/s Ratio Prot		c0.42			0.14			0.00				0.00
v/s Ratio Perm	0.09		0.08	0.13			0.01			c0.03		0.01
v/c Ratio	0.14	0.64	0.12	0.20	0.21		0.09	0.01		0.21	0.03	0.06
Uniform Delay, d1	4.1	6.5	4.1	4.3	4.4		24.8	24.6		25.2	24.6	24.7
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.6	1.1	0.2	4.1	0.2		0.3	0.0		0.8	0.1	0.1
Delay (s)	4.7	7.6	4.3	8.5	4.6		25.1	24.6		26.0	24.7	24.8
Level of Service	A	A	A	A	A		C	C		C	C	C
Approach Delay (s)		7.2			4.7			24.9			25.1	
Approach LOS		A			A			C			C	

Intersection Summary

HCM 2000 Control Delay	7.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	63.9	Sum of lost time (s)	14.0
Intersection Capacity Utilization	74.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Queues
7: Fifth Line South & Steeles Avenue

Scenario 3 - AM Peak Hour
Premier Gateway

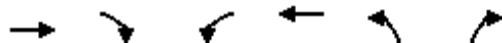


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1814	29	9	607	9	4
v/c Ratio	0.46	0.02	0.04	0.17	0.03	0.01
Control Delay	2.4	1.2	3.0	1.5	24.8	17.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	2.4	1.2	3.0	1.5	24.8	17.5
Queue Length 50th (m)	0.0	0.0	0.0	0.0	0.9	0.0
Queue Length 95th (m)	60.0	2.2	1.9	14.8	5.2	2.6
Internal Link Dist (m)	679.6			455.7	532.9	
Turn Bay Length (m)		30.0	60.0		15.0	
Base Capacity (vph)	3943	1454	201	3593	289	296
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.02	0.04	0.17	0.03	0.01

Intersection Summary

HCM Signalized Intersection Capacity Analysis
7: Fifth Line South & Steeles Avenue

Scenario 3 - AM Peak Hour
Premier Gateway



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗	↖	↑↑↑	↖	↗
Traffic Volume (vph)	1705	27	8	571	8	4
Future Volume (vph)	1705	27	8	571	8	4
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0	8.0	6.0	6.0
Lane Util. Factor	0.91	1.00	1.00	0.91	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	4217	1553	1805	3842	1597	1615
Flt Permitted	1.00	1.00	0.11	1.00	0.95	1.00
Satd. Flow (perm)	4217	1553	215	3842	1597	1615
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	1814	29	9	607	9	4
RTOR Reduction (vph)	0	7	0	0	0	4
Lane Group Flow (vph)	1814	22	9	607	9	0
Heavy Vehicles (%)	23%	4%	0%	35%	13%	0%
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	4			8		
Permitted Phases		4	8		2	2
Actuated Green, G (s)	50.5	50.5	50.5	50.5	1.7	1.7
Effective Green, g (s)	50.5	50.5	50.5	50.5	1.7	1.7
Actuated g/C Ratio	0.76	0.76	0.76	0.76	0.03	0.03
Clearance Time (s)	8.0	8.0	8.0	8.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	3216	1184	164	2930	41	41
v/s Ratio Prot	c0.43			0.16		
v/s Ratio Perm		0.01	0.04		c0.01	0.00
v/c Ratio	0.56	0.02	0.05	0.21	0.22	0.00
Uniform Delay, d1	3.3	1.9	1.9	2.2	31.6	31.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.7	0.0	0.6	0.2	2.7	0.0
Delay (s)	4.0	1.9	2.6	2.4	34.3	31.4
Level of Service	A	A	A	A	C	C
Approach Delay (s)	4.0			2.4	33.4	
Approach LOS	A			A	C	

Intersection Summary

HCM 2000 Control Delay	3.7	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	66.2	Sum of lost time (s)	14.0
Intersection Capacity Utilization	55.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Queues

Scenario 3 - AM Peak Hour

8: Steeles Avenue & Sixth Line

Premier Gateway



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	47	1463	291	415	437	3	125	332	83	11	253
v/c Ratio	0.12	0.81	0.37	0.71	0.18	0.00	0.53	0.30	0.20	0.06	0.24
Control Delay	15.2	24.9	7.9	41.0	6.1	0.0	40.6	29.8	8.8	30.4	24.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.2	24.9	7.9	41.0	6.1	0.0	40.6	29.8	8.8	30.4	24.3
Queue Length 50th (m)	4.7	78.6	12.3	36.3	9.6	0.0	20.4	18.8	0.0	1.6	11.5
Queue Length 95th (m)	11.5	97.8	29.4	52.5	13.5	0.0	39.7	27.8	11.9	6.3	19.1
Internal Link Dist (m)		455.7			881.3			1648.9			264.1
Turn Bay Length (m)	60.0		30.0	60.0		30.0	30.0		30.0	30.0	
Base Capacity (vph)	450	2067	869	662	2822	952	238	1104	408	180	1067
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	0.10	0.71	0.33	0.63	0.15	0.00	0.53	0.30	0.20	0.06	0.24

Intersection Summary

HCM Signalized Intersection Capacity Analysis
8: Steeles Avenue & Sixth Line

Scenario 3 - AM Peak Hour
Premier Gateway

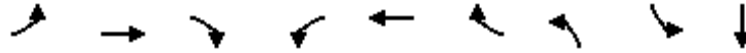


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗	↘↗	↑↑↑	↗	↘	↑↑↑	↗	↘	↑↑↑	↗
Traffic Volume (vph)	44	1375	291	415	411	3	125	332	83	10	208	42
Future Volume (vph)	44	1375	291	415	411	3	125	332	83	10	208	42
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	3.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	1.00	0.91	1.00	1.00	0.91	0.91
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97	0.97
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)	1770	4183	1583	3433	3900	1302	1770	5085	1583	1456	4759	4759
Flt Permitted	0.49	1.00	1.00	0.95	1.00	1.00	0.59	1.00	1.00	0.54	1.00	1.00
Satd. Flow (perm)	911	4183	1583	3433	3900	1302	1097	5085	1583	833	4759	4759
Peak-hour factor, PHF	0.94	0.94	1.00	1.00	0.94	0.94	1.00	1.00	1.00	0.94	1.00	0.94
Adj. Flow (vph)	47	1463	291	415	437	3	125	332	83	11	208	45
RTOR Reduction (vph)	0	0	97	0	0	1	0	0	65	0	35	0
Lane Group Flow (vph)	47	1463	194	415	437	2	125	332	18	11	218	0
Heavy Vehicles (%)	2%	24%	2%	2%	33%	24%	2%	2%	2%	24%	2%	25%
Turn Type	Perm	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	NA
Protected Phases		2		1	6			8				4
Permitted Phases	2		2			6	8		8	4		
Actuated Green, G (s)	36.3	36.3	36.3	14.2	53.5	53.5	18.2	18.2	18.2	18.2	18.2	18.2
Effective Green, g (s)	36.3	36.3	36.3	14.2	53.5	53.5	18.2	18.2	18.2	18.2	18.2	18.2
Actuated g/C Ratio	0.43	0.43	0.43	0.17	0.64	0.64	0.22	0.22	0.22	0.22	0.22	0.22
Clearance Time (s)	6.0	6.0	6.0	3.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	395	1814	686	582	2492	832	238	1105	344	181	1034	1034
v/s Ratio Prot		c0.35		c0.12	0.11			0.07				0.05
v/s Ratio Perm	0.05		0.12			0.00	c0.11		0.01	0.01		
v/c Ratio	0.12	0.81	0.28	0.71	0.18	0.00	0.53	0.30	0.05	0.06	0.21	0.21
Uniform Delay, d1	14.2	20.6	15.3	32.8	6.1	5.5	28.9	27.4	25.9	26.0	26.9	26.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	2.7	0.2	4.1	0.0	0.0	8.1	0.7	0.3	0.6	0.5	0.5
Delay (s)	14.3	23.4	15.5	37.0	6.2	5.5	37.0	28.1	26.2	26.6	27.3	27.3
Level of Service	B	C	B	D	A	A	D	C	C	C	C	C
Approach Delay (s)		21.9			21.1			29.9				27.3
Approach LOS		C			C			C				C

Intersection Summary		
HCM 2000 Control Delay	23.3	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.71	C
Actuated Cycle Length (s)	83.7	Sum of lost time (s)
Intersection Capacity Utilization	68.6%	15.0
Analysis Period (min)	15	ICU Level of Service
c Critical Lane Group		C

Queues
9: Sixth Line South/Street A & Steeles Avenue

Scenario 3 - AM Peak Hour
Premier Gateway



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	SBL	SBT
Lane Group Flow (vph)	206	1335	4	3	762	588	3	102	107
v/c Ratio	0.59	0.69	0.01	0.01	0.67	0.74	0.01	0.23	0.16
Control Delay	19.1	20.8	0.0	9.3	30.8	8.4	22.0	23.8	0.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.1	20.8	0.0	9.3	30.8	8.4	22.0	23.8	0.5
Queue Length 50th (m)	20.3	63.0	0.0	0.3	45.0	0.0	0.4	12.6	0.0
Queue Length 95th (m)	26.4	79.7	0.0	1.2	50.0	25.5	2.6	29.4	0.0
Internal Link Dist (m)		881.3			473.0				481.0
Turn Bay Length (m)	50.0		30.0	60.0		30.0	30.0	70.0	
Base Capacity (vph)	366	2249	910	214	1690	897	499	443	683
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.59	0.00	0.01	0.45	0.66	0.01	0.23	0.16

Intersection Summary

HCM Signalized Intersection Capacity Analysis

9: Sixth Line South/Street A & Steeles Avenue

Scenario 3 - AM Peak Hour
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗	↘	↑↑↑	↗	↘	↗		↘	↗	
Traffic Volume (vph)	196	1268	4	3	724	559	3	0	0	97	0	102
Future Volume (vph)	196	1268	4	3	724	559	3	0	0	97	0	102
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0	6.0	4.5	6.0	6.0	6.0			6.0	6.0	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	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	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95			0.95	1.00	
Satd. Flow (prot)	1456	4183	1615	1805	3900	1302	1805			1456	1292	
Flt Permitted	0.25	1.00	1.00	0.19	1.00	1.00	0.69			0.76	1.00	
Satd. Flow (perm)	387	4183	1615	367	3900	1302	1307			1160	1292	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	206	1335	4	3	762	588	3	0	0	102	0	107
RTOR Reduction (vph)	0	0	2	0	0	394	0	0	0	0	70	0
Lane Group Flow (vph)	206	1335	2	3	762	194	3	0	0	102	37	0
Heavy Vehicles (%)	24%	24%	0%	0%	33%	24%	0%	0%	0%	24%	0%	25%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm			Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	47.2	41.7	41.7	30.7	29.7	29.7	30.8			30.8	30.8	
Effective Green, g (s)	47.2	41.7	41.7	30.7	29.7	29.7	30.8			30.8	30.8	
Actuated g/C Ratio	0.52	0.46	0.46	0.34	0.33	0.33	0.34			0.34	0.34	
Clearance Time (s)	4.5	6.0	6.0	4.5	6.0	6.0	6.0			6.0	6.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0			3.0	3.0	
Lane Grp Cap (vph)	357	1938	748	141	1287	429	447			396	442	
v/s Ratio Prot	c0.08	c0.32		0.00	0.20							0.03
v/s Ratio Perm	0.22		0.00	0.01		0.15	0.00			c0.09		
v/c Ratio	0.58	0.69	0.00	0.02	0.59	0.45	0.01			0.26	0.08	
Uniform Delay, d1	12.7	19.0	13.0	19.6	25.1	23.7	19.5			21.4	20.0	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00			1.00	1.00	
Incremental Delay, d2	2.3	1.0	0.0	0.1	0.7	0.8	0.0			1.6	0.4	
Delay (s)	14.9	20.1	13.0	19.6	25.8	24.5	19.5			22.9	20.4	
Level of Service	B	C	B	B	C	C	B			C	C	
Approach Delay (s)		19.4			25.2			19.5			21.6	
Approach LOS		B			C			B			C	

Intersection Summary

HCM 2000 Control Delay	22.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.52		
Actuated Cycle Length (s)	90.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	54.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
 10: Steeles Avenue & Hornby Road

Scenario 3 - AM Peak Hour
 Premier Gateway



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (veh/h)	101	1264	1185	19	8	101
Future Volume (Veh/h)	101	1264	1185	19	8	101
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	105	1317	1234	20	8	105
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type						
		None	None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	1254				1883	411
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	1254				1883	411
tC, single (s)	4.2				7.1	7.1
tC, 2 stage (s)						
tF (s)	2.3				3.6	3.4
p0 queue free %	80				82	82
cM capacity (veh/h)	529				44	573

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	SB 1	SB 2
Volume Total	105	439	439	439	411	411	411	20	8	105
Volume Left	105	0	0	0	0	0	0	0	8	0
Volume Right	0	0	0	0	0	0	0	20	0	105
cSH	529	1700	1700	1700	1700	1700	1700	1700	44	573
Volume to Capacity	0.20	0.26	0.26	0.26	0.24	0.24	0.24	0.01	0.18	0.18
Queue Length 95th (m)	5.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	4.7	5.3
Control Delay (s)	13.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	103.6	12.7
Lane LOS	B								F	B
Approach Delay (s)	1.0				0.0				19.1	
Approach LOS									C	

Intersection Summary		
Average Delay		1.3
Intersection Capacity Utilization	41.8%	ICU Level of Service
Analysis Period (min)		15
		A

HCM Unsignalized Intersection Capacity Analysis
 11: Trafalgar Rd & Hornby Rd

Scenario 3 - AM Peak Hour
 Premier Gateway



Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations							
Traffic Volume (veh/h)	157	8	3	288	1712	299	
Future Volume (Veh/h)	157	8	3	288	1712	299	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	
Hourly flow rate (vph)	160	8	3	294	1747	305	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				None	None		
Median storage veh							
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume	2004	735	1747				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	2004	735	1747				
tC, single (s)	7.2	7.2	4.8				
tC, 2 stage (s)							
tF (s)	3.7	3.4	2.5				
p0 queue free %	0	98	99				
cM capacity (veh/h)	42	338	245				
Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	168	62	118	118	699	699	654
Volume Left	160	3	0	0	0	0	0
Volume Right	8	0	0	0	0	0	305
cSH	44	245	1700	1700	1700	1700	1700
Volume to Capacity	3.81	0.01	0.07	0.07	0.41	0.41	0.38
Queue Length 95th (m)	Err	0.3	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	Err	1.2	0.0	0.0	0.0	0.0	0.0
Lane LOS	F	A					
Approach Delay (s)	Err	0.3			0.0		
Approach LOS	F						
Intersection Summary							
Average Delay		667.4					
Intersection Capacity Utilization		55.6%		ICU Level of Service	B		
Analysis Period (min)		15					

Queues
12: Trafalgar Road & Steeles Avenue

Scenario 3 - AM Peak Hour
Premier Gateway



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	42	675	424	669	573	70	957	814	503	206	1418
v/c Ratio	0.24	0.77	0.83	1.39	0.46	0.14	1.30	0.47	0.61	0.64	1.23
Control Delay	31.9	61.2	27.6	230.2	42.7	0.9	187.2	33.6	12.9	29.8	156.6
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	31.9	61.2	27.6	230.2	42.7	0.9	187.2	33.6	12.9	29.8	156.6
Queue Length 50th (m)	8.1	71.3	28.0	~138.1	52.8	0.0	~191.0	65.6	29.2	30.2	~193.9
Queue Length 95th (m)	16.3	84.1	76.7	#178.1	63.2	1.1	#246.3	86.6	75.4	48.7	#225.6
Internal Link Dist (m)		443.0			287.3			749.5			265.5
Turn Bay Length (m)	115.0		40.0	130.0		70.0	100.0		65.0		
Base Capacity (vph)	175	1008	536	483	1315	502	735	1747	826	368	1153
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	0.24	0.67	0.79	1.39	0.44	0.14	1.30	0.47	0.61	0.56	1.23

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
12: Trafalgar Road & Steeles Avenue

Scenario 3 - AM Peak Hour

Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	40	648	407	642	550	67	919	781	483	198	1352	10
Future Volume (vph)	40	648	407	642	550	67	919	781	483	198	1352	10
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	3.0	7.0	7.0	3.0	8.0	8.0	4.0	8.0	
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1165	4433	1233	3335	4183	1335	2714	4287	1495	1687	4775	
Flt Permitted	0.43	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.33	1.00	
Satd. Flow (perm)	522	4433	1233	3335	4183	1335	2714	4287	1495	591	4775	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	42	675	424	669	573	70	957	814	503	206	1408	10
RTOR Reduction (vph)	0	0	264	0	0	49	0	0	219	0	1	0
Lane Group Flow (vph)	42	675	160	669	573	21	957	814	284	206	1417	0
Heavy Vehicles (%)	55%	17%	31%	5%	24%	21%	29%	21%	8%	7%	8%	80%
Turn Type	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases	4		4			8			2	6		
Actuated Green, G (s)	35.6	29.5	29.5	21.0	43.4	43.4	39.3	58.3	58.3	48.4	34.2	
Effective Green, g (s)	35.6	29.5	29.5	21.0	43.4	43.4	39.3	58.3	58.3	48.4	34.2	
Actuated g/C Ratio	0.25	0.20	0.20	0.14	0.30	0.30	0.27	0.40	0.40	0.33	0.24	
Clearance Time (s)	4.0	7.0	7.0	3.0	7.0	7.0	3.0	8.0	8.0	4.0	8.0	
Vehicle Extension (s)	3.0	3.0	3.0	4.0	3.0	3.0	4.0	0.2	0.2	3.0	0.2	
Lane Grp Cap (vph)	155	901	250	483	1252	399	735	1723	601	304	1126	
v/s Ratio Prot	0.01	c0.15		c0.20	0.14		c0.35	0.19		0.07	c0.30	
v/s Ratio Perm	0.06		0.13			0.02			0.19	0.16		
v/c Ratio	0.27	0.75	0.64	1.39	0.46	0.05	1.30	0.47	0.47	0.68	1.26	
Uniform Delay, d1	42.8	54.3	52.9	62.0	41.2	36.2	52.9	32.0	32.0	36.7	55.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.9	3.5	5.5	185.8	0.3	0.1	145.8	0.9	2.6	5.9	123.7	
Delay (s)	43.8	57.7	58.4	247.8	41.5	36.2	198.6	32.9	34.6	42.5	179.1	
Level of Service	D	E	E	F	D	D	F	C	C	D	F	
Approach Delay (s)		57.5			146.4			103.0			161.8	
Approach LOS		E			F			F			F	

Intersection Summary

HCM 2000 Control Delay	118.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.19		
Actuated Cycle Length (s)	145.0	Sum of lost time (s)	23.0
Intersection Capacity Utilization	106.7%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Queues
13: Toronto Premier Outlets & Steeles Avenue

Scenario 3 - AM Peak Hour
Premier Gateway



Lane Group	EBT	EBR	WBT	NBL	NBR
Lane Group Flow (vph)	1340	53	1263	49	14
v/c Ratio	0.48	0.06	0.45	0.07	0.05
Control Delay	7.4	1.9	7.3	19.9	11.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	7.4	1.9	7.3	19.9	11.2
Queue Length 50th (m)	27.5	0.0	25.5	2.4	0.0
Queue Length 95th (m)	36.4	3.3	33.9	6.1	4.1
Internal Link Dist (m)	287.3		176.7	95.1	
Turn Bay Length (m)		130.0			40.0
Base Capacity (vph)	2803	935	2778	660	273
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.48	0.06	0.45	0.07	0.05
Intersection Summary					

HCM Signalized Intersection Capacity Analysis
13: Toronto Premier Outlets & Steeles Avenue

Scenario 3 - AM Peak Hour
Premier Gateway

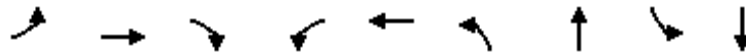


Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗	↖	↑↑↑	↖	↗
Traffic Volume (vph)	1286	51	0	1212	47	13
Future Volume (vph)	1286	51	0	1212	47	13
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	0.91	1.00		0.91	0.97	1.00
Frt	1.00	0.85		1.00	1.00	0.85
Flt Protected	1.00	1.00		1.00	0.95	1.00
Satd. Flow (prot)	4673	1524		4631	3303	1313
Flt Permitted	1.00	1.00		1.00	0.95	1.00
Satd. Flow (perm)	4673	1524		4631	3303	1313
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	1340	53	0	1262	49	14
RTOR Reduction (vph)	0	21	0	0	0	11
Lane Group Flow (vph)	1340	32	0	1263	49	3
Heavy Vehicles (%)	11%	6%	0%	12%	6%	23%
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	36.0	36.0		36.0	12.0	12.0
Effective Green, g (s)	36.0	36.0		36.0	12.0	12.0
Actuated g/C Ratio	0.60	0.60		0.60	0.20	0.20
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	0.2	0.2		0.2	4.0	4.0
Lane Grp Cap (vph)	2803	914		2778	660	262
v/s Ratio Prot	c0.29			0.27	c0.01	
v/s Ratio Perm		0.02				0.00
v/c Ratio	0.48	0.03		0.45	0.07	0.01
Uniform Delay, d1	6.7	4.9		6.6	19.5	19.2
Progression Factor	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.6	0.1		0.5	0.2	0.1
Delay (s)	7.3	5.0		7.1	19.7	19.3
Level of Service	A	A		A	B	B
Approach Delay (s)	7.2			7.1	19.6	
Approach LOS	A			A	B	

Intersection Summary

HCM 2000 Control Delay	7.5	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.41		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	43.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

14: Toronto Premium Outlets/Eighth Line & Steeles Avenue



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	156	1199	18	43	794	4	12	253	588
v/c Ratio	0.44	0.63	0.03	0.16	0.58	0.01	0.02	0.62	0.49
Control Delay	15.1	21.7	0.1	12.2	23.8	32.5	9.3	33.4	7.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.1	21.7	0.1	12.2	23.8	32.5	9.3	33.4	7.1
Queue Length 50th (m)	10.4	52.6	0.0	2.7	32.2	0.3	0.1	31.0	6.6
Queue Length 95th (m)	30.0	93.2	0.0	10.4	61.3	2.0	3.4	#80.8	24.1
Internal Link Dist (m)		176.7			846.8		194.1		472.6
Turn Bay Length (m)	105.0		55.0	30.0				20.0	
Base Capacity (vph)	385	1907	671	275	1377	373	784	405	1189
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.63	0.03	0.16	0.58	0.01	0.02	0.62	0.49

Intersection Summary

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
 14: Toronto Premium Outlets/Eighth Line & Steeles Avenue

Scenario 3 - AM Peak Hour

Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	147	1127	17	40	661	86	4	1	10	238	6	547
Future Volume (vph)	147	1127	17	40	661	86	4	1	10	238	6	547
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	4.0	6.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91		0.97	1.00		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.86		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1597	4631	1369	1752	4221		2801	1501		1752	2929	
Flt Permitted	0.24	1.00	1.00	0.17	1.00		0.95	1.00		0.75	1.00	
Satd. Flow (perm)	401	4631	1369	320	4221		2801	1501		1383	2929	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	156	1199	18	43	703	91	4	1	11	253	6	582
RTOR Reduction (vph)	0	0	11	0	16	0	0	7	0	0	342	0
Lane Group Flow (vph)	156	1199	7	43	778	0	4	5	0	253	246	0
Heavy Vehicles (%)	13%	12%	18%	3%	21%	19%	25%	0%	10%	3%	0%	5%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA		Perm	NA	
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases	4		4	8						6		
Actuated Green, G (s)	39.3	31.2	31.2	30.3	26.2		1.7	30.9		22.2	22.2	
Effective Green, g (s)	39.3	31.2	31.2	30.3	26.2		1.7	30.9		22.2	22.2	
Actuated g/C Ratio	0.47	0.37	0.37	0.36	0.31		0.02	0.37		0.27	0.27	
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	0.2	0.2	3.0	0.2		4.0	4.0		3.0	3.0	
Lane Grp Cap (vph)	320	1736	513	187	1329		57	557		369	781	
v/s Ratio Prot	c0.05	c0.26		0.01	0.18		c0.00	0.00			0.08	
v/s Ratio Perm	0.18		0.00	0.07						c0.18		
v/c Ratio	0.49	0.69	0.01	0.23	0.59		0.07	0.01		0.69	0.31	
Uniform Delay, d1	13.5	21.9	16.3	17.5	23.9		40.0	16.5		27.4	24.4	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.2	2.3	0.0	0.6	1.9		0.7	0.0		9.9	1.1	
Delay (s)	14.7	24.2	16.4	18.1	25.8		40.7	16.5		37.3	25.5	
Level of Service	B	C	B	B	C		D	B		D	C	
Approach Delay (s)		23.0			25.4			22.5			29.0	
Approach LOS		C			C			C			C	

Intersection Summary

HCM 2000 Control Delay	25.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	83.2	Sum of lost time (s)	24.0
Intersection Capacity Utilization	61.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
 15: Eighth Line South & Steeles Avenue

Scenario 3 - AM Peak Hour
 Premier Gateway



Movement	EBT	EBR	WBL	WBT	NBL	NBR				
Lane Configurations	↑↑↑		↵	↑↑↑	↵	↵				
Traffic Volume (veh/h)	1374	1	1	785	1	0				
Future Volume (Veh/h)	1374	1	1	785	1	0				
Sign Control	Free			Free	Stop					
Grade	0%			0%	0%					
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				
Hourly flow rate (vph)	1431	1	1	818	1	0				
Pedestrians										
Lane Width (m)										
Walking Speed (m/s)										
Percent Blockage										
Right turn flare (veh)										
Median type	None			None						
Median storage (veh)										
Upstream signal (m)										
pX, platoon unblocked										
vC, conflicting volume			1432			1706	478			
vC1, stage 1 conf vol										
vC2, stage 2 conf vol										
vCu, unblocked vol			1432			1706	478			
tC, single (s)			4.1			6.8	6.9			
tC, 2 stage (s)										
tF (s)			2.2			3.5	3.3			
p0 queue free %			100			99	100			
cM capacity (veh/h)			481			84	539			
Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2	
Volume Total	572	572	287	1	273	273	273	1	0	
Volume Left	0	0	0	1	0	0	0	1	0	
Volume Right	0	0	1	0	0	0	0	0	0	
cSH	1700	1700	1700	481	1700	1700	1700	84	1700	
Volume to Capacity	0.34	0.34	0.17	0.00	0.16	0.16	0.16	0.01	0.00	
Queue Length 95th (m)	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.3	0.0	
Control Delay (s)	0.0	0.0	0.0	12.5	0.0	0.0	0.0	48.5	0.0	
Lane LOS				B				E	A	
Approach Delay (s)	0.0		0.0					48.5		
Approach LOS								E		
Intersection Summary										
Average Delay			0.0							
Intersection Capacity Utilization			36.6%		ICU Level of Service				A	
Analysis Period (min)			15							

Queues
16: Steeles Avenue & Ninth Line



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	101	1345	728	287	767	99
v/c Ratio	0.42	0.82	0.68	0.49	0.87	0.14
Control Delay	24.5	32.0	35.2	6.9	32.4	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.5	32.0	35.2	6.9	32.4	3.1
Queue Length 50th (m)	12.0	80.8	45.5	0.0	117.5	0.0
Queue Length 95th (m)	23.4	99.6	59.7	20.4	#194.1	7.8
Internal Link Dist (m)		501.4	674.5		3096.2	
Turn Bay Length (m)	65.0			75.0		
Base Capacity (vph)	238	1639	1075	588	885	711
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.42	0.82	0.68	0.49	0.87	0.14

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
 16: Steeles Avenue & Ninth Line

Scenario 3 - AM Peak Hour
 Premier Gateway



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	96	1278	692	273	729	94
Future Volume (vph)	96	1278	692	273	729	94
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1556	4759	4359	1509	1770	1324
Flt Permitted	0.24	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	392	4759	4359	1509	1770	1324
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	101	1345	728	287	767	99
RTOR Reduction (vph)	0	0	0	217	0	50
Lane Group Flow (vph)	101	1345	728	70	767	49
Heavy Vehicles (%)	16%	9%	19%	7%	2%	22%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	31.8	31.8	22.2	22.2	45.0	45.0
Effective Green, g (s)	31.8	31.8	22.2	22.2	45.0	45.0
Actuated g/C Ratio	0.35	0.35	0.24	0.24	0.50	0.50
Clearance Time (s)	4.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	0.2	0.2	0.2	3.0	3.0
Lane Grp Cap (vph)	209	1666	1065	368	877	656
v/s Ratio Prot	0.03	c0.28	0.17		c0.43	
v/s Ratio Perm	0.14			0.05		0.04
v/c Ratio	0.48	0.81	0.68	0.19	0.87	0.07
Uniform Delay, d1	21.0	26.7	31.1	27.2	20.4	12.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.8	4.3	3.6	1.1	11.8	0.2
Delay (s)	22.8	31.0	34.7	28.3	32.2	12.2
Level of Service	C	C	C	C	C	B
Approach Delay (s)		30.5	32.9		29.9	
Approach LOS		C	C		C	

Intersection Summary			
HCM 2000 Control Delay	31.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	90.8	Sum of lost time (s)	18.0
Intersection Capacity Utilization	77.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Queues
17: Ninth Line (South) & Steeles Avenue



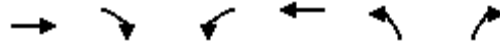
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1552	583	424	813	215	386
v/c Ratio	0.88	0.61	0.89	0.30	0.59	0.60
Control Delay	33.3	5.0	42.3	7.5	39.6	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	33.3	5.0	42.3	7.5	39.6	8.0
Queue Length 50th (m)	95.5	0.0	53.7	21.2	35.9	0.0
Queue Length 95th (m)	#118.9	21.7	#104.4	27.5	59.7	24.1
Internal Link Dist (m)	674.5			410.9	143.5	
Turn Bay Length (m)		75.0	145.0		60.0	
Base Capacity (vph)	1805	962	519	2882	366	640
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.86	0.61	0.82	0.28	0.59	0.60

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
 17: Ninth Line (South) & Steeles Avenue

Scenario 3 - AM Peak Hour
 Premier Gateway



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗	↖	↑↑↑	↖	↗
Traffic Volume (vph)	1459	548	399	764	202	363
Future Volume (vph)	1459	548	399	764	202	363
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	4.0	7.0	7.0	7.0
Lane Util. Factor	0.91	1.00	1.00	0.91	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	4759	1583	1787	4322	1770	1615
Flt Permitted	1.00	1.00	0.11	1.00	0.95	1.00
Satd. Flow (perm)	4759	1583	207	4322	1770	1615
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	1552	583	424	813	215	386
RTOR Reduction (vph)	0	367	0	0	0	306
Lane Group Flow (vph)	1552	216	424	813	215	80
Heavy Vehicles (%)	9%	2%	1%	20%	2%	0%
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	32.3	32.3	55.1	55.1	18.1	18.1
Effective Green, g (s)	32.3	32.3	55.1	55.1	18.1	18.1
Actuated g/C Ratio	0.37	0.37	0.63	0.63	0.21	0.21
Clearance Time (s)	7.0	7.0	4.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1762	586	471	2730	367	335
v/s Ratio Prot	0.33		c0.19	0.19	c0.12	
v/s Ratio Perm		0.14	c0.37			0.05
v/c Ratio	0.88	0.37	0.90	0.30	0.59	0.24
Uniform Delay, d1	25.7	20.0	23.4	7.3	31.2	28.8
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.5	0.4	20.0	0.1	6.7	1.7
Delay (s)	31.2	20.4	43.5	7.3	37.9	30.5
Level of Service	C	C	D	A	D	C
Approach Delay (s)	28.2			19.7	33.1	
Approach LOS	C			B	C	

Intersection Summary			
HCM 2000 Control Delay	26.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	87.2	Sum of lost time (s)	18.0
Intersection Capacity Utilization	76.5%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Queues

Scenario 3 - AM Peak Hour

18: James Snow Parkway & Hwy 401 (Westbound Ramp)

Premier Gateway



Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	360	239	975	537
v/c Ratio	0.47	0.68	0.45	0.23
Control Delay	19.8	27.7	12.4	10.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	19.8	27.7	12.4	10.6
Queue Length 50th (m)	17.0	23.7	26.3	12.7
Queue Length 95th (m)	27.5	47.0	47.4	24.6
Internal Link Dist (m)	390.4		415.8	504.8
Turn Bay Length (m)				
Base Capacity (vph)	1310	590	2184	2369
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.27	0.41	0.45	0.23

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 18: James Snow Parkway & Hwy 401 (Westbound Ramp)

Scenario 3 - AM Peak Hour

Premier Gateway



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔↔	↗	↑↑↑			↑↑↑
Traffic Volume (vph)	115	454	926	0	0	510
Future Volume (vph)	115	454	926	0	0	510
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.2	8.2	9.3			9.3
Lane Util. Factor	0.97	0.91	0.91			0.91
Frt	0.90	0.85	1.00			1.00
Flt Protected	0.98	1.00	1.00			1.00
Satd. Flow (prot)	3042	1336	4510			4893
Flt Permitted	0.98	1.00	1.00			1.00
Satd. Flow (perm)	3042	1336	4510			4893
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	121	478	975	0	0	537
RTOR Reduction (vph)	33	33	0	0	0	0
Lane Group Flow (vph)	327	206	975	0	0	537
Heavy Vehicles (%)	2%	10%	15%	0%	0%	6%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	15.3	15.3	30.9			30.9
Effective Green, g (s)	15.3	15.3	30.9			30.9
Actuated g/C Ratio	0.24	0.24	0.49			0.49
Clearance Time (s)	8.2	8.2	9.3			9.3
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	730	320	2187			2373
v/s Ratio Prot	0.11		c0.22			0.11
v/s Ratio Perm		c0.15				
v/c Ratio	0.45	0.64	0.45			0.23
Uniform Delay, d1	20.6	21.7	10.8			9.5
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	0.4	4.4	0.7			0.2
Delay (s)	21.0	26.1	11.4			9.7
Level of Service	C	C	B			A
Approach Delay (s)	23.1		11.4			9.7
Approach LOS	C		B			A

Intersection Summary			
HCM 2000 Control Delay		14.3	HCM 2000 Level of Service B
HCM 2000 Volume to Capacity ratio		0.51	
Actuated Cycle Length (s)		63.7	Sum of lost time (s) 17.5
Intersection Capacity Utilization		51.2%	ICU Level of Service A
Analysis Period (min)		15	
c Critical Lane Group			

Queues

Scenario 3 - AM Peak Hour

19: James Snow Parkway & Hwy 401 (Eastbound Ramp)

Premier Gateway



Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	397	172	693	302
v/c Ratio	0.62	0.39	0.26	0.11
Control Delay	25.1	6.5	7.8	7.1
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	25.1	6.5	7.8	7.1
Queue Length 50th (m)	21.1	0.0	13.6	5.4
Queue Length 95th (m)	33.4	13.9	24.1	10.9
Internal Link Dist (m)	305.5		1282.4	415.8
Turn Bay Length (m)				
Base Capacity (vph)	1301	714	2682	2786
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.31	0.24	0.26	0.11
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
 19: James Snow Parkway & Hwy 401 (Eastbound Ramp)

Scenario 3 - AM Peak Hour

Premier Gateway

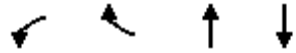


Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	370	187	0	679	296	0
Future Volume (vph)	370	187	0	679	296	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		7.4	7.4	
Lane Util. Factor	0.97	0.91		0.91	0.91	
Frt	0.99	0.85		1.00	1.00	
Flt Protected	0.95	1.00		1.00	1.00	
Satd. Flow (prot)	2812	1348		4848	5036	
Flt Permitted	0.95	1.00		1.00	1.00	
Satd. Flow (perm)	2812	1348		4848	5036	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	378	191	0	693	302	0
RTOR Reduction (vph)	6	133	0	0	0	0
Lane Group Flow (vph)	391	39	0	693	302	0
Heavy Vehicles (%)	25%	9%	0%	7%	3%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	13.8	13.8		33.7	33.7	
Effective Green, g (s)	13.8	13.8		33.7	33.7	
Actuated g/C Ratio	0.23	0.23		0.55	0.55	
Clearance Time (s)	6.0	6.0		7.4	7.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	637	305		2682	2786	
v/s Ratio Prot	c0.14			c0.14	0.06	
v/s Ratio Perm		0.03				
v/c Ratio	0.61	0.13		0.26	0.11	
Uniform Delay, d1	21.2	18.8		7.1	6.5	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.8	0.2		0.2	0.1	
Delay (s)	22.9	18.9		7.3	6.5	
Level of Service	C	B		A	A	
Approach Delay (s)	21.7			7.3	6.5	
Approach LOS	C			A	A	

Intersection Summary			
HCM 2000 Control Delay	12.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.36		
Actuated Cycle Length (s)	60.9	Sum of lost time (s)	13.4
Intersection Capacity Utilization	51.2%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues
 20: Trafalgar Road & Hwy 401 (Westbound Ramp)

Scenario 3 - AM Peak Hour
 Premier Gateway



Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	415	266	1719	2260
v/c Ratio	0.63	0.87	0.63	0.76
Control Delay	38.0	63.0	15.2	18.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	38.0	63.0	15.2	18.3
Queue Length 50th (m)	40.5	59.0	82.7	126.1
Queue Length 95th (m)	56.7	96.3	123.5	184.3
Internal Link Dist (m)	383.1		312.7	749.5
Turn Bay Length (m)				
Base Capacity (vph)	901	416	2744	2970
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.46	0.64	0.63	0.76
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
 20: Trafalgar Road & Hwy 401 (Westbound Ramp)

Scenario 3 - AM Peak Hour
 Premier Gateway



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↙↙	↗	↑↑↑			↑↑↑
Traffic Volume (vph)	144	517	1667	0	0	2192
Future Volume (vph)	144	517	1667	0	0	2192
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0			6.0
Lane Util. Factor	0.97	0.91	0.91			0.91
Frt	0.90	0.85	1.00			1.00
Flt Protected	0.98	1.00	1.00			1.00
Satd. Flow (prot)	2428	1105	4396			4759
Flt Permitted	0.98	1.00	1.00			1.00
Satd. Flow (perm)	2428	1105	4396			4759
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	148	533	1719	0	0	2260
RTOR Reduction (vph)	12	12	0	0	0	0
Lane Group Flow (vph)	403	254	1719	0	0	2260
Heavy Vehicles (%)	38%	33%	18%	0%	0%	9%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	29.1	29.1	68.4			68.4
Effective Green, g (s)	29.1	29.1	68.4			68.4
Actuated g/C Ratio	0.27	0.27	0.62			0.62
Clearance Time (s)	6.0	6.0	6.0			6.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	645	293	2745			2972
v/s Ratio Prot	0.17		0.39			c0.47
v/s Ratio Perm		c0.23				
v/c Ratio	0.62	0.87	0.63			0.76
Uniform Delay, d1	35.4	38.3	12.7			14.7
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	1.9	22.4	1.1			1.9
Delay (s)	37.3	60.7	13.8			16.6
Level of Service	D	E	B			B
Approach Delay (s)	46.4		13.8			16.6
Approach LOS	D		B			B

Intersection Summary

HCM 2000 Control Delay	19.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.79		
Actuated Cycle Length (s)	109.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	63.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Queues
 21: Trafalgar Road & Hwy 401 (Eastbound Ramp)



Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	461	208	1729	1749
v/c Ratio	0.77	0.68	0.55	0.55
Control Delay	48.7	46.2	10.0	10.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	48.7	46.2	10.0	10.0
Queue Length 50th (m)	48.8	41.3	62.5	63.5
Queue Length 95th (m)	66.7	69.5	93.8	95.3
Internal Link Dist (m)	204.3		1138.2	312.7
Turn Bay Length (m)				
Base Capacity (vph)	948	474	3159	3157
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.49	0.44	0.55	0.55
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
 21: Trafalgar Road & Hwy 401 (Eastbound Ramp)

Scenario 3 - AM Peak Hour
 Premier Gateway



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	418	237	0	1694	1684	30
Future Volume (vph)	418	237	0	1694	1684	30
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	
Lane Util. Factor	0.97	0.91		0.91	0.91	
Frt	0.99	0.85		1.00	1.00	
Flt Protected	0.96	1.00		1.00	1.00	
Satd. Flow (prot)	2885	1400		4631	4628	
Flt Permitted	0.96	1.00		1.00	1.00	
Satd. Flow (perm)	2885	1400		4631	4628	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	427	242	0	1729	1718	31
RTOR Reduction (vph)	6	19	0	0	1	0
Lane Group Flow (vph)	455	189	0	1729	1748	0
Heavy Vehicles (%)	22%	5%	0%	12%	12%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	22.0	22.0		73.1	73.1	
Effective Green, g (s)	22.0	22.0		73.1	73.1	
Actuated g/C Ratio	0.21	0.21		0.68	0.68	
Clearance Time (s)	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	592	287		3160	3158	
v/s Ratio Prot	c0.16			0.37	c0.38	
v/s Ratio Perm		0.13				
v/c Ratio	0.77	0.66		0.55	0.55	
Uniform Delay, d1	40.2	39.1		8.6	8.7	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.0	5.4		0.7	0.7	
Delay (s)	46.1	44.5		9.3	9.4	
Level of Service	D	D		A	A	
Approach Delay (s)	45.6			9.3	9.4	
Approach LOS	D			A	A	

Intersection Summary

HCM 2000 Control Delay	15.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	107.1	Sum of lost time (s)	12.0
Intersection Capacity Utilization	57.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			



Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	608	284	1605	1358
v/c Ratio	0.85	0.89	0.70	0.60
Control Delay	59.5	72.3	17.0	14.6
Queue Delay	0.0	0.0	0.6	0.0
Total Delay	59.5	72.3	17.6	14.6
Queue Length 50th (m)	80.5	75.6	151.4	113.7
Queue Length 95th (m)	103.7	#128.5	180.7	136.8
Internal Link Dist (m)	284.7		32.1	320.2
Turn Bay Length (m)				
Base Capacity (vph)	808	360	2302	2280
Starvation Cap Reductn	0	0	327	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.75	0.79	0.81	0.60

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
 22: Winston Churchill Boulevard & Hwy 401 (Westbound Ramp)

Scenario 3 - AM Peak Hour
 Premier Gateway



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔↔	↔	↕↕			↕↕
Traffic Volume (vph)	318	529	1525	0	0	1290
Future Volume (vph)	318	529	1525	0	0	1290
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	8.0			8.0
Lane Util. Factor	0.97	0.91	0.95			0.95
Frt	0.93	0.85	1.00			1.00
Flt Protected	0.97	1.00	1.00			1.00
Satd. Flow (prot)	3022	1289	3471			3438
Flt Permitted	0.97	1.00	1.00			1.00
Satd. Flow (perm)	3022	1289	3471			3438
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	335	557	1605	0	0	1358
RTOR Reduction (vph)	29	29	0	0	0	0
Lane Group Flow (vph)	579	255	1605	0	0	1358
Heavy Vehicles (%)	8%	14%	4%	0%	0%	5%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	30.7	30.7	90.1			90.1
Effective Green, g (s)	30.7	30.7	90.1			90.1
Actuated g/C Ratio	0.23	0.23	0.66			0.66
Clearance Time (s)	7.0	7.0	8.0			8.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	683	291	2302			2281
v/s Ratio Prot	0.19		c0.46			0.39
v/s Ratio Perm		c0.20				
v/c Ratio	0.85	0.87	0.70			0.60
Uniform Delay, d1	50.3	50.7	14.3			12.7
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	9.5	24.0	1.8			1.2
Delay (s)	59.8	74.7	16.1			13.9
Level of Service	E	E	B			B
Approach Delay (s)	64.6		16.1			13.9
Approach LOS	E		B			B

Intersection Summary			
HCM 2000 Control Delay		26.5	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio		0.74	
Actuated Cycle Length (s)		135.8	Sum of lost time (s) 15.0
Intersection Capacity Utilization		109.3%	ICU Level of Service H
Analysis Period (min)		15	
c Critical Lane Group			

Queues

Scenario 3 - AM Peak Hour

23: Winston Churchill Boulevard & Hwy 401 (Eastbound Ramp)

Premier Gateway



Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	745	337	1327	1356
v/c Ratio	0.83	0.81	0.43	0.44
Control Delay	51.7	53.9	14.3	14.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	51.7	53.9	14.3	14.5
Queue Length 50th (m)	94.5	81.6	63.1	65.2
Queue Length 95th (m)	117.6	122.5	92.6	95.7
Internal Link Dist (m)	152.5		433.2	198.3
Turn Bay Length (m)				
Base Capacity (vph)	1191	539	3095	3063
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.63	0.63	0.43	0.44

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 23: Winston Churchill Boulevar & Hwy 401 (Eastbound Ramp)

Scenario 3 - AM Peak Hour
 Premier Gateway



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	589	439	0	1261	1277	11
Future Volume (vph)	589	439	0	1261	1277	11
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		7.0	7.0	
Lane Util. Factor	0.97	0.91		0.91	0.91	
Frt	0.97	0.85		1.00	1.00	
Flt Protected	0.96	1.00		1.00	1.00	
Satd. Flow (prot)	3296	1427		5036	4983	
Flt Permitted	0.96	1.00		1.00	1.00	
Satd. Flow (perm)	3296	1427		5036	4983	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	620	462	0	1327	1344	12
RTOR Reduction (vph)	13	32	0	0	0	0
Lane Group Flow (vph)	732	305	0	1327	1356	0
Heavy Vehicles (%)	5%	3%	0%	3%	4%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	34.6	34.6		79.2	79.2	
Effective Green, g (s)	34.6	34.6		79.2	79.2	
Actuated g/C Ratio	0.27	0.27		0.61	0.61	
Clearance Time (s)	8.0	8.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	885	383		3096	3064	
v/s Ratio Prot	c0.22			0.26	c0.27	
v/s Ratio Perm		0.21				
v/c Ratio	0.83	0.80		0.43	0.44	
Uniform Delay, d1	44.3	43.8		13.0	13.1	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	6.4	10.9		0.4	0.5	
Delay (s)	50.7	54.7		13.4	13.6	
Level of Service	D	D		B	B	
Approach Delay (s)	51.9			13.4	13.6	
Approach LOS	D			B	B	

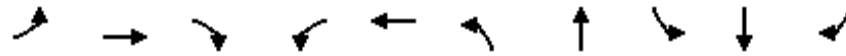
Intersection Summary			
HCM 2000 Control Delay	24.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.56		
Actuated Cycle Length (s)	128.8	Sum of lost time (s)	15.0
Intersection Capacity Utilization	98.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Queues

Scenario 3 - AM Peak Hour

24: James Snow Parkway & Main Street East

Premier Gateway



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	1018	291	548	100	123	268	792	162	163	315
v/c Ratio	0.89	0.30	0.51	0.72	0.28	0.55	0.64	0.60	0.14	0.53
Control Delay	46.0	16.7	3.0	75.8	24.4	31.5	39.8	34.3	36.1	7.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	46.0	16.7	3.0	75.8	24.4	31.5	39.8	34.3	36.1	7.8
Queue Length 50th (m)	115.7	37.4	0.0	22.9	6.4	45.9	60.8	25.9	11.5	0.0
Queue Length 95th (m)	146.3	55.4	16.1	#46.7	16.0	73.4	79.5	45.1	18.9	24.9
Internal Link Dist (m)		274.7			467.9		430.6		1282.4	
Turn Bay Length (m)	70.0		50.0	105.0		100.0		135.0		135.0
Base Capacity (vph)	1324	1121	1158	175	539	493	1247	293	1144	600
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.77	0.26	0.47	0.57	0.23	0.54	0.64	0.55	0.14	0.53

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
 24: James Snow Parkway & Main Street East

Scenario 3 - AM Peak Hour
 Premier Gateway



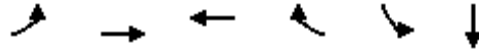
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	967	276	521	95	55	62	255	613	140	154	155	299
Future Volume (vph)	967	276	521	95	55	62	255	613	140	154	155	299
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0	6.0	6.0	6.0		4.5	6.0		4.5	6.0	6.0
Lane Util. Factor	0.97	1.00	1.00	1.00	0.95		1.00	0.91		1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.92		1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3433	1900	1583	1752	2967		1752	4944		1703	4848	1524
Flt Permitted	0.95	1.00	1.00	0.58	1.00		0.62	1.00		0.23	1.00	1.00
Satd. Flow (perm)	3433	1900	1583	1073	2967		1136	4944		404	4848	1524
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	1018	291	548	100	58	65	268	645	147	162	163	315
RTOR Reduction (vph)	0	0	272	0	57	0	0	29	0	0	0	241
Lane Group Flow (vph)	1018	291	276	100	66	0	268	763	0	162	163	74
Heavy Vehicles (%)	2%	0%	2%	3%	2%	21%	3%	2%	2%	6%	7%	6%
Turn Type	Prot	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases			4	8			2			6		6
Actuated Green, G (s)	37.0	56.0	56.0	14.5	14.5		39.7	27.4		37.3	26.2	26.2
Effective Green, g (s)	37.0	56.0	56.0	14.5	14.5		39.7	27.4		37.3	26.2	26.2
Actuated g/C Ratio	0.33	0.50	0.50	0.13	0.13		0.36	0.25		0.34	0.24	0.24
Clearance Time (s)	4.5	6.0	6.0	6.0	6.0		4.5	6.0		4.5	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	1144	958	798	140	387		474	1220		265	1144	359
v/s Ratio Prot	c0.30	0.15			0.02		c0.06	c0.15		0.06	0.03	
v/s Ratio Perm			0.17	c0.09			0.14			0.14		0.05
v/c Ratio	0.89	0.30	0.35	0.71	0.17		0.57	0.63		0.61	0.14	0.21
Uniform Delay, d1	35.1	16.1	16.5	46.3	42.9		27.1	37.2		27.5	33.5	34.1
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	8.7	0.2	0.3	15.9	0.2		1.5	2.4		4.1	0.3	1.3
Delay (s)	43.8	16.3	16.8	62.1	43.1		28.6	39.7		31.7	33.8	35.4
Level of Service	D	B	B	E	D		C	D		C	C	D
Approach Delay (s)		31.5			51.6			36.9			34.0	
Approach LOS		C			D			D			C	

Intersection Summary

HCM 2000 Control Delay	34.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.75		
Actuated Cycle Length (s)	111.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	72.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Queues
25: Street B & Steeles Avenue

Scenario 3 - AM Peak Hour
Premier Gateway



Lane Group	EBL	EBT	WBT	WBR	SBL	SBT
Lane Group Flow (vph)	269	1056	1129	411	84	125
v/c Ratio	0.67	0.41	0.82	0.64	0.31	0.19
Control Delay	22.9	8.3	30.4	11.6	32.8	0.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.9	8.3	30.4	11.6	32.8	0.7
Queue Length 50th (m)	23.5	28.7	63.2	13.6	12.3	0.0
Queue Length 95th (m)	50.9	36.5	82.9	45.2	27.0	0.0
Internal Link Dist (m)		388.7	443.0			311.5
Turn Bay Length (m)	50.0			30.0	30.0	
Base Capacity (vph)	464	3060	1633	709	273	642
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.58	0.35	0.69	0.58	0.31	0.19
Intersection Summary						

HCM Signalized Intersection Capacity Analysis

25: Street B & Steeles Avenue

Scenario 3 - AM Peak Hour
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗	↘	↑↑↑	↗	↘	↑	↗	↘	↗	↘
Traffic Volume (vph)	258	1014	0	0	1084	395	0	0	0	81	0	120
Future Volume (vph)	258	1014	0	0	1084	395	0	0	0	81	0	120
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0			6.0	6.0				6.0	6.0	
Lane Util. Factor	1.00	0.91			0.91	1.00				1.00	1.00	
Frt	1.00	1.00			1.00	0.85				1.00	0.85	
Flt Protected	0.95	1.00			1.00	1.00				0.95	1.00	
Satd. Flow (prot)	1456	4183			3990	1302				1456	1302	
Flt Permitted	0.13	1.00			1.00	1.00				0.76	1.00	
Satd. Flow (perm)	206	4183			3990	1302				1160	1302	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	269	1056	0	0	1129	411	0	0	0	84	0	125
RTOR Reduction (vph)	0	0	0	0	0	195	0	0	0	0	95	0
Lane Group Flow (vph)	269	1056	0	0	1129	216	0	0	0	84	30	0
Heavy Vehicles (%)	24%	24%	10%	10%	30%	24%	10%	10%	10%	24%	10%	24%
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm		Perm	Perm	NA	
Protected Phases	7	4			8			2			6	
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)	50.3	50.3			28.3	28.3				19.3	19.3	
Effective Green, g (s)	50.3	50.3			28.3	28.3				19.3	19.3	
Actuated g/C Ratio	0.62	0.62			0.35	0.35				0.24	0.24	
Clearance Time (s)	4.5	6.0			6.0	6.0				6.0	6.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0				3.0	3.0	
Lane Grp Cap (vph)	395	2578			1383	451				274	307	
v/s Ratio Prot	c0.15	0.25			c0.28						0.02	
v/s Ratio Perm	0.27					0.17				c0.07		
v/c Ratio	0.68	0.41			0.82	0.48				0.31	0.10	
Uniform Delay, d1	14.8	8.0			24.3	20.9				25.6	24.3	
Progression Factor	1.00	1.00			1.00	1.00				1.00	1.00	
Incremental Delay, d2	4.8	0.1			3.8	0.8				2.9	0.6	
Delay (s)	19.6	8.1			28.1	21.7				28.5	25.0	
Level of Service	B	A			C	C				C	C	
Approach Delay (s)		10.5			26.4			0.0			26.4	
Approach LOS		B			C			A			C	

Intersection Summary

HCM 2000 Control Delay	19.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	81.6	Sum of lost time (s)	16.5
Intersection Capacity Utilization	56.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
 26: Hornby Road & Street A

Scenario 3 - AM Peak Hour
 Premier Gateway



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Right Turn Channelized						
Traffic Volume (veh/h)	27	0	0	138	109	192
Future Volume (veh/h)	27	0	0	138	109	192
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	28	0	0	144	114	200
Approach Volume (veh/h)	28			144	314	
Crossing Volume (veh/h)	114			28	0	
High Capacity (veh/h)	1267			1355	1385	
High v/c (veh/h)	0.02			0.11	0.23	
Low Capacity (veh/h)	1054			1134	1161	
Low v/c (veh/h)	0.03			0.13	0.27	
Intersection Summary						
Maximum v/c High			0.23			
Maximum v/c Low			0.27			
Intersection Capacity Utilization			27.5%		ICU Level of Service	A

Queues
27: Trafalgar Road & Street B

Scenario 3 - AM Peak Hour

Premier Gateway



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	31	185	72	194	376	239	311	163	1476	153
v/c Ratio	0.17	0.55	0.38	0.60	0.87	0.11	0.39	0.35	0.87	0.28
Control Delay	32.4	32.7	38.1	38.9	41.9	11.2	2.9	10.2	33.6	5.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.4	32.7	38.1	38.9	41.9	11.2	2.9	10.2	33.6	5.8
Queue Length 50th (m)	4.7	24.4	11.5	30.7	47.3	7.5	0.0	9.3	91.2	1.0
Queue Length 95th (m)	12.9	47.0	25.2	54.2	#95.1	11.7	12.2	16.4	#113.6	14.0
Internal Link Dist (m)		260.1		649.3		221.2			63.9	
Turn Bay Length (m)	50.0		50.0		50.0		50.0	50.0		50.0
Base Capacity (vph)	184	334	188	325	485	2421	861	475	1768	567
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	0.17	0.55	0.38	0.60	0.78	0.10	0.36	0.34	0.83	0.27

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
27: Trafalgar Road & Street B

Scenario 3 - AM Peak Hour
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	30	103	75	69	155	32	361	229	299	156	1417	147
Future Volume (vph)	30	103	75	69	155	32	361	229	299	156	1417	147
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0		4.5	6.0	6.0	4.5	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.94		1.00	0.97		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)	1467	1435		1444	1491		1456	4359	1302	1456	4848	1302
Flt Permitted	0.56	1.00		0.58	1.00		0.12	1.00	1.00	0.60	1.00	1.00
Satd. Flow (perm)	868	1435		883	1491		179	4359	1302	915	4848	1302
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	31	107	78	72	161	33	376	239	311	162	1476	153
RTOR Reduction (vph)	0	28	0	0	8	0	0	0	155	0	0	94
Lane Group Flow (vph)	31	157	0	72	186	0	376	239	156	163	1476	59
Heavy Vehicles (%)	23%	24%	24%	25%	24%	25%	24%	19%	24%	24%	7%	24%
Turn Type	Perm	NA		Perm	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases		2			6		3	8		7	4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	18.2	18.2		18.2	18.2		55.2	42.8	42.8	37.7	29.8	29.8
Effective Green, g (s)	18.2	18.2		18.2	18.2		55.2	42.8	42.8	37.7	29.8	29.8
Actuated g/C Ratio	0.21	0.21		0.21	0.21		0.65	0.50	0.50	0.44	0.35	0.35
Clearance Time (s)	6.0	6.0		6.0	6.0		4.5	6.0	6.0	4.5	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	184	305		188	317		428	2184	652	453	1691	454
v/s Ratio Prot		0.11			c0.12		c0.21	0.05		0.03	0.30	
v/s Ratio Perm	0.04			0.08			c0.35		0.12	0.13		0.04
v/c Ratio	0.17	0.51		0.38	0.59		0.88	0.11	0.24	0.36	0.87	0.13
Uniform Delay, d1	27.4	29.7		28.8	30.2		22.2	11.2	12.1	15.0	26.0	19.0
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.0	6.1		5.8	7.8		18.1	0.0	0.2	0.5	5.3	0.1
Delay (s)	29.4	35.8		34.6	38.0		40.3	11.3	12.3	15.5	31.3	19.1
Level of Service	C	D		C	D		D	B	B	B	C	B
Approach Delay (s)		34.8			37.1			23.4			28.8	
Approach LOS		C			D			C			C	

Intersection Summary

HCM 2000 Control Delay	28.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	85.4	Sum of lost time (s)	16.5
Intersection Capacity Utilization	80.4%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
28: Eighth Line & Street B

Scenario 3 - AM Peak Hour
Premier Gateway



Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations							
Traffic Volume (veh/h)	29	11	108	144	781	140	
Future Volume (Veh/h)	29	11	108	144	781	140	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	
Hourly flow rate (vph)	30	11	113	150	814	146	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				None	None		
Median storage veh							
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume	1188	480	960				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1188	480	960				
tC, single (s)	7.3	7.4	4.6				
tC, 2 stage (s)							
tF (s)	3.7	3.6	2.4				
p0 queue free %	76	98	81				
cM capacity (veh/h)	123	470	592				
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	30	11	113	75	75	543	417
Volume Left	30	0	113	0	0	0	0
Volume Right	0	11	0	0	0	0	146
cSH	123	470	592	1700	1700	1700	1700
Volume to Capacity	0.24	0.02	0.19	0.04	0.04	0.32	0.25
Queue Length 95th (m)	7.2	0.6	5.6	0.0	0.0	0.0	0.0
Control Delay (s)	43.6	12.8	12.5	0.0	0.0	0.0	0.0
Lane LOS	E	B	B				
Approach Delay (s)	35.3		5.4		0.0		
Approach LOS	E						
Intersection Summary							
Average Delay			2.3				
Intersection Capacity Utilization			45.4%		ICU Level of Service		A
Analysis Period (min)			15				

HCM Unsignalized Intersection Capacity Analysis
1: Fifth Line & 5 Side Road

Scenario 3 - PM Peak Hour
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	44	296	5	24	777	31	8	49	27	1	33	15
Future Volume (Veh/h)	44	296	5	24	777	31	8	49	27	1	33	15
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	46	308	5	25	809	32	8	51	28	1	34	16
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	841			313			1310	1294	310	1331	1280	825
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	841			313			1310	1294	310	1331	1280	825
tC, single (s)	4.1			4.1			7.2	6.5	6.2	7.1	6.5	6.4
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.6	4.0	3.3	3.5	4.0	3.5
p0 queue free %	94			98			92	66	96	99	78	95
cM capacity (veh/h)	803			1259			96	152	725	89	155	346
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	359	866	87	51								
Volume Left	46	25	8	1								
Volume Right	5	32	28	16								
cSH	803	1259	190	184								
Volume to Capacity	0.06	0.02	0.46	0.28								
Queue Length 95th (m)	1.5	0.5	17.3	8.7								
Control Delay (s)	1.8	0.5	39.0	31.9								
Lane LOS	A	A	E	D								
Approach Delay (s)	1.8	0.5	39.0	31.9								
Approach LOS			E	D								
Intersection Summary												
Average Delay			4.5									
Intersection Capacity Utilization			62.3%		ICU Level of Service				B			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

2: Sixth Line & 5 Side Road

Scenario 3 - PM Peak Hour
Premier Gateway

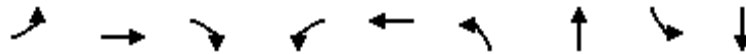


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (veh/h)	4	314	3	21	843	27	9	33	18	8	17	8
Future Volume (Veh/h)	4	314	3	21	843	27	9	33	18	8	17	8
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	4	327	3	22	878	28	9	34	19	8	18	8
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	906			330			1290	1286	328	1308	1274	892
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	906			330			1290	1286	328	1308	1274	892
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.3
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.4
p0 queue free %	99			98			93	79	97	93	89	98
cM capacity (veh/h)	759			1241			125	162	718	110	165	325
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	334	928	62	34								
Volume Left	4	22	9	8								
Volume Right	3	28	19	8								
cSH	759	1241	201	165								
Volume to Capacity	0.01	0.02	0.31	0.21								
Queue Length 95th (m)	0.1	0.4	10.0	6.0								
Control Delay (s)	0.2	0.5	30.7	32.4								
Lane LOS	A	A	D	D								
Approach Delay (s)	0.2	0.5	30.7	32.4								
Approach LOS			D	D								
Intersection Summary												
Average Delay			2.6									
Intersection Capacity Utilization			69.0%		ICU Level of Service				C			
Analysis Period (min)			15									

Queues
3: Trafalgar Rd & 5 Side Road

Scenario 3 - PM Peak Hour

Premier Gateway



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	61	189	98	68	643	309	1390	9	657
v/c Ratio	0.73	0.27	0.16	0.15	0.90	0.79	0.63	0.04	0.42
Control Delay	73.3	19.2	4.5	18.1	42.4	32.1	20.5	12.1	23.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	73.3	19.2	4.5	18.1	42.4	32.1	20.5	12.1	23.9
Queue Length 50th (m)	8.7	21.7	0.0	7.4	100.0	32.4	62.8	0.8	32.9
Queue Length 95th (m)	#31.8	37.2	9.3	16.4	#164.9	#68.8	98.8	3.2	43.8
Internal Link Dist (m)		593.5			641.2		240.1		238.0
Turn Bay Length (m)	40.0		40.0	40.0		40.0		50.0	
Base Capacity (vph)	88	751	656	473	761	391	2200	221	1555
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.69	0.25	0.15	0.14	0.84	0.79	0.63	0.04	0.42

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

3: Trafalgar Rd & 5 Side Road

Scenario 3 - PM Peak Hour

Premier Gateway

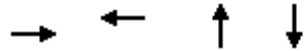


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	60	185	96	67	585	45	303	1233	129	9	636	8
Future Volume (vph)	60	185	96	67	585	45	303	1233	129	9	636	8
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.4	6.4	6.4	6.4	6.4		4.0	6.0		4.0	6.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00		1.00	0.91		1.00	0.91	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.99		1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1671	1863	1482	1752	1880		1671	4870		1626	4853	
Flt Permitted	0.13	1.00	1.00	0.64	1.00		0.31	1.00		0.15	1.00	
Satd. Flow (perm)	221	1863	1482	1173	1880		550	4870		250	4853	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	61	189	98	68	597	46	309	1258	132	9	649	8
RTOR Reduction (vph)	0	0	62	0	3	0	0	12	0	0	1	0
Lane Group Flow (vph)	61	189	36	68	640	0	309	1378	0	9	656	0
Heavy Vehicles (%)	8%	2%	9%	3%	0%	0%	8%	5%	5%	11%	6%	63%
Turn Type	Perm	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)	31.9	31.9	31.9	31.9	31.9		43.3	37.9		31.7	30.3	
Effective Green, g (s)	31.9	31.9	31.9	31.9	31.9		43.3	37.9		31.7	30.3	
Actuated g/C Ratio	0.36	0.36	0.36	0.36	0.36		0.49	0.43		0.36	0.35	
Clearance Time (s)	6.4	6.4	6.4	6.4	6.4		4.0	6.0		4.0	6.0	
Vehicle Extension (s)	5.0	5.0	5.0	5.0	5.0		3.0	5.0		3.0	5.0	
Lane Grp Cap (vph)	80	678	539	427	684		387	2106		112	1678	
v/s Ratio Prot		0.10			c0.34		c0.08	0.28		0.00	0.14	
v/s Ratio Perm	0.28		0.02	0.06			c0.31			0.03		
v/c Ratio	0.76	0.28	0.07	0.16	0.94		0.80	0.65		0.08	0.39	
Uniform Delay, d1	24.5	19.7	18.1	18.8	26.9		15.0	19.7		18.1	21.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	39.1	0.5	0.1	0.4	20.7		10.9	1.6		0.3	0.7	
Delay (s)	63.6	20.2	18.3	19.2	47.6		25.9	21.3		18.5	22.4	
Level of Service	E	C	B	B	D		C	C		B	C	
Approach Delay (s)		27.3			44.8			22.1			22.3	
Approach LOS		C			D			C			C	

Intersection Summary

HCM 2000 Control Delay	27.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	87.6	Sum of lost time (s)	16.4
Intersection Capacity Utilization	102.6%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

4: Eighth Line & 5 Side Road



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	369	809	753	268
v/c Ratio	0.47	0.87	0.75	0.29
Control Delay	10.2	23.3	22.2	13.3
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	10.2	23.3	22.2	13.3
Queue Length 50th (m)	22.0	69.2	38.3	9.8
Queue Length 95th (m)	40.4	#141.2	57.0	18.1
Internal Link Dist (m)	619.4	644.7	2565.8	430.5
Turn Bay Length (m)				
Base Capacity (vph)	952	1141	1190	1106
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.39	0.71	0.63	0.24

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis

4: Eighth Line & 5 Side Road

Scenario 3 - PM Peak Hour
Premier Gateway

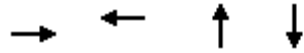


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	60	249	45	41	645	90	5	598	120	23	185	49
Future Volume (vph)	60	249	45	41	645	90	5	598	120	23	185	49
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		4.5			4.5			4.5			4.5	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frt		0.98			0.98			0.98			0.97	
Flt Protected		0.99			1.00			1.00			1.00	
Satd. Flow (prot)		1770			1836			3363			3405	
Flt Permitted		0.83			0.97			0.95			0.87	
Satd. Flow (perm)		1481			1781			3205			2961	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	62	259	47	43	672	94	5	623	125	24	193	51
RTOR Reduction (vph)	0	9	0	0	8	0	0	28	0	0	34	0
Lane Group Flow (vph)	0	360	0	0	801	0	0	725	0	0	234	0
Heavy Vehicles (%)	5%	5%	2%	12%	1%	1%	0%	4%	8%	0%	3%	2%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		27.6			27.6			16.0			16.0	
Effective Green, g (s)		27.6			27.6			16.0			16.0	
Actuated g/C Ratio		0.52			0.52			0.30			0.30	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		777			934			974			900	
v/s Ratio Prot												
v/s Ratio Perm		0.24			0.45			0.23			0.08	
v/c Ratio		0.46			0.86			0.74			0.26	
Uniform Delay, d1		7.8			10.8			16.5			13.8	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.4			7.9			3.1			0.2	
Delay (s)		8.3			18.7			19.6			14.0	
Level of Service		A			B			B			B	
Approach Delay (s)		8.3			18.7			19.6			14.0	
Approach LOS		A			B			B			B	

Intersection Summary

HCM 2000 Control Delay	16.7	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	52.6	Sum of lost time (s)	9.0
Intersection Capacity Utilization	77.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Queues
5: Ninth Line & 5 Side Road



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	472	1068	1050	484
v/c Ratio	0.60	1.05	0.97	0.67
Control Delay	18.4	65.2	56.5	34.4
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	18.4	65.2	56.5	34.4
Queue Length 50th (m)	59.8	~237.6	110.6	44.0
Queue Length 95th (m)	92.4	#317.7	#156.6	62.8
Internal Link Dist (m)	556.9	434.3	3096.2	305.9
Turn Bay Length (m)				
Base Capacity (vph)	791	1018	1077	721
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.60	1.05	0.97	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.

HCM Signalized Intersection Capacity Analysis

5: Ninth Line & 5 Side Road

Scenario 3 - PM Peak Hour
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	56	387	6	8	721	286	22	963	12	35	392	32
Future Volume (vph)	56	387	6	8	721	286	22	963	12	35	392	32
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0			6.0			6.0	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frt		1.00			0.96			1.00			0.99	
Flt Protected		0.99			1.00			1.00			1.00	
Satd. Flow (prot)		1818			1814			3599			3528	
Flt Permitted		0.77			1.00			0.93			0.63	
Satd. Flow (perm)		1413			1808			3366			2239	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	59	407	6	8	759	301	23	1014	13	37	413	34
RTOR Reduction (vph)	0	0	0	0	6	0	0	1	0	0	5	0
Lane Group Flow (vph)	0	472	0	0	1062	0	0	1049	0	0	479	0
Heavy Vehicles (%)	2%	4%	0%	0%	1%	0%	0%	0%	0%	0%	1%	0%
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		56.0			56.0			32.0			32.0	
Effective Green, g (s)		56.0			56.0			32.0			32.0	
Actuated g/C Ratio		0.56			0.56			0.32			0.32	
Clearance Time (s)		6.0			6.0			6.0			6.0	
Vehicle Extension (s)		3.5			3.5			5.5			5.5	
Lane Grp Cap (vph)		791			1012			1077			716	
v/s Ratio Prot												
v/s Ratio Perm		0.33			0.59			0.31			0.21	
v/c Ratio		0.60			1.05			0.97			0.67	
Uniform Delay, d1		14.5			22.0			33.6			29.4	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		1.3			42.1			21.9			4.9	
Delay (s)		15.8			64.1			55.5			34.3	
Level of Service		B			E			E			C	
Approach Delay (s)		15.8			64.1			55.5			34.3	
Approach LOS		B			E			E			C	

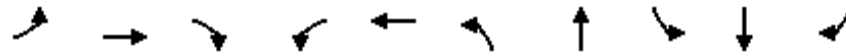
Intersection Summary

HCM 2000 Control Delay	49.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	1.02		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	112.6%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Queues
6: Brownridge Road/Fifth Line & Steeles Avenue

Scenario 3 - PM Peak Hour

Premier Gateway



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	63	1421	4	3	1618	57	56	86	4	135
v/c Ratio	0.39	0.47	0.00	0.02	0.51	0.25	0.20	0.43	0.02	0.40
Control Delay	16.4	6.8	0.0	5.3	6.9	25.2	11.6	30.2	21.2	13.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	16.4	6.8	0.0	5.3	6.9	25.2	11.6	30.2	21.2	13.4
Queue Length 50th (m)	3.4	30.4	0.0	0.1	34.8	5.8	1.1	9.1	0.4	4.4
Queue Length 95th (m)	#17.9	40.5	0.0	1.0	46.1	15.1	9.5	21.3	2.6	17.9
Internal Link Dist (m)		462.3			679.6		261.2		67.4	
Turn Bay Length (m)	145.0		65.0	30.0		20.0		25.0		25.0
Base Capacity (vph)	160	3041	896	167	3143	224	280	199	254	338
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	0.39	0.47	0.00	0.02	0.51	0.25	0.20	0.43	0.02	0.40

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
6: Brownridge Road/Fifth Line & Steeles Avenue

Scenario 3 - PM Peak Hour
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗	↘	↑↑↑		↘	↗		↘	↑	↗
Traffic Volume (vph)	60	1364	4	3	1388	165	55	9	45	83	4	130
Future Volume (vph)	60	1364	4	3	1388	165	55	9	45	83	4	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.87		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1687	4472	1292	1357	4593		1687	1453		1570	1520	1568
Flt Permitted	0.13	1.00	1.00	0.17	1.00		0.76	1.00		0.72	1.00	1.00
Satd. Flow (perm)	236	4472	1292	246	4593		1341	1453		1190	1520	1568
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	62	1421	4	3	1446	172	57	9	47	86	4	135
RTOR Reduction (vph)	0	0	1	0	22	0	0	39	0	0	0	79
Lane Group Flow (vph)	63	1421	3	3	1596	0	57	17	0	86	4	56
Heavy Vehicles (%)	7%	16%	25%	33%	9%	29%	7%	0%	17%	15%	25%	3%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2				6
Permitted Phases	4		4	8			2			6		6
Actuated Green, G (s)	39.0	39.0	39.0	39.0	39.0		8.0	8.0		8.0	8.0	8.0
Effective Green, g (s)	39.0	39.0	39.0	39.0	39.0		8.0	8.0		8.0	8.0	8.0
Actuated g/C Ratio	0.64	0.64	0.64	0.64	0.64		0.13	0.13		0.13	0.13	0.13
Clearance Time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	150	2859	826	157	2936		175	190		156	199	205
v/s Ratio Prot		0.32			c0.35			0.01				0.00
v/s Ratio Perm	0.27		0.00	0.01			0.04			c0.07		0.04
v/c Ratio	0.42	0.50	0.00	0.02	0.54		0.33	0.09		0.55	0.02	0.27
Uniform Delay, d1	5.4	5.8	4.0	4.0	6.1		24.1	23.3		24.8	23.1	23.9
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	8.4	0.6	0.0	0.2	0.7		1.1	0.2		4.2	0.0	0.7
Delay (s)	13.8	6.4	4.0	4.2	6.8		25.1	23.5		29.0	23.1	24.6
Level of Service	B	A	A	A	A		C	C		C	C	C
Approach Delay (s)		6.7			6.8			24.3				26.3
Approach LOS		A			A			C				C

Intersection Summary

HCM 2000 Control Delay	8.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	61.0	Sum of lost time (s)	14.0
Intersection Capacity Utilization	72.8%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Queues
7: Fifth Line South & Steeles Avenue

Scenario 3 - PM Peak Hour
Premier Gateway

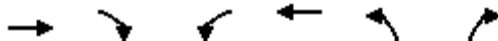


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1587	1	3	1636	19	13
v/c Ratio	0.41	0.00	0.01	0.40	0.07	0.05
Control Delay	3.6	3.0	4.0	3.5	25.5	14.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	3.6	3.0	4.0	3.5	25.5	14.4
Queue Length 50th (m)	0.0	0.0	0.0	0.0	1.8	0.0
Queue Length 95th (m)	46.7	0.5	1.0	47.0	7.6	4.3
Internal Link Dist (m)	679.6			455.7	532.9	
Turn Bay Length (m)		30.0	60.0		15.0	
Base Capacity (vph)	3858	1393	241	4068	331	289
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.41	0.00	0.01	0.40	0.06	0.04

Intersection Summary

HCM Signalized Intersection Capacity Analysis
7: Fifth Line South & Steeles Avenue

Scenario 3 - PM Peak Hour
Premier Gateway



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗	↖	↑↑↑	↖	↗
Traffic Volume (vph)	1492	1	3	1538	18	12
Future Volume (vph)	1492	1	3	1538	18	12
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0	8.0	6.0	6.0
Lane Util. Factor	0.91	1.00	1.00	0.91	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	4472	1615	1805	4715	1703	1429
Flt Permitted	1.00	1.00	0.15	1.00	0.95	1.00
Satd. Flow (perm)	4472	1615	279	4715	1703	1429
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	1587	1	3	1636	19	13
RTOR Reduction (vph)	0	0	0	0	0	12
Lane Group Flow (vph)	1587	1	3	1636	19	1
Heavy Vehicles (%)	16%	0%	0%	10%	6%	13%
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	4			8		
Permitted Phases		4	8		2	2
Actuated Green, G (s)	48.5	48.5	48.5	48.5	3.6	3.6
Effective Green, g (s)	48.5	48.5	48.5	48.5	3.6	3.6
Actuated g/C Ratio	0.73	0.73	0.73	0.73	0.05	0.05
Clearance Time (s)	8.0	8.0	8.0	8.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	3281	1184	204	3459	92	77
v/s Ratio Prot	c0.35			0.35		
v/s Ratio Perm		0.00	0.01		c0.01	0.00
v/c Ratio	0.48	0.00	0.01	0.47	0.21	0.01
Uniform Delay, d1	3.6	2.3	2.4	3.6	29.9	29.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	0.0	0.1	0.5	1.1	0.0
Delay (s)	4.1	2.3	2.5	4.1	31.0	29.6
Level of Service	A	A	A	A	C	C
Approach Delay (s)	4.1			4.1	30.4	
Approach LOS	A			A	C	

Intersection Summary

HCM 2000 Control Delay	4.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	66.1	Sum of lost time (s)	14.0
Intersection Capacity Utilization	55.0%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Queues

Scenario 3 - PM Peak Hour

8: Steeles Avenue & Sixth Line

Premier Gateway



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	60	1167	350	500	1437	24	150	400	100	6	293
v/c Ratio	0.45	0.81	0.51	0.89	0.56	0.03	0.61	0.34	0.22	0.03	0.25
Control Delay	30.3	24.2	8.3	45.3	9.8	1.0	30.0	17.9	5.0	15.5	15.9
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	30.3	24.2	8.3	45.3	9.8	1.0	30.0	17.9	5.0	15.5	15.9
Queue Length 50th (m)	4.8	39.9	7.2	26.7	31.6	0.0	14.0	12.7	0.0	0.5	8.4
Queue Length 95th (m)	#20.3	#71.9	28.4	#57.7	53.3	1.2	29.8	19.5	8.1	2.7	14.0
Internal Link Dist (m)		455.7			881.3			568.4			177.4
Turn Bay Length (m)	60.0		30.0	60.0		30.0	30.0		30.0	30.0	
Base Capacity (vph)	134	1433	689	564	2584	876	346	1672	594	317	1655
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	0.45	0.81	0.51	0.89	0.56	0.03	0.43	0.24	0.17	0.02	0.18

Intersection Summary

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
8: Steeles Avenue & Sixth Line

Scenario 3 - PM Peak Hour
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗	↘↗	↑↑↑	↗	↘	↑↑↑	↗	↘	↑↑↑	↘
Traffic Volume (vph)	56	1097	350	500	1351	23	150	400	100	6	250	40
Future Volume (vph)	56	1097	350	500	1351	23	150	400	100	6	250	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	3.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	1.00
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)	1770	4359	1583	3433	4715	1553	1770	5085	1583	1805	4988	4988
Flt Permitted	0.22	1.00	1.00	0.95	1.00	1.00	0.57	1.00	1.00	0.51	1.00	1.00
Satd. Flow (perm)	409	4359	1583	3433	4715	1553	1053	5085	1583	965	4988	4988
Peak-hour factor, PHF	0.94	0.94	1.00	1.00	0.94	0.94	1.00	1.00	1.00	0.94	1.00	0.94
Adj. Flow (vph)	60	1167	350	500	1437	24	150	400	100	6	250	43
RTOR Reduction (vph)	0	0	168	0	0	11	0	0	77	0	17	0
Lane Group Flow (vph)	60	1167	182	500	1437	13	150	400	23	6	276	0
Heavy Vehicles (%)	2%	19%	2%	2%	10%	4%	2%	2%	2%	0%	2%	0%
Turn Type	Perm	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	NA
Protected Phases		2		1	6			8				4
Permitted Phases	2		2			6	8		8	4		
Actuated Green, G (s)	18.2	18.2	18.2	9.0	30.2	30.2	12.8	12.8	12.8	12.8	12.8	12.8
Effective Green, g (s)	18.2	18.2	18.2	9.0	30.2	30.2	12.8	12.8	12.8	12.8	12.8	12.8
Actuated g/C Ratio	0.33	0.33	0.33	0.16	0.55	0.55	0.23	0.23	0.23	0.23	0.23	0.23
Clearance Time (s)	6.0	6.0	6.0	3.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	135	1442	523	561	2588	852	245	1183	368	224	1160	1160
v/s Ratio Prot		c0.27		c0.15	0.30			0.08			0.06	
v/s Ratio Perm	0.15		0.11			0.01	c0.14		0.01	0.01		
v/c Ratio	0.44	0.81	0.35	0.89	0.56	0.02	0.61	0.34	0.06	0.03	0.24	0.24
Uniform Delay, d1	14.4	16.8	13.9	22.5	8.0	5.6	18.9	17.6	16.4	16.3	17.1	17.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	10.2	5.0	1.8	16.3	0.9	0.0	4.5	0.2	0.1	0.0	0.1	0.1
Delay (s)	24.7	21.8	15.7	38.8	8.9	5.7	23.4	17.7	16.5	16.3	17.2	17.2
Level of Service	C	C	B	D	A	A	C	B	B	B	B	B
Approach Delay (s)		20.6			16.5			18.8			17.2	
Approach LOS		C			B			B			B	

Intersection Summary		
HCM 2000 Control Delay	18.3	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.76	B
Actuated Cycle Length (s)	55.0	Sum of lost time (s)
Intersection Capacity Utilization	67.8%	15.0
Analysis Period (min)	15	ICU Level of Service
c Critical Lane Group		C

Queues
9: Sixth Line South/Street A & Steeles Avenue

Scenario 3 - PM Peak Hour
Premier Gateway



Lane Group	EBL	EBT	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	55	1212	1680	155	9	3	485	283
v/c Ratio	0.37	0.57	0.87	0.24	0.05	0.01	0.78	0.41
Control Delay	24.3	28.1	46.6	12.9	66.9	0.0	45.4	23.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	24.3	28.1	46.6	12.9	66.9	0.0	45.4	23.9
Queue Length 50th (m)	8.5	93.7	175.1	13.1	2.6	0.0	122.3	42.8
Queue Length 95th (m)	14.5	95.2	184.4	27.7	9.2	0.0	#207.3	76.7
Internal Link Dist (m)		881.3	473.0			145.8		481.0
Turn Bay Length (m)	50.0			30.0	30.0		70.0	
Base Capacity (vph)	148	2165	1978	666	218	432	637	728
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.37	0.56	0.85	0.23	0.04	0.01	0.76	0.39

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
9: Sixth Line South/Street A & Steeles Avenue

Scenario 3 - PM Peak Hour
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑↑↑	↗	↖	↑↑↑	↗	↖	↗		↖	↗	
Traffic Volume (vph)	52	1151	0	0	1596	147	9	0	3	461	0	269
Future Volume (vph)	52	1151	0	0	1596	147	9	0	3	461	0	269
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0			6.0	6.0	6.0	6.0		4.5	6.0	
Lane Util. Factor	1.00	0.91			0.91	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00			1.00	0.85	1.00	0.85		1.00	0.85	
Flt Protected	0.95	1.00			1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1641	4359			4715	1468	1805	1615		1641	1468	
Flt Permitted	0.06	1.00			1.00	1.00	0.59	1.00		0.63	1.00	
Satd. Flow (perm)	105	4359			4715	1468	1114	1615		1089	1468	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	55	1212	0	0	1680	155	9	0	3	485	0	283
RTOR Reduction (vph)	0	0	0	0	0	52	0	3	0	0	49	0
Lane Group Flow (vph)	55	1212	0	0	1680	103	9	0	0	485	234	0
Heavy Vehicles (%)	10%	19%	0%	0%	10%	10%	0%	0%	0%	10%	0%	10%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases	7	4		3	8			2		1	6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	73.8	73.8			61.2	61.2	22.6	22.6		64.2	64.2	
Effective Green, g (s)	73.8	73.8			61.2	61.2	22.6	22.6		64.2	64.2	
Actuated g/C Ratio	0.49	0.49			0.41	0.41	0.15	0.15		0.43	0.43	
Clearance Time (s)	4.5	6.0			6.0	6.0	6.0	6.0		4.5	6.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	134	2144			1923	598	167	243		602	628	
v/s Ratio Prot	0.02	c0.28			c0.36			0.00		c0.20	0.16	
v/s Ratio Perm	0.18					0.07	0.01			c0.15		
v/c Ratio	0.41	0.57			0.87	0.17	0.05	0.00		0.81	0.37	
Uniform Delay, d1	28.0	26.8			40.8	28.3	54.5	54.1		34.9	29.2	
Progression Factor	1.00	1.00			1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.0	0.3			4.7	0.1	0.6	0.0		7.7	0.4	
Delay (s)	30.0	27.2			45.6	28.4	55.2	54.1		42.7	29.6	
Level of Service	C	C			D	C	E	D		D	C	
Approach Delay (s)		27.3			44.1			54.9			37.8	
Approach LOS		C			D			D			D	

Intersection Summary

HCM 2000 Control Delay	37.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	150.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	81.0%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
 10: Steeles Avenue & Hornby Road

Scenario 3 - PM Peak Hour
 Premier Gateway



Movement	EBL	EBT	WBT	WBR	SBL	SBR				
Lane Configurations	↗	↑↑↑	↑↑↑	↖	↘	↖				
Traffic Volume (veh/h)	139	1476	1590	18	9	153				
Future Volume (Veh/h)	139	1476	1590	18	9	153				
Sign Control		Free	Free		Stop					
Grade		0%	0%		0%					
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96				
Hourly flow rate (vph)	145	1538	1656	19	9	159				
Pedestrians										
Lane Width (m)										
Walking Speed (m/s)										
Percent Blockage										
Right turn flare (veh)										
Median type		None	None							
Median storage (veh)										
Upstream signal (m)										
pX, platoon unblocked										
vC, conflicting volume	1675				2459	552				
vC1, stage 1 conf vol										
vC2, stage 2 conf vol										
vCu, unblocked vol	1675				2459	552				
tC, single (s)	4.3				7.2	7.1				
tC, 2 stage (s)										
tF (s)	2.3				3.7	3.4				
p0 queue free %	58				21	65				
cM capacity (veh/h)	345				11	457				
Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	SB 1	SB 2
Volume Total	145	513	513	513	552	552	552	19	9	159
Volume Left	145	0	0	0	0	0	0	0	9	0
Volume Right	0	0	0	0	0	0	0	19	0	159
cSH	345	1700	1700	1700	1700	1700	1700	1700	11	457
Volume to Capacity	0.42	0.30	0.30	0.30	0.32	0.32	0.32	0.01	0.79	0.35
Queue Length 95th (m)	16.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	13.6	12.3
Control Delay (s)	22.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	616.5	17.0
Lane LOS	C								F	C
Approach Delay (s)	2.0				0.0				49.1	
Approach LOS									E	
Intersection Summary										
Average Delay			3.3							
Intersection Capacity Utilization			51.8%		ICU Level of Service				A	
Analysis Period (min)			15							

HCM Unsignalized Intersection Capacity Analysis
 11: Trafalgar Rd & Hornby Rd

Scenario 3 - PM Peak Hour
 Premier Gateway



Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations							
Traffic Volume (veh/h)	278	8	4	1166	494	267	
Future Volume (Veh/h)	278	8	4	1166	494	267	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.98	0.98	0.98	0.98	0.98	0.98	
Hourly flow rate (vph)	284	8	4	1190	504	272	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				None	None		
Median storage veh							
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume	1045	304	504				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1045	304	504				
tC, single (s)	7.0	7.1	4.3				
tC, 2 stage (s)							
tF (s)	3.6	3.4	2.3				
p0 queue free %	0	99	100				
cM capacity (veh/h)	214	669	1003				
Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	292	242	476	476	202	202	373
Volume Left	284	4	0	0	0	0	0
Volume Right	8	0	0	0	0	0	272
cSH	218	1003	1700	1700	1700	1700	1700
Volume to Capacity	1.34	0.00	0.28	0.28	0.12	0.12	0.22
Queue Length 95th (m)	128.7	0.1	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	224.2	0.2	0.0	0.0	0.0	0.0	0.0
Lane LOS	F	A					
Approach Delay (s)	224.2	0.0			0.0		
Approach LOS	F						
Intersection Summary							
Average Delay	29.0						
Intersection Capacity Utilization	47.8%			ICU Level of Service		A	
Analysis Period (min)	15						

Queues
12: Trafalgar Road & Steeles Avenue

Scenario 3 - PM Peak Hour
Premier Gateway



































Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	74	730	1011	1001	1030	205	460	807	906	117	1060
v/c Ratio	0.29	0.43	1.54	1.76	0.43	0.23	1.54	0.70	1.17	0.67	1.20
Control Delay	17.4	34.5	278.2	384.4	23.5	3.0	299.7	54.5	123.0	55.9	150.2
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	17.4	34.5	278.2	384.4	23.5	3.0	299.7	54.5	123.0	55.9	150.2
Queue Length 50th (m)	9.0	59.7	~392.7	~231.6	70.6	0.0	~100.3	82.4	~307.7	25.0	~142.3
Queue Length 95th (m)	16.5	72.5	#477.9	#274.6	82.8	13.2	#136.4	98.7	#391.6	#44.8	#173.5
Internal Link Dist (m)		443.0			287.3			749.5			265.5
Turn Bay Length (m)	115.0		40.0	130.0		70.0	100.0		65.0		
Base Capacity (vph)	253	1681	656	568	2395	898	299	1158	773	175	883
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	0.29	0.43	1.54	1.76	0.43	0.23	1.54	0.70	1.17	0.67	1.20

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
12: Trafalgar Road & Steeles Avenue

Scenario 3 - PM Peak Hour
Premier Gateway

													
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		  		 	  		 	  			  		
Traffic Volume (vph)	71	701	971	961	989	197	442	775	870	112	996	21	
Future Volume (vph)	71	701	971	961	989	197	442	775	870	112	996	21	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	4.0	7.0	7.0	5.0	7.0	7.0	5.0	8.0	5.0	4.0	8.0		
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.91		
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00		
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		
Satd. Flow (prot)	1583	4433	1417	3433	4759	1583	3099	4940	1568	1570	4735		
Flt Permitted	0.27	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.25	1.00		
Satd. Flow (perm)	443	4433	1417	3433	4759	1583	3099	4940	1568	414	4735		
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Adj. Flow (vph)	74	730	1011	1001	1030	205	460	807	906	117	1038	22	
RTOR Reduction (vph)	0	0	119	0	0	102	0	0	65	0	2	0	
Lane Group Flow (vph)	74	730	892	1001	1030	103	460	807	841	117	1058	0	
Heavy Vehicles (%)	14%	17%	14%	2%	9%	2%	13%	5%	3%	15%	9%	19%	
Turn Type	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	pm+pt	NA		
Protected Phases	7	4		3	8		5	2	3	1	6		
Permitted Phases	4		4			8			2	6			
Actuated Green, G (s)	62.0	55.0	55.0	24.0	73.0	73.0	14.0	34.0	58.0	35.0	27.0		
Effective Green, g (s)	62.0	55.0	55.0	24.0	73.0	73.0	14.0	34.0	58.0	35.0	27.0		
Actuated g/C Ratio	0.43	0.38	0.38	0.17	0.50	0.50	0.10	0.23	0.40	0.24	0.19		
Clearance Time (s)	4.0	7.0	7.0	5.0	7.0	7.0	5.0	8.0	5.0	4.0	8.0		
Vehicle Extension (s)	3.0	3.0	3.0	4.0	3.0	3.0	4.0	0.2	4.0	3.0	0.2		
Lane Grp Cap (vph)	244	1681	537	568	2395	796	299	1158	627	163	881		
v/s Ratio Prot	0.01	0.16		c0.29	0.22		c0.15	0.16	c0.22	0.04	0.22		
v/s Ratio Perm	0.11		c0.63			0.07			0.31	0.13			
v/c Ratio	0.30	0.43	1.66	1.76	0.43	0.13	1.54	0.70	1.34	0.72	1.20		
Uniform Delay, d1	24.9	33.4	45.0	60.5	22.8	19.1	65.5	50.8	43.5	46.0	59.0		
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		
Incremental Delay, d2	0.7	0.2	305.5	350.2	0.1	0.1	258.4	3.5	163.9	14.0	101.5		
Delay (s)	25.6	33.6	350.5	410.7	22.9	19.2	323.9	54.3	207.4	60.0	160.5		
Level of Service	C	C	F	F	C	B	F	D	F	E	F		
Approach Delay (s)		209.8			196.2			175.2			150.5		
Approach LOS		F			F			F			F		
Intersection Summary													
HCM 2000 Control Delay			186.1									HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio			1.62										
Actuated Cycle Length (s)			145.0									Sum of lost time (s)	25.0
Intersection Capacity Utilization			123.9%									ICU Level of Service	H
Analysis Period (min)			15										
c Critical Lane Group													

Queues
13: Toronto Premier Outlets & Steeles Avenue

Scenario 3 - PM Peak Hour
Premier Gateway

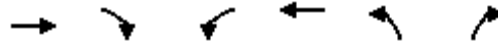


Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1190	527	93	1908	329	29
v/c Ratio	0.56	0.52	0.28	0.66	0.44	0.09
Control Delay	14.1	3.4	6.9	9.9	22.5	8.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.1	3.4	6.9	9.9	22.5	8.9
Queue Length 50th (m)	37.6	0.0	3.7	48.0	17.1	0.0
Queue Length 95th (m)	50.3	15.7	8.3	62.4	27.6	5.6
Internal Link Dist (m)	287.3			176.7	95.1	
Turn Bay Length (m)		130.0	45.0			40.0
Base Capacity (vph)	2121	1009	330	2881	751	337
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.52	0.28	0.66	0.44	0.09

Intersection Summary

HCM Signalized Intersection Capacity Analysis
13: Toronto Premier Outlets & Steeles Avenue

Scenario 3 - PM Peak Hour
Premier Gateway



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↑	↑↑↑	↑↑	↑
Traffic Volume (vph)	1142	506	89	1832	316	28
Future Volume (vph)	1142	506	89	1832	316	28
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	4.0	6.0	6.0	6.0
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	4715	1599	1752	4940	3467	1455
Flt Permitted	1.00	1.00	0.16	1.00	0.95	1.00
Satd. Flow (perm)	4715	1599	301	4940	3467	1455
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	1190	527	93	1908	329	29
RTOR Reduction (vph)	0	290	0	0	0	23
Lane Group Flow (vph)	1190	237	93	1908	329	6
Heavy Vehicles (%)	10%	1%	3%	5%	1%	11%
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	27.0	27.0	35.8	35.8	12.2	12.2
Effective Green, g (s)	27.0	27.0	35.8	35.8	12.2	12.2
Actuated g/C Ratio	0.45	0.45	0.60	0.60	0.20	0.20
Clearance Time (s)	6.0	6.0	4.0	6.0	6.0	6.0
Vehicle Extension (s)	0.2	0.2	3.0	0.2	4.0	4.0
Lane Grp Cap (vph)	2121	719	295	2947	704	295
v/s Ratio Prot	0.25		0.03	c0.39	c0.09	
v/s Ratio Perm		0.15	0.16			0.00
v/c Ratio	0.56	0.33	0.32	0.65	0.47	0.02
Uniform Delay, d1	12.1	10.7	5.9	8.0	21.0	19.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.1	1.2	0.6	1.1	2.2	0.1
Delay (s)	13.2	11.9	6.6	9.1	23.3	19.2
Level of Service	B	B	A	A	C	B
Approach Delay (s)	12.8			8.9	22.9	
Approach LOS	B			A	C	

Intersection Summary

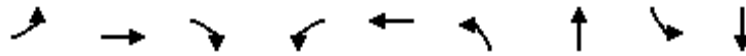
HCM 2000 Control Delay	11.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	54.4%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues

Scenario 3 - PM Peak Hour

14: Toronto Premium Outlets/Eighth Line & Steeles Avenue

Premier Gateway



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	318	886	38	198	1846	253	357	102	146
v/c Ratio	0.90	0.38	0.04	0.49	0.92	0.78	0.57	0.72	0.27
Control Delay	68.2	22.0	0.1	16.5	46.3	78.8	19.2	85.1	16.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.2	22.0	0.1	16.5	46.3	78.8	19.2	85.1	16.0
Queue Length 50th (m)	72.8	56.1	0.0	22.3	186.4	37.7	32.6	28.9	4.1
Queue Length 95th (m)	#122.8	70.3	0.0	33.9	#214.4	#57.9	66.8	#59.0	14.7
Internal Link Dist (m)		176.7			846.8		194.1		472.6
Turn Bay Length (m)	105.0		55.0	30.0				20.0	
Base Capacity (vph)	383	2322	868	441	2013	326	632	141	545
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.38	0.04	0.45	0.92	0.78	0.56	0.72	0.27

Intersection Summary

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
 14: Toronto Premium Outlets/Eighth Line & Steeles Avenue

Scenario 3 - PM Peak Hour

Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗	↘	↑↑↑		↘↗	↑		↘	↑↗	
Traffic Volume (vph)	299	833	36	186	1575	160	238	47	289	96	29	108
Future Volume (vph)	299	833	36	186	1575	160	238	47	289	96	29	108
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	4.0	6.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91		0.97	1.00		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.87		1.00	0.88	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	4631	1615	1770	4801		3467	1641		1687	3086	
Flt Permitted	0.06	1.00	1.00	0.31	1.00		0.95	1.00		0.55	1.00	
Satd. Flow (perm)	120	4631	1615	575	4801		3467	1641		973	3086	
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	318	886	38	198	1676	170	253	50	307	102	31	115
RTOR Reduction (vph)	0	0	19	0	9	0	0	157	0	0	98	0
Lane Group Flow (vph)	318	886	19	198	1837	0	253	200	0	102	48	0
Heavy Vehicles (%)	3%	12%	0%	2%	7%	2%	1%	0%	1%	7%	0%	4%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA		Perm	NA	
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases	4		4	8						6		
Actuated Green, G (s)	85.1	69.2	69.2	69.6	57.7		12.9	39.9		20.0	20.0	
Effective Green, g (s)	85.1	69.2	69.2	69.6	57.7		12.9	39.9		20.0	20.0	
Actuated g/C Ratio	0.62	0.50	0.50	0.50	0.42		0.09	0.29		0.14	0.14	
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	0.2	0.2	3.0	0.2		4.0	4.0		3.0	3.0	
Lane Grp Cap (vph)	350	2322	809	393	2007		324	474		141	447	
v/s Ratio Prot	c0.15	0.19		0.04	0.38		c0.07	0.12			0.02	
v/s Ratio Perm	c0.41		0.01	0.21						c0.10		
v/c Ratio	0.91	0.38	0.02	0.50	0.92		0.78	0.42		0.72	0.11	
Uniform Delay, d1	44.1	21.2	17.4	19.1	37.8		61.2	39.7		56.4	51.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	26.2	0.5	0.1	1.0	8.0		12.2	0.8		27.4	0.5	
Delay (s)	70.3	21.7	17.4	20.1	45.9		73.4	40.5		83.7	51.7	
Level of Service	E	C	B	C	D		E	D		F	D	
Approach Delay (s)		34.0			43.4			54.2			64.9	
Approach LOS		C			D			D			E	

Intersection Summary

HCM 2000 Control Delay	43.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	138.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	99.2%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
 15: Eighth Line South & Steeles Avenue

Scenario 3 - PM Peak Hour
 Premier Gateway



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↵	↑↑↑	↵	↗
Traffic Volume (veh/h)	1216	3	0	1920	1	6
Future Volume (Veh/h)	1216	3	0	1920	1	6
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	1267	3	0	2000	1	6
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			1270		1935	424
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1270		1935	424
tC, single (s)			4.1		6.8	7.2
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.5
p0 queue free %			100		98	99
cM capacity (veh/h)			554		59	539

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2
Volume Total	507	507	256	0	667	667	667	1	6
Volume Left	0	0	0	0	0	0	0	1	0
Volume Right	0	0	3	0	0	0	0	0	6
cSH	1700	1700	1700	1700	1700	1700	1700	59	539
Volume to Capacity	0.30	0.30	0.15	0.00	0.39	0.39	0.39	0.02	0.01
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4	0.3
Control Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	67.0	11.8
Lane LOS								F	B
Approach Delay (s)	0.0			0.0				19.7	
Approach LOS								C	

Intersection Summary		
Average Delay	0.0	
Intersection Capacity Utilization	47.1%	ICU Level of Service
Analysis Period (min)	15	
		A

Queues
16: Steeles Avenue & Ninth Line



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	171	1116	1906	954	359	115
v/c Ratio	0.79	0.42	0.88	0.79	0.69	0.21
Control Delay	43.9	13.3	31.3	7.8	39.0	6.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.9	13.3	31.3	7.8	39.0	6.1
Queue Length 50th (m)	17.1	45.2	126.3	6.3	64.3	0.0
Queue Length 95th (m)	#52.3	55.5	149.1	48.6	97.5	12.6
Internal Link Dist (m)		501.4	674.5		3096.2	
Turn Bay Length (m)	65.0			75.0		
Base Capacity (vph)	216	2640	2173	1207	520	541
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.79	0.42	0.88	0.79	0.69	0.21

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
 16: Steeles Avenue & Ninth Line

Scenario 3 - PM Peak Hour
 Premier Gateway



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	162	1060	1811	906	341	109
Future Volume (vph)	162	1060	1811	906	341	109
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1736	4715	4940	1599	1736	1538
Flt Permitted	0.08	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	152	4715	4940	1599	1736	1538
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	171	1116	1906	954	359	115
RTOR Reduction (vph)	0	0	0	503	0	81
Lane Group Flow (vph)	171	1116	1906	451	359	35
Heavy Vehicles (%)	4%	10%	5%	1%	4%	5%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	56.0	56.0	44.0	44.0	30.0	30.0
Effective Green, g (s)	56.0	56.0	44.0	44.0	30.0	30.0
Actuated g/C Ratio	0.56	0.56	0.44	0.44	0.30	0.30
Clearance Time (s)	4.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	0.2	0.2	0.2	3.0	3.0
Lane Grp Cap (vph)	211	2640	2173	703	520	461
v/s Ratio Prot	c0.06	0.24	c0.39		c0.21	
v/s Ratio Perm	0.39			0.28		0.02
v/c Ratio	0.81	0.42	0.88	0.64	0.69	0.07
Uniform Delay, d1	21.5	12.7	25.5	21.8	30.9	25.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	20.5	0.5	5.4	4.4	7.3	0.3
Delay (s)	42.0	13.2	30.9	26.3	38.2	25.4
Level of Service	D	B	C	C	D	C
Approach Delay (s)		17.0	29.4		35.1	
Approach LOS		B	C		D	

Intersection Summary

HCM 2000 Control Delay	26.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.80		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	77.9%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Queues
17: Ninth Line (South) & Steeles Avenue



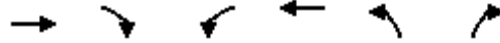
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1174	317	394	2226	665	434
v/c Ratio	0.98	0.51	0.97	0.94	0.90	0.50
Control Delay	70.1	9.8	74.6	42.1	51.8	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.1	9.8	74.6	42.1	51.8	8.2
Queue Length 50th (m)	115.7	6.8	88.0	204.4	164.9	15.6
Queue Length 95th (m)	#148.9	33.4	#154.3	#233.1	#239.7	43.5
Internal Link Dist (m)	674.5			487.1	143.5	
Turn Bay Length (m)		75.0	145.0		60.0	
Base Capacity (vph)	1196	617	406	2356	742	869
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.98	0.51	0.97	0.94	0.90	0.50

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
 17: Ninth Line (South) & Steeles Avenue

Scenario 3 - PM Peak Hour
 Premier Gateway



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗	↖	↑↑↑	↖	↗
Traffic Volume (vph)	1104	298	370	2092	625	408
Future Volume (vph)	1104	298	370	2092	625	408
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	4.0	7.0	7.0	7.0
Lane Util. Factor	0.91	1.00	1.00	0.91	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	4715	1599	1787	4940	1787	1615
Flt Permitted	1.00	1.00	0.11	1.00	0.95	1.00
Satd. Flow (perm)	4715	1599	203	4940	1787	1615
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	1174	317	394	2226	665	434
RTOR Reduction (vph)	0	212	0	0	0	199
Lane Group Flow (vph)	1174	105	394	2226	665	235
Heavy Vehicles (%)	10%	1%	1%	5%	1%	0%
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	33.0	33.0	62.0	62.0	54.0	54.0
Effective Green, g (s)	33.0	33.0	62.0	62.0	54.0	54.0
Actuated g/C Ratio	0.25	0.25	0.48	0.48	0.42	0.42
Clearance Time (s)	7.0	7.0	4.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1196	405	401	2356	742	670
v/s Ratio Prot	0.25		0.19	c0.45	c0.37	
v/s Ratio Perm		0.07	c0.28			0.15
v/c Ratio	0.98	0.26	0.98	0.94	0.90	0.35
Uniform Delay, d1	48.2	38.7	39.7	32.4	35.4	26.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	21.6	0.3	40.1	8.7	15.7	1.4
Delay (s)	69.8	39.1	79.8	41.1	51.1	27.5
Level of Service	E	D	E	D	D	C
Approach Delay (s)	63.2			46.9	41.7	
Approach LOS	E			D	D	

Intersection Summary			
HCM 2000 Control Delay	50.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	130.0	Sum of lost time (s)	18.0
Intersection Capacity Utilization	91.5%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Queues

Scenario 3 - PM Peak Hour

18: James Snow Parkway & Hwy 401 (Westbound Ramp)

Premier Gateway



Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	587	268	634	1042
v/c Ratio	0.66	0.60	0.28	0.44
Control Delay	23.7	16.5	11.2	12.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	23.7	16.5	11.2	12.5
Queue Length 50th (m)	31.2	15.1	16.4	29.5
Queue Length 95th (m)	45.8	38.1	27.7	47.0
Internal Link Dist (m)	390.4		415.8	504.8
Turn Bay Length (m)				
Base Capacity (vph)	1526	684	2260	2370
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.38	0.39	0.28	0.44

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 18: James Snow Parkway & Hwy 401 (Westbound Ramp)

Scenario 3 - PM Peak Hour
 Premier Gateway



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔↔	↔	↑↑↑			↑↑↑
Traffic Volume (vph)	468	344	602	0	0	990
Future Volume (vph)	468	344	602	0	0	990
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.2	8.2	9.3			9.3
Lane Util. Factor	0.97	0.91	0.91			0.91
Frt	0.98	0.85	1.00			1.00
Flt Protected	0.96	1.00	1.00			1.00
Satd. Flow (prot)	3420	1386	4803			5036
Flt Permitted	0.96	1.00	1.00			1.00
Satd. Flow (perm)	3420	1386	4803			5036
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	493	362	634	0	0	1042
RTOR Reduction (vph)	25	99	0	0	0	0
Lane Group Flow (vph)	562	169	634	0	0	1042
Heavy Vehicles (%)	0%	6%	8%	0%	0%	3%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	16.0	16.0	29.8			29.8
Effective Green, g (s)	16.0	16.0	29.8			29.8
Actuated g/C Ratio	0.25	0.25	0.47			0.47
Clearance Time (s)	8.2	8.2	9.3			9.3
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	864	350	2261			2370
v/s Ratio Prot	c0.16		0.13			c0.21
v/s Ratio Perm		0.12				
v/c Ratio	0.65	0.48	0.28			0.44
Uniform Delay, d1	21.1	20.1	10.2			11.2
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	1.7	1.1	0.3			0.6
Delay (s)	22.8	21.2	10.5			11.8
Level of Service	C	C	B			B
Approach Delay (s)	22.3		10.5			11.8
Approach LOS	C		B			B

Intersection Summary			
HCM 2000 Control Delay	15.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	63.3	Sum of lost time (s)	17.5
Intersection Capacity Utilization	50.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues

Scenario 3 - PM Peak Hour

19: James Snow Parkway & Hwy 401 (Eastbound Ramp)

Premier Gateway



Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	107	60	608	1139
v/c Ratio	0.23	0.24	0.16	0.30
Control Delay	15.0	10.5	4.0	4.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	15.0	10.5	4.0	4.6
Queue Length 50th (m)	2.9	0.0	9.7	20.7
Queue Length 95th (m)	9.2	10.4	13.7	26.9
Internal Link Dist (m)	305.5		1282.4	415.8
Turn Bay Length (m)				
Base Capacity (vph)	753	391	3744	3781
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.14	0.15	0.16	0.30
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
 19: James Snow Parkway & Hwy 401 (Eastbound Ramp)

Scenario 3 - PM Peak Hour

Premier Gateway



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	46	118	0	596	1116	0
Future Volume (vph)	46	118	0	596	1116	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		7.4	7.4	
Lane Util. Factor	0.97	0.91		0.91	0.91	
Frt	0.92	0.85		1.00	1.00	
Flt Protected	0.98	1.00		1.00	1.00	
Satd. Flow (prot)	2921	1427		5085	5136	
Flt Permitted	0.98	1.00		1.00	1.00	
Satd. Flow (perm)	2921	1427		5085	5136	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	47	120	0	608	1139	0
RTOR Reduction (vph)	53	53	0	0	0	0
Lane Group Flow (vph)	54	7	0	608	1139	0
Heavy Vehicles (%)	26%	3%	0%	2%	1%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	7.9	7.9		50.3	50.3	
Effective Green, g (s)	7.9	7.9		50.3	50.3	
Actuated g/C Ratio	0.11	0.11		0.70	0.70	
Clearance Time (s)	6.0	6.0		7.4	7.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	322	157		3572	3608	
v/s Ratio Prot	c0.02			0.12	c0.22	
v/s Ratio Perm		0.00				
v/c Ratio	0.17	0.04		0.17	0.32	
Uniform Delay, d1	28.9	28.5		3.6	4.1	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.1		0.1	0.2	
Delay (s)	29.1	28.6		3.7	4.3	
Level of Service	C	C		A	A	
Approach Delay (s)	28.9			3.7	4.3	
Approach LOS	C			A	A	

Intersection Summary

HCM 2000 Control Delay	6.3	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.30		
Actuated Cycle Length (s)	71.6	Sum of lost time (s)	13.4
Intersection Capacity Utilization	50.7%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues
 20: Trafalgar Road & Hwy 401 (Westbound Ramp)

Scenario 3 - PM Peak Hour
 Premier Gateway



Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	861	465	1315	1996
v/c Ratio	0.74	0.89	0.50	0.78
Control Delay	34.1	51.0	18.4	24.8
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	34.1	51.0	18.4	24.8
Queue Length 50th (m)	84.6	102.5	70.0	133.4
Queue Length 95th (m)	107.1	153.6	94.5	175.6
Internal Link Dist (m)	383.1		312.7	749.5
Turn Bay Length (m)				
Base Capacity (vph)	1427	642	2635	2562
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.60	0.72	0.50	0.78
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
 20: Trafalgar Road & Hwy 401 (Westbound Ramp)

Scenario 3 - PM Peak Hour
 Premier Gateway



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations						
Traffic Volume (vph)	384	902	1276	0	0	1936
Future Volume (vph)	384	902	1276	0	0	1936
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0			6.0
Lane Util. Factor	0.97	0.91	0.91			0.91
Frt	0.92	0.85	1.00			1.00
Flt Protected	0.98	1.00	1.00			1.00
Satd. Flow (prot)	3184	1413	4940			4803
Flt Permitted	0.98	1.00	1.00			1.00
Satd. Flow (perm)	3184	1413	4940			4803
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	396	930	1315	0	0	1996
RTOR Reduction (vph)	19	19	0	0	0	0
Lane Group Flow (vph)	842	446	1315	0	0	1996
Heavy Vehicles (%)	4%	4%	5%	0%	0%	8%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	39.8	39.8	59.4			59.4
Effective Green, g (s)	39.8	39.8	59.4			59.4
Actuated g/C Ratio	0.36	0.36	0.53			0.53
Clearance Time (s)	6.0	6.0	6.0			6.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	1139	505	2638			2565
v/s Ratio Prot	0.26		0.27			c0.42
v/s Ratio Perm		c0.32				
v/c Ratio	0.74	0.88	0.50			0.78
Uniform Delay, d1	31.2	33.5	16.4			20.6
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	2.6	16.6	0.7			2.4
Delay (s)	33.7	50.2	17.1			23.1
Level of Service	C	D	B			C
Approach Delay (s)	39.5		17.1			23.1
Approach LOS	D		B			C

Intersection Summary

HCM 2000 Control Delay	26.1	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	111.2	Sum of lost time (s)	12.0
Intersection Capacity Utilization	71.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Queues
 21: Trafalgar Road & Hwy 401 (Eastbound Ramp)



Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	569	264	1024	1813
v/c Ratio	0.75	0.77	0.32	0.59
Control Delay	42.9	50.3	9.3	12.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	42.9	50.3	9.3	12.5
Queue Length 50th (m)	57.4	55.4	32.2	73.4
Queue Length 95th (m)	76.1	87.9	53.2	116.7
Internal Link Dist (m)	204.3		1138.2	312.7
Turn Bay Length (m)				
Base Capacity (vph)	1195	541	3166	3050
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.48	0.49	0.32	0.59
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
 21: Trafalgar Road & Hwy 401 (Eastbound Ramp)

Scenario 3 - PM Peak Hour
 Premier Gateway



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	346	470	0	1004	1777	0
Future Volume (vph)	346	470	0	1004	1777	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		6.0	6.0	
Lane Util. Factor	0.97	0.91		0.91	0.91	
Frt	0.94	0.85		1.00	1.00	
Flt Protected	0.97	1.00		1.00	1.00	
Satd. Flow (prot)	3119	1400		4893	4715	
Flt Permitted	0.97	1.00		1.00	1.00	
Satd. Flow (perm)	3119	1400		4893	4715	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	353	480	0	1024	1813	0
RTOR Reduction (vph)	11	11	0	0	0	0
Lane Group Flow (vph)	558	253	0	1024	1813	0
Heavy Vehicles (%)	10%	5%	0%	6%	10%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	25.2	25.2		68.3	68.3	
Effective Green, g (s)	25.2	25.2		68.3	68.3	
Actuated g/C Ratio	0.24	0.24		0.65	0.65	
Clearance Time (s)	6.0	6.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	745	334		3167	3052	
v/s Ratio Prot	0.18			0.21	c0.38	
v/s Ratio Perm		c0.18				
v/c Ratio	0.75	0.76		0.32	0.59	
Uniform Delay, d1	37.2	37.3		8.3	10.7	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.2	9.5		0.3	0.9	
Delay (s)	41.4	46.8		8.6	11.5	
Level of Service	D	D		A	B	
Approach Delay (s)	43.1			8.6	11.5	
Approach LOS	D			A	B	

Intersection Summary			
HCM 2000 Control Delay	17.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	105.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	71.9%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Queues

Scenario 3 - PM Peak Hour

22: Winston Churchill Boulevard & Hwy 401 (Westbound Ramp)

Premier Gateway



Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	836	388	1633	1524
v/c Ratio	0.84	0.89	0.81	0.75
Control Delay	50.7	65.1	27.1	24.4
Queue Delay	0.0	0.0	1.0	0.0
Total Delay	50.7	65.1	28.1	24.4
Queue Length 50th (m)	109.1	107.8	190.5	166.2
Queue Length 95th (m)	134.3	#165.2	240.0	209.6
Internal Link Dist (m)	284.7		32.1	320.2
Turn Bay Length (m)				
Base Capacity (vph)	1164	507	2013	2033
Starvation Cap Reductn	0	0	164	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.72	0.77	0.88	0.75

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
 22: Winston Churchill Boulevard & Hwy 401 (Westbound Ramp)

Scenario 3 - PM Peak Hour
 Premier Gateway



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔↔	↗	↕↕			↕↕
Traffic Volume (vph)	517	646	1551	0	0	1448
Future Volume (vph)	517	646	1551	0	0	1448
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	8.0			8.0
Lane Util. Factor	0.97	0.91	0.95			0.95
Frt	0.95	0.85	1.00			1.00
Flt Protected	0.97	1.00	1.00			1.00
Satd. Flow (prot)	3262	1400	3438			3471
Flt Permitted	0.97	1.00	1.00			1.00
Satd. Flow (perm)	3262	1400	3438			3471
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	544	680	1633	0	0	1524
RTOR Reduction (vph)	14	14	0	0	0	0
Lane Group Flow (vph)	822	374	1633	0	0	1524
Heavy Vehicles (%)	3%	5%	5%	0%	0%	4%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	40.3	40.3	78.2			78.2
Effective Green, g (s)	40.3	40.3	78.2			78.2
Actuated g/C Ratio	0.30	0.30	0.59			0.59
Clearance Time (s)	7.0	7.0	8.0			8.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	984	422	2013			2033
v/s Ratio Prot	0.25		c0.47			0.44
v/s Ratio Perm		c0.27				
v/c Ratio	0.84	0.89	0.81			0.75
Uniform Delay, d1	43.5	44.4	21.8			20.4
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	6.2	19.5	3.7			2.6
Delay (s)	49.7	63.9	25.5			23.0
Level of Service	D	E	C			C
Approach Delay (s)	54.2		25.5			23.0
Approach LOS	D		C			C

Intersection Summary			
HCM 2000 Control Delay		32.7	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio		0.84	
Actuated Cycle Length (s)		133.5	Sum of lost time (s) 15.0
Intersection Capacity Utilization		104.2%	ICU Level of Service G
Analysis Period (min)		15	
c Critical Lane Group			

Queues

Scenario 3 - PM Peak Hour

23: Winston Churchill Boulevard & Hwy 401 (Eastbound Ramp)

Premier Gateway



Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	566	261	2171	1832
v/c Ratio	0.85	0.83	0.62	0.53
Control Delay	62.1	67.9	13.2	11.5
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	62.1	67.9	13.2	11.5
Queue Length 50th (m)	76.3	70.2	118.4	89.3
Queue Length 95th (m)	98.4	#113.1	140.7	107.2
Internal Link Dist (m)	152.5		433.2	198.3
Turn Bay Length (m)				
Base Capacity (vph)	765	358	3483	3470
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.74	0.73	0.62	0.53

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
 23: Winston Churchill Boulevard & Hwy 401 (Eastbound Ramp)

Scenario 3 - PM Peak Hour
 Premier Gateway



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	410	375	0	2062	1687	53
Future Volume (vph)	410	375	0	2062	1687	53
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		7.0	7.0	
Lane Util. Factor	0.97	0.91		0.91	0.91	
Frt	0.96	0.85		1.00	1.00	
Flt Protected	0.96	1.00		1.00	1.00	
Satd. Flow (prot)	3161	1427		5085	5065	
Flt Permitted	0.96	1.00		1.00	1.00	
Satd. Flow (perm)	3161	1427		5085	5065	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	432	395	0	2171	1776	56
RTOR Reduction (vph)	22	23	0	0	2	0
Lane Group Flow (vph)	544	238	0	2171	1830	0
Heavy Vehicles (%)	10%	3%	0%	2%	2%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	27.8	27.8		93.1	93.1	
Effective Green, g (s)	27.8	27.8		93.1	93.1	
Actuated g/C Ratio	0.20	0.20		0.69	0.69	
Clearance Time (s)	8.0	8.0		7.0	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	646	291		3483	3469	
v/s Ratio Prot	c0.17			c0.43	0.36	
v/s Ratio Perm		0.17				
v/c Ratio	0.84	0.82		0.62	0.53	
Uniform Delay, d1	51.9	51.6		11.8	10.6	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	9.7	16.1		0.9	0.6	
Delay (s)	61.6	67.8		12.6	11.1	
Level of Service	E	E		B	B	
Approach Delay (s)	63.6			12.6	11.1	
Approach LOS	E			B	B	

Intersection Summary

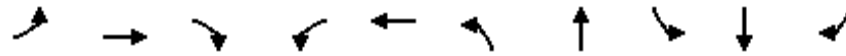
HCM 2000 Control Delay	20.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	135.9	Sum of lost time (s)	15.0
Intersection Capacity Utilization	105.6%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Queues

Scenario 3 - PM Peak Hour

24: James Snow Parkway & Main Street East

Premier Gateway



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	465	95	337	106	207	480	476	117	379	962
v/c Ratio	0.89	0.18	0.48	0.76	0.54	0.69	0.17	0.23	0.15	0.90
Control Delay	82.0	40.1	6.2	96.0	61.5	19.7	11.4	12.8	21.7	26.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	82.0	40.1	6.2	96.0	61.5	19.7	11.4	12.8	21.7	26.0
Queue Length 50th (m)	74.3	22.0	0.0	32.3	29.1	71.4	18.0	13.7	24.1	138.6
Queue Length 95th (m)	#104.5	37.7	24.1	#59.0	43.4	96.7	24.8	22.6	31.5	#264.3
Internal Link Dist (m)		274.7			467.9		430.6		1282.4	
Turn Bay Length (m)	70.0		50.0	105.0		100.0		135.0		135.0
Base Capacity (vph)	536	582	728	161	443	699	2744	504	2518	1071
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	0.87	0.16	0.46	0.66	0.47	0.69	0.17	0.23	0.15	0.90

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
24: James Snow Parkway & Main Street East

Scenario 3 - PM Peak Hour
Premier Gateway



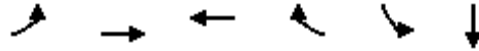
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	442	90	320	101	153	44	456	297	155	111	360	914
Future Volume (vph)	442	90	320	101	153	44	456	297	155	111	360	914
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0	6.0	6.0	6.0		4.5	6.0		4.5	6.0	6.0
Lane Util. Factor	0.97	1.00	1.00	1.00	0.95		1.00	0.91		1.00	0.91	1.00
Frt	1.00	1.00	0.85	1.00	0.97		1.00	0.95		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	3502	1900	1615	1805	3474		1805	4793		1752	5187	1599
Flt Permitted	0.95	1.00	1.00	0.70	1.00		0.49	1.00		0.47	1.00	1.00
Satd. Flow (perm)	3502	1900	1615	1321	3474		923	4793		867	5187	1599
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	465	95	337	106	161	46	480	313	163	117	379	962
RTOR Reduction (vph)	0	0	241	0	18	0	0	62	0	0	0	295
Lane Group Flow (vph)	465	95	96	106	189	0	480	414	0	117	379	667
Heavy Vehicles (%)	0%	0%	0%	0%	0%	2%	0%	3%	2%	3%	0%	1%
Turn Type	Prot	NA	Perm	Perm	NA		pm+pt	NA		pm+pt	NA	Perm
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases			4	8			2			6		6
Actuated Green, G (s)	21.8	41.9	41.9	15.6	15.6		93.1	82.3		77.7	71.4	71.4
Effective Green, g (s)	21.8	41.9	41.9	15.6	15.6		93.1	82.3		77.7	71.4	71.4
Actuated g/C Ratio	0.15	0.29	0.29	0.11	0.11		0.63	0.56		0.53	0.49	0.49
Clearance Time (s)	4.5	6.0	6.0	6.0	6.0		4.5	6.0		4.5	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	519	541	460	140	368		687	2683		496	2519	776
v/s Ratio Prot	c0.13	0.05			0.05		c0.08	0.09		0.01	0.07	
v/s Ratio Perm			0.06	c0.08			0.36			0.11		c0.42
v/c Ratio	0.90	0.18	0.21	0.76	0.51		0.70	0.15		0.24	0.15	0.86
Uniform Delay, d1	61.5	39.6	39.9	63.9	62.1		14.1	15.6		17.5	21.0	33.4
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	17.8	0.2	0.2	20.6	1.2		3.1	0.1		0.2	0.1	12.0
Delay (s)	79.3	39.7	40.2	84.4	63.3		17.2	15.7		17.7	21.1	45.4
Level of Service	E	D	D	F	E		B	B		B	C	D
Approach Delay (s)		60.4			70.5			16.5			36.8	
Approach LOS		E			E			B			D	

Intersection Summary

HCM 2000 Control Delay	40.2	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	147.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	101.2%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Queues
25: Street B & Steeles Avenue

Scenario 3 - PM Peak Hour
Premier Gateway



























Lane Group	EBL	EBT	WBT	WBR	SBL	SBT
Lane Group Flow (vph)	139	1408	1404	108	407	271
v/c Ratio	0.66	0.68	0.89	0.20	0.66	0.34
Control Delay	43.6	30.9	52.3	10.4	35.3	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.6	30.9	52.3	10.4	35.3	3.9
Queue Length 50th (m)	23.7	115.9	144.0	4.2	89.1	0.0
Queue Length 95th (m)	48.3	132.3	168.6	18.5	132.5	17.3
Internal Link Dist (m)		388.7	443.0			311.5
Turn Bay Length (m)	50.0			30.0	30.0	
Base Capacity (vph)	248	2356	1771	601	646	807
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.56	0.60	0.79	0.18	0.63	0.34

Intersection Summary

HCM Signalized Intersection Capacity Analysis
25: Street B & Steeles Avenue

Scenario 3 - PM Peak Hour
Premier Gateway

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	133	1352	0	0	1348	104	0	0	0	391	0	260
Future Volume (vph)	133	1352	0	0	1348	104	0	0	0	391	0	260
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0			6.0	6.0				4.5	6.0	
Lane Util. Factor	1.00	0.91			0.91	1.00				1.00	1.00	
Frt	1.00	1.00			1.00	0.85				1.00	0.85	
Flt Protected	0.95	1.00			1.00	1.00				0.95	1.00	
Satd. Flow (prot)	1626	4433			4715	1455				1626	1468	
Flt Permitted	0.08	1.00			1.00	1.00				0.65	1.00	
Satd. Flow (perm)	131	4433			4715	1455				1121	1468	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	139	1408	0	0	1404	108	0	0	0	407	0	271
RTOR Reduction (vph)	0	0	0	0	0	58	0	0	0	0	150	0
Lane Group Flow (vph)	139	1408	0	0	1404	50	0	0	0	407	121	0
Heavy Vehicles (%)	11%	17%	0%	0%	10%	11%	0%	0%	0%	11%	0%	10%
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	Perm		Perm	pm+pt	NA	
Protected Phases	7	4			8			2		1	6	
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)	66.3	66.3			47.6	47.6				63.3	63.3	
Effective Green, g (s)	66.3	66.3			47.6	47.6				63.3	63.3	
Actuated g/C Ratio	0.47	0.47			0.34	0.34				0.45	0.45	
Clearance Time (s)	4.5	6.0			6.0	6.0				4.5	6.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0				3.0	3.0	
Lane Grp Cap (vph)	211	2075			1584	489				608	656	
v/s Ratio Prot	0.07	c0.32			c0.30					c0.14	0.08	
v/s Ratio Perm	0.24					0.03				c0.16		
v/c Ratio	0.66	0.68			0.89	0.10				0.67	0.18	
Uniform Delay, d1	30.4	29.3			44.4	32.3				29.0	23.6	
Progression Factor	1.00	1.00			1.00	1.00				1.00	1.00	
Incremental Delay, d2	7.2	0.9			6.4	0.1				2.8	0.6	
Delay (s)	37.6	30.2			50.8	32.4				31.8	24.2	
Level of Service	D	C			D	C				C	C	
Approach Delay (s)		30.9			49.5			0.0			28.8	
Approach LOS		C			D			A			C	
Intersection Summary												
HCM 2000 Control Delay			38.0		HCM 2000 Level of Service					D		
HCM 2000 Volume to Capacity ratio			0.79									
Actuated Cycle Length (s)			141.6		Sum of lost time (s)					21.0		
Intersection Capacity Utilization			68.8%		ICU Level of Service					C		
Analysis Period (min)			15									
c Critical Lane Group												

HCM Unsignalized Intersection Capacity Analysis
 26: Hornby Road & Street A

Scenario 3 - PM Peak Hour
 Premier Gateway



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Right Turn Channelized						
Traffic Volume (veh/h)	129	0	0	56	83	34
Future Volume (veh/h)	129	0	0	56	83	34
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	134	0	0	58	86	35
Approach Volume (veh/h)	134			58	121	
Crossing Volume (veh/h)	86			134	0	
High Capacity (veh/h)	1295			1247	1385	
High v/c (veh/h)	0.10			0.05	0.09	
Low Capacity (veh/h)	1079			1036	1161	
Low v/c (veh/h)	0.12			0.06	0.10	
Intersection Summary						
Maximum v/c High			0.10			
Maximum v/c Low			0.12			
Intersection Capacity Utilization			20.3%		ICU Level of Service	A

Queues
27: Trafalgar Road & Street B

Scenario 3 - PM Peak Hour

Premier Gateway



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	152	538	363	276	100	906	80	43	440	41
v/c Ratio	0.33	1.03	0.97	0.42	0.33	0.75	0.15	0.20	0.43	0.08
Control Delay	12.9	69.5	60.1	15.1	18.9	29.5	0.6	17.2	25.5	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	12.9	69.5	60.1	15.1	18.9	29.5	0.6	17.2	25.5	0.3
Queue Length 50th (m)	11.9	~73.2	~43.9	20.4	9.5	46.1	0.0	3.9	20.1	0.0
Queue Length 95th (m)	22.4	#132.9	#95.5	42.5	19.5	60.4	0.0	10.1	29.0	0.0
Internal Link Dist (m)		260.1		649.3		221.2			63.9	
Turn Bay Length (m)	50.0		50.0		50.0		50.0	50.0		50.0
Base Capacity (vph)	470	524	375	650	303	1297	562	212	1223	555
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	0.32	1.03	0.97	0.42	0.33	0.70	0.14	0.20	0.36	0.07

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
27: Trafalgar Road & Street B

Scenario 3 - PM Peak Hour
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	146	158	358	348	111	154	96	870	77	41	422	39
Future Volume (vph)	146	158	358	348	111	154	96	870	77	41	422	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0		4.5	6.0		4.5	6.0	6.0	4.5	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.90		1.00	0.91		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)	1641	1534		1626	1563		1641	4940	1468	1641	4759	1468
Flt Permitted	0.59	1.00		0.16	1.00		0.46	1.00	1.00	0.25	1.00	1.00
Satd. Flow (perm)	1019	1534		277	1563		789	4940	1468	426	4759	1468
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	152	165	373	362	116	160	100	906	80	43	440	41
RTOR Reduction (vph)	0	106	0	0	62	0	0	0	61	0	0	32
Lane Group Flow (vph)	152	432	0	363	214	0	100	906	19	43	440	9
Heavy Vehicles (%)	10%	11%	11%	11%	11%	11%	10%	5%	10%	10%	9%	10%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	25.8	20.2		36.7	26.6		21.2	17.3	17.3	19.0	16.2	16.2
Effective Green, g (s)	25.8	20.2		36.7	26.6		21.2	17.3	17.3	19.0	16.2	16.2
Actuated g/C Ratio	0.35	0.28		0.50	0.36		0.29	0.24	0.24	0.26	0.22	0.22
Clearance Time (s)	4.5	6.0		4.5	6.0		4.5	6.0	6.0	4.5	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	406	422		359	567		273	1165	346	156	1051	324
v/s Ratio Prot	0.03	0.28		c0.17	0.14		c0.02	c0.18		0.01	0.09	
v/s Ratio Perm	0.10			c0.34			0.09		0.01	0.06		0.01
v/c Ratio	0.37	1.02		1.01	0.38		0.37	0.78	0.05	0.28	0.42	0.03
Uniform Delay, d1	17.0	26.6		19.0	17.2		19.7	26.2	21.7	20.9	24.5	22.4
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	50.1		50.3	1.9		0.8	3.3	0.1	1.0	0.3	0.0
Delay (s)	17.5	76.7		69.4	19.2		20.6	29.5	21.7	21.8	24.8	22.4
Level of Service	B	E		E	B		C	C	C	C	C	C
Approach Delay (s)		63.7			47.7			28.1			24.4	
Approach LOS		E			D			C			C	

Intersection Summary

HCM 2000 Control Delay	40.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	73.3	Sum of lost time (s)	21.0
Intersection Capacity Utilization	88.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
28: Eighth Line & Street B

















Scenario 3 - PM Peak Hour
Premier Gateway



Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations							
Traffic Volume (veh/h)	139	54	28	570	137	37	
Future Volume (Veh/h)	139	54	28	570	137	37	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	
Hourly flow rate (vph)	145	56	29	594	143	39	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				None	None		
Median storage veh							
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume	518	91	182				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	518	91	182				
tC, single (s)	7.0	7.1	4.3				
tC, 2 stage (s)							
tF (s)	3.6	3.4	2.3				
p0 queue free %	68	94	98				
cM capacity (veh/h)	456	920	1327				
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	145	56	29	297	297	95	87
Volume Left	145	0	29	0	0	0	0
Volume Right	0	56	0	0	0	0	39
cSH	456	920	1327	1700	1700	1700	1700
Volume to Capacity	0.32	0.06	0.02	0.17	0.17	0.06	0.05
Queue Length 95th (m)	10.8	1.6	0.5	0.0	0.0	0.0	0.0
Control Delay (s)	16.5	9.2	7.8	0.0	0.0	0.0	0.0
Lane LOS	C	A	A				
Approach Delay (s)	14.5		0.4			0.0	
Approach LOS	B						
Intersection Summary							
Average Delay			3.1				
Intersection Capacity Utilization			30.1%	ICU Level of Service	A		
Analysis Period (min)			15				

HCM Unsignalized Intersection Capacity Analysis
1: Fifth Line & 5 Side Road

















Scenario 3 - SAT Peak Hour
Premier Gateway

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	44	0	0	91	0	0	0	0	0	0	0
Future Volume (Veh/h)	0	44	0	0	91	0	0	0	0	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	0	46	0	0	95	0	0	0	0	0	0	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	95			46			141	141	46	141	141	95
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	95			46			141	141	46	141	141	95
tC, single (s)	4.1			4.1			7.3	6.5	6.2	7.1	6.5	6.4
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.7	4.0	3.3	3.5	4.0	3.4
p0 queue free %	100			100			100	100	100	100	100	100
cM capacity (veh/h)	1512			1575			796	754	1018	833	754	927
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	46	95	0	0								
Volume Left	0	0	0	0								
Volume Right	0	0	0	0								
cSH	1512	1575	1700	1700								
Volume to Capacity	0.00	0.00	0.00	0.00								
Queue Length 95th (m)	0.0	0.0	0.0	0.0								
Control Delay (s)	0.0	0.0	0.0	0.0								
Lane LOS			A	A								
Approach Delay (s)	0.0	0.0	0.0	0.0								
Approach LOS			A	A								
Intersection Summary												
Average Delay			0.0									
Intersection Capacity Utilization			8.1%		ICU Level of Service				A			
Analysis Period (min)			15									

HCM Unsignalized Intersection Capacity Analysis

2: Sixth Line & 5 Side Road

Scenario 3 - SAT Peak Hour
Premier Gateway

												
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (veh/h)	0	44	0	0	91	0	0	0	0	0	0	0
Future Volume (Veh/h)	0	44	0	0	91	0	0	0	0	0	0	0
Sign Control		Free			Free			Stop			Stop	
Grade		0%			0%			0%			0%	
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	0	46	0	0	95	0	0	0	0	0	0	0
Pedestrians												
Lane Width (m)												
Walking Speed (m/s)												
Percent Blockage												
Right turn flare (veh)												
Median type		None			None							
Median storage (veh)												
Upstream signal (m)												
pX, platoon unblocked												
vC, conflicting volume	95			46			141	141	46	141	141	95
vC1, stage 1 conf vol												
vC2, stage 2 conf vol												
vCu, unblocked vol	95			46			141	141	46	141	141	95
tC, single (s)	4.1			4.1			7.1	6.5	6.2	7.1	6.5	6.4
tC, 2 stage (s)												
tF (s)	2.2			2.2			3.5	4.0	3.3	3.5	4.0	3.5
p0 queue free %	100			100			100	100	100	100	100	100
cM capacity (veh/h)	1512			1575			833	754	1029	833	754	922
Direction, Lane #	EB 1	WB 1	NB 1	SB 1								
Volume Total	46	95	0	0								
Volume Left	0	0	0	0								
Volume Right	0	0	0	0								
cSH	1512	1575	1700	1700								
Volume to Capacity	0.00	0.00	0.00	0.00								
Queue Length 95th (m)	0.0	0.0	0.0	0.0								
Control Delay (s)	0.0	0.0	0.0	0.0								
Lane LOS			A	A								
Approach Delay (s)	0.0	0.0	0.0	0.0								
Approach LOS			A	A								
Intersection Summary												
Average Delay			0.0									
Intersection Capacity Utilization			8.1%		ICU Level of Service				A			
Analysis Period (min)			15									

Queues
3: Trafalgar Rd & 5 Side Road

Scenario 3 - SAT Peak Hour
Premier Gateway



Lane Group	EBR	WBL	NBL	NBT	SBT
Lane Group Flow (vph)	46	15	95	124	46
v/c Ratio	0.04	0.04	0.09	0.03	0.01
Control Delay	0.1	19.4	3.8	3.2	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	0.1	19.4	3.8	3.2	9.8
Queue Length 50th (m)	0.0	0.8	0.0	0.0	0.4
Queue Length 95th (m)	0.0	6.0	9.3	3.6	3.2
Internal Link Dist (m)				240.1	238.0
Turn Bay Length (m)	40.0	40.0	40.0		
Base Capacity (vph)	1262	843	1029	4045	3109
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.04	0.02	0.09	0.03	0.01
Intersection Summary					

HCM Signalized Intersection Capacity Analysis
3: Trafalgar Rd & 5 Side Road

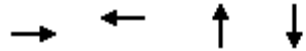
Scenario 3 - SAT Peak Hour
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑	↗	↖	↗		↖	↑↑↑		↖	↑↑↑	
Traffic Volume (vph)	0	0	44	14	0	0	91	88	31	0	44	0
Future Volume (vph)	0	0	44	14	0	0	91	88	31	0	44	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)			6.4	6.4			4.0	6.0			6.0	
Lane Util. Factor			1.00	1.00			1.00	0.91			0.91	
Frt			0.85	1.00			1.00	0.96			1.00	
Flt Protected			1.00	0.95			0.95	1.00			1.00	
Satd. Flow (prot)			1495	1805			1719	4830			4940	
Flt Permitted			1.00	0.77			0.65	1.00			1.00	
Satd. Flow (perm)			1495	1462			1176	4830			4940	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	0	46	15	0	0	95	92	32	0	46	0
RTOR Reduction (vph)	0	0	42	0	0	0	0	9	0	0	0	0
Lane Group Flow (vph)	0	0	4	15	0	0	95	115	0	0	46	0
Heavy Vehicles (%)	8%	2%	8%	0%	0%	0%	5%	4%	1%	13%	5%	67%
Turn Type	Perm		Perm	Perm			pm+pt	NA		pm+pt	NA	
Protected Phases		4			8		5	2		1	6	
Permitted Phases	4		4	8			2			6		
Actuated Green, G (s)			5.2	5.2			45.1	45.1			35.0	
Effective Green, g (s)			5.2	5.2			45.1	45.1			35.0	
Actuated g/C Ratio			0.08	0.08			0.72	0.72			0.56	
Clearance Time (s)			6.4	6.4			4.0	6.0			6.0	
Vehicle Extension (s)			5.0	5.0			3.0	5.0			5.0	
Lane Grp Cap (vph)			123	121			898	3474			2757	
v/s Ratio Prot							c0.01	0.02			0.01	
v/s Ratio Perm			0.00	c0.01			c0.07					
v/c Ratio			0.03	0.12			0.11	0.03			0.02	
Uniform Delay, d1			26.4	26.6			2.8	2.5			6.2	
Progression Factor			1.00	1.00			1.00	1.00			1.00	
Incremental Delay, d2			0.2	1.0			0.1	0.0			0.0	
Delay (s)			26.6	27.6			2.8	2.5			6.2	
Level of Service			C	C			A	A			A	
Approach Delay (s)		26.6			27.6			2.7			6.2	
Approach LOS		C			C			A			A	
Intersection Summary												
HCM 2000 Control Delay			7.7								A	
HCM 2000 Volume to Capacity ratio			0.12									
Actuated Cycle Length (s)			62.7						16.4			
Intersection Capacity Utilization			61.5%								B	
Analysis Period (min)			15									
c Critical Lane Group												

Queues

4: Eighth Line & 5 Side Road



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	32	32	122	29
v/c Ratio	0.07	0.07	0.04	0.01
Control Delay	7.6	7.6	1.9	2.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	7.6	7.6	1.9	2.6
Queue Length 50th (m)	1.0	1.0	0.0	0.0
Queue Length 95th (m)	3.2	3.2	2.8	1.2
Internal Link Dist (m)	619.4	644.7	2565.8	430.5
Turn Bay Length (m)				
Base Capacity (vph)	1320	1292	3173	3370
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.02	0.02	0.04	0.01

Intersection Summary

HCM Signalized Intersection Capacity Analysis

4: Eighth Line & 5 Side Road

Scenario 3 - SAT Peak Hour

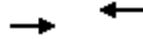
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	0	31	0	16	14	0	0	84	33	0	28	0
Future Volume (vph)	0	31	0	16	14	0	0	84	33	0	28	0
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	
Lane Util. Factor		1.00			1.00			0.95			0.95	
Frt		1.00			1.00			0.96			1.00	
Flt Protected		1.00			0.97			1.00			1.00	
Satd. Flow (prot)		1845			1759			3364			3574	
Flt Permitted		1.00			1.00			1.00			1.00	
Satd. Flow (perm)		1845			1805			3364			3574	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	0	32	0	17	15	0	0	88	34	0	29	0
RTOR Reduction (vph)	0	0	0	0	0	0	0	12	0	0	0	0
Lane Group Flow (vph)	0	32	0	0	32	0	0	110	0	0	29	0
Heavy Vehicles (%)	4%	3%	3%	9%	1%	1%	0%	2%	5%	0%	1%	2%
Turn Type		NA		Perm	NA			NA			NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Actuated Green, G (s)		1.4			1.4			18.4			18.4	
Effective Green, g (s)		1.4			1.4			18.4			18.4	
Actuated g/C Ratio		0.05			0.05			0.64			0.64	
Clearance Time (s)		4.5			4.5			4.5			4.5	
Vehicle Extension (s)		3.0			3.0			3.0			3.0	
Lane Grp Cap (vph)		89			87			2149			2283	
v/s Ratio Prot		0.02						c0.03			0.01	
v/s Ratio Perm					c0.02							
v/c Ratio		0.36			0.37			0.05			0.01	
Uniform Delay, d1		13.3			13.3			1.9			1.9	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		2.5			2.6			0.0			0.0	
Delay (s)		15.7			15.9			2.0			1.9	
Level of Service		B			B			A			A	
Approach Delay (s)		15.7			15.9			2.0			1.9	
Approach LOS		B			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	6.1	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.07		
Actuated Cycle Length (s)	28.8	Sum of lost time (s)	9.0
Intersection Capacity Utilization	20.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues
5: Ninth Line & 5 Side Road



Lane Group	EBT	WBT
Lane Group Flow (vph)	67	31
v/c Ratio	0.28	0.13
Control Delay	29.8	27.3
Queue Delay	0.0	0.0
Total Delay	29.8	27.3
Queue Length 50th (m)	9.3	4.2
Queue Length 95th (m)	18.0	10.3
Internal Link Dist (m)	556.9	434.3
Turn Bay Length (m)		
Base Capacity (vph)	829	837
Starvation Cap Reductn	0	0
Spillback Cap Reductn	0	0
Storage Cap Reductn	0	0
Reduced v/c Ratio	0.08	0.04
Intersection Summary		

HCM Signalized Intersection Capacity Analysis

5: Ninth Line & 5 Side Road

Scenario 3 - SAT Peak Hour
Premier Gateway

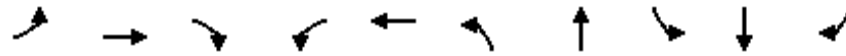


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↕			↕			↕			↕		
Traffic Volume (vph)	0	64	0	0	30	0	0	0	0	0	0	0	
Future Volume (vph)	0	64	0	0	30	0	0	0	0	0	0	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		6.0			6.0								
Lane Util. Factor		1.00			1.00								
Frt		1.00			1.00								
Flt Protected		1.00			1.00								
Satd. Flow (prot)		1881			1900								
Flt Permitted		1.00			1.00								
Satd. Flow (perm)		1881			1900								
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Adj. Flow (vph)	0	67	0	0	31	0	0	0	0	0	0	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	67	0	0	31	0	0	0	0	0	0	0	
Heavy Vehicles (%)	2%	1%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	
Turn Type		NA			NA								
Protected Phases		4			8			2				6	
Permitted Phases	4			8			2			6			
Actuated Green, G (s)		5.4			5.4								
Effective Green, g (s)		5.4			5.4								
Actuated g/C Ratio		0.08			0.08								
Clearance Time (s)		6.0			6.0								
Vehicle Extension (s)		3.5			3.5								
Lane Grp Cap (vph)		147			148								
v/s Ratio Prot		c0.04			0.02								
v/s Ratio Perm													
v/c Ratio		0.46			0.21								
Uniform Delay, d1		30.3			29.7								
Progression Factor		1.00			1.00								
Incremental Delay, d2		2.6			0.8								
Delay (s)		33.0			30.6								
Level of Service		C			C								
Approach Delay (s)		33.0			30.6			0.0			0.0		
Approach LOS		C			C			A			A		
Intersection Summary													
HCM 2000 Control Delay			32.2									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.04										
Actuated Cycle Length (s)			68.9									Sum of lost time (s)	12.0
Intersection Capacity Utilization			10.8%									ICU Level of Service	A
Analysis Period (min)			15										
c Critical Lane Group													

Queues
6: Brownridge Road/Fifth Line & Steeles Avenue

Scenario 3 - SAT Peak Hour

Premier Gateway



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	36	888	5	4	777	14	9	18	3	46
v/c Ratio	0.08	0.25	0.00	0.01	0.24	0.05	0.03	0.09	0.01	0.11
Control Delay	6.5	5.1	0.0	6.0	4.6	17.5	10.9	18.4	16.3	1.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.5	5.1	0.0	6.0	4.6	17.5	10.9	18.4	16.3	1.3
Queue Length 50th (m)	1.6	15.9	0.0	0.2	12.1	1.5	0.1	1.9	0.4	0.0
Queue Length 95th (m)	5.3	22.7	0.0	1.2	18.2	4.6	2.9	5.5	1.8	1.4
Internal Link Dist (m)	462.3				679.6		261.2		67.4	
Turn Bay Length (m)	145.0		65.0	30.0		20.0		25.0		25.0
Base Capacity (vph)	440	3538	1196	427	3296	286	361	219	409	433
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	0.08	0.25	0.00	0.01	0.24	0.05	0.02	0.08	0.01	0.11

Intersection Summary

HCM Signalized Intersection Capacity Analysis
6: Brownridge Road/Fifth Line & Steeles Avenue

Scenario 3 - SAT Peak Hour
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗	↘	↑↑↑		↘	↗		↘	↑	↗
Traffic Volume (vph)	35	852	5	4	648	98	13	1	8	17	3	44
Future Volume (vph)	35	852	5	4	648	98	13	1	8	17	3	44
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0		6.0	6.0	6.0
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91		1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	0.87		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	1656	4848	1615	1805	4487		1671	1647		1289	1900	1615
Flt Permitted	0.35	1.00	1.00	0.31	1.00		0.76	1.00		0.75	1.00	1.00
Satd. Flow (perm)	602	4848	1615	585	4487		1330	1647		1020	1900	1615
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	36	888	5	4	675	102	14	1	8	18	3	46
RTOR Reduction (vph)	0	0	2	0	29	0	0	7	0	0	0	41
Lane Group Flow (vph)	36	888	3	4	748	0	14	2	0	18	3	5
Heavy Vehicles (%)	9%	7%	0%	0%	4%	75%	8%	0%	0%	40%	0%	0%
Turn Type	Perm	NA	Perm	Perm	NA		Perm	NA		Perm	NA	Perm
Protected Phases		4			8			2				6
Permitted Phases	4		4	8			2			6		6
Actuated Green, G (s)	34.3	34.3	34.3	34.3	34.3		5.8	5.8		5.8	5.8	5.8
Effective Green, g (s)	34.3	34.3	34.3	34.3	34.3		5.8	5.8		5.8	5.8	5.8
Actuated g/C Ratio	0.63	0.63	0.63	0.63	0.63		0.11	0.11		0.11	0.11	0.11
Clearance Time (s)	8.0	8.0	8.0	8.0	8.0		6.0	6.0		6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0		3.0	3.0		3.0	3.0	3.0
Lane Grp Cap (vph)	381	3073	1023	370	2844		142	176		109	203	173
v/s Ratio Prot		c0.18			0.17			0.00				0.00
v/s Ratio Perm	0.06		0.00	0.01			0.01			c0.02		0.00
v/c Ratio	0.09	0.29	0.00	0.01	0.26		0.10	0.01		0.17	0.01	0.03
Uniform Delay, d1	3.9	4.4	3.6	3.6	4.3		21.8	21.6		21.9	21.6	21.6
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.5	0.2	0.0	0.1	0.2		0.3	0.0		0.7	0.0	0.1
Delay (s)	4.3	4.7	3.6	3.7	4.6		22.1	21.6		22.7	21.6	21.7
Level of Service	A	A	A	A	A		C	C		C	C	C
Approach Delay (s)		4.7			4.6			21.9			22.0	
Approach LOS		A			A			C			C	

Intersection Summary		
HCM 2000 Control Delay	5.5	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.27	A
Actuated Cycle Length (s)	54.1	Sum of lost time (s)
Intersection Capacity Utilization	68.3%	14.0
Analysis Period (min)	15	ICU Level of Service
c Critical Lane Group		C

Queues
7: Fifth Line South & Steeles Avenue



Lane Group	EBT	EBR	WBT	NBL
Lane Group Flow (vph)	919	4	786	3
v/c Ratio	0.21	0.00	0.17	0.01
Control Delay	1.7	2.2	1.6	19.7
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	1.7	2.2	1.6	19.7
Queue Length 50th (m)	0.0	0.0	0.0	0.3
Queue Length 95th (m)	22.4	0.9	18.7	2.4
Internal Link Dist (m)	679.6		455.7	532.9
Turn Bay Length (m)		30.0		15.0
Base Capacity (vph)	4443	1494	4614	392
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.21	0.00	0.17	0.01
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
7: Fifth Line South & Steeles Avenue

Scenario 3 - SAT Peak Hour
Premier Gateway



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗	↖	↑↑↑	↖	↗
Traffic Volume (vph)	873	4	0	747	3	0
Future Volume (vph)	873	4	0	747	3	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		8.0	6.0	
Lane Util. Factor	0.91	1.00		0.91	1.00	
Frt	1.00	0.85		1.00	1.00	
Flt Protected	1.00	1.00		1.00	0.95	
Satd. Flow (prot)	4803	1615		4988	1805	
Flt Permitted	1.00	1.00		1.00	0.95	
Satd. Flow (perm)	4803	1615		4988	1805	
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	919	4	0	786	3	0
RTOR Reduction (vph)	0	1	0	0	0	0
Lane Group Flow (vph)	919	3	0	786	3	0
Heavy Vehicles (%)	8%	0%	0%	4%	0%	0%
Turn Type	NA	Perm	Perm	NA	Perm	Perm
Protected Phases	4			8		
Permitted Phases		4	8		2	2
Actuated Green, G (s)	40.5	40.5		40.5	1.6	
Effective Green, g (s)	40.5	40.5		40.5	1.6	
Actuated g/C Ratio	0.72	0.72		0.72	0.03	
Clearance Time (s)	8.0	8.0		8.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	3467	1165		3600	51	
v/s Ratio Prot	c0.19			0.16		
v/s Ratio Perm		0.00			c0.00	
v/c Ratio	0.27	0.00		0.22	0.06	
Uniform Delay, d1	2.7	2.2		2.6	26.5	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	0.0		0.1	0.5	
Delay (s)	2.9	2.2		2.7	27.0	
Level of Service	A	A		A	C	
Approach Delay (s)	2.9			2.7	27.0	
Approach LOS	A			A	C	

Intersection Summary

HCM 2000 Control Delay	2.8	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.26		
Actuated Cycle Length (s)	56.1	Sum of lost time (s)	14.0
Intersection Capacity Utilization	40.8%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues

Scenario 3 - SAT Peak Hour

8: Steeles Avenue & Sixth Line

Premier Gateway



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	44	652	228	325	672	11	98	260	65	10	185
v/c Ratio	0.20	0.47	0.36	0.65	0.28	0.01	0.28	0.17	0.12	0.03	0.12
Control Delay	18.7	18.4	4.5	30.7	9.1	0.0	18.7	15.9	2.0	15.3	13.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	18.7	18.4	4.5	30.7	9.1	0.0	18.7	15.9	2.0	15.3	13.7
Queue Length 50th (m)	3.8	22.3	0.0	18.5	15.2	0.0	8.6	8.0	0.0	0.8	4.9
Queue Length 95th (m)	11.1	31.9	13.3	30.1	21.7	0.0	19.6	13.4	3.5	3.8	9.3
Internal Link Dist (m)		455.7			881.3			955.7			3042.1
Turn Bay Length (m)	60.0		30.0	60.0		30.0	30.0		30.0	30.0	
Base Capacity (vph)	218	1382	639	514	2401	835	352	1525	551	333	1516
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	0.20	0.47	0.36	0.63	0.28	0.01	0.28	0.17	0.12	0.03	0.12

Intersection Summary

HCM Signalized Intersection Capacity Analysis
8: Steeles Avenue & Sixth Line

Scenario 3 - SAT Peak Hour
Premier Gateway

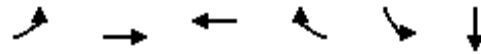


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗	↘↗	↑↑↑	↗	↘	↑↑↑	↗	↘	↑↑↑	↗
Traffic Volume (vph)	41	613	219	312	632	10	94	250	62	9	156	21
Future Volume (vph)	41	613	219	312	632	10	94	250	62	9	156	21
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0	3.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	1.00	0.91	1.00	1.00	0.91	0.91
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.98	0.98
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)	1770	4550	1583	3433	4803	1615	1770	5085	1583	1805	5006	5006
Flt Permitted	0.38	1.00	1.00	0.95	1.00	1.00	0.63	1.00	1.00	0.58	1.00	1.00
Satd. Flow (perm)	717	4550	1583	3433	4803	1615	1174	5085	1583	1111	5006	5006
Peak-hour factor, PHF	0.94	0.94	0.96	0.96	0.94	0.94	0.96	0.96	0.96	0.94	0.96	0.94
Adj. Flow (vph)	44	652	228	325	672	11	98	260	65	10	162	22
RTOR Reduction (vph)	0	0	159	0	0	6	0	0	46	0	15	0
Lane Group Flow (vph)	44	652	69	325	672	6	98	260	20	10	170	0
Heavy Vehicles (%)	2%	14%	2%	2%	8%	0%	2%	2%	2%	0%	2%	0%
Turn Type	Perm	NA	Perm	Prot	NA	Perm	Perm	NA	Perm	Perm	NA	NA
Protected Phases		2		1	6			8				4
Permitted Phases	2		2			6	8		8	4		
Actuated Green, G (s)	18.2	18.2	18.2	8.8	30.0	30.0	18.0	18.0	18.0	18.0	18.0	18.0
Effective Green, g (s)	18.2	18.2	18.2	8.8	30.0	30.0	18.0	18.0	18.0	18.0	18.0	18.0
Actuated g/C Ratio	0.30	0.30	0.30	0.15	0.50	0.50	0.30	0.30	0.30	0.30	0.30	0.30
Clearance Time (s)	6.0	6.0	6.0	3.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0	6.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	217	1380	480	503	2401	807	352	1525	474	333	1501	1501
v/s Ratio Prot		c0.14		c0.09	0.14			0.05				0.03
v/s Ratio Perm	0.06		0.04			0.00	c0.08		0.01	0.01		
v/c Ratio	0.20	0.47	0.14	0.65	0.28	0.01	0.28	0.17	0.04	0.03	0.11	0.11
Uniform Delay, d1	15.5	17.0	15.2	24.1	8.7	7.5	16.0	15.5	14.9	14.8	15.2	15.2
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.1	1.2	0.6	2.9	0.3	0.0	2.0	0.2	0.2	0.2	0.2	0.2
Delay (s)	17.6	18.2	15.9	27.0	9.0	7.5	18.0	15.7	15.0	15.0	15.4	15.4
Level of Service	B	B	B	C	A	A	B	B	B	B	B	B
Approach Delay (s)		17.6			14.8			16.2				15.3
Approach LOS		B			B			B				B

Intersection Summary		
HCM 2000 Control Delay	16.1	HCM 2000 Level of Service
HCM 2000 Volume to Capacity ratio	0.43	B
Actuated Cycle Length (s)	60.0	Sum of lost time (s)
Intersection Capacity Utilization	48.5%	15.0
Analysis Period (min)	15	ICU Level of Service
c Critical Lane Group		A

Queues
9: Sixth Line South/Street A & Steeles Avenue

Scenario 3 - SAT Peak Hour
Premier Gateway



Lane Group	EBL	EBT	WBT	WBR	SBL	SBT
Lane Group Flow (vph)	46	689	877	132	234	149
v/c Ratio	0.39	0.56	0.67	0.26	0.34	0.18
Control Delay	28.0	20.5	22.1	4.9	9.1	6.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.0	20.5	22.1	4.9	9.1	6.0
Queue Length 50th (m)	4.2	24.1	31.8	0.0	13.3	5.2
Queue Length 95th (m)	13.2	33.9	43.3	9.9	25.0	13.8
Internal Link Dist (m)		881.3	473.0			481.0
Turn Bay Length (m)	50.0			30.0	70.0	
Base Capacity (vph)	130	1353	1440	552	684	824
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.35	0.51	0.61	0.24	0.34	0.18

Intersection Summary

HCM Signalized Intersection Capacity Analysis
9: Sixth Line South/Street A & Steeles Avenue

Scenario 3 - SAT Peak Hour
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗	↘	↑↑↑	↗	↘	↗		↘	↗	
Traffic Volume (vph)	43	641	0	0	816	123	0	0	0	218	0	139
Future Volume (vph)	43	641	0	0	816	123	0	0	0	218	0	139
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0			6.0	6.0				4.5	6.0	
Lane Util. Factor	1.00	0.91			0.91	1.00				1.00	1.00	
Frt	1.00	1.00			1.00	0.85				1.00	0.85	
Flt Protected	0.95	1.00			1.00	1.00				0.95	1.00	
Satd. Flow (prot)	1687	4510			4803	1524				1703	1509	
Flt Permitted	0.25	1.00			1.00	1.00				0.62	1.00	
Satd. Flow (perm)	436	4510			4803	1524				1109	1509	
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	46	689	0	0	877	132	0	0	0	234	0	149
RTOR Reduction (vph)	0	0	0	0	0	96	0	0	0	0	26	0
Lane Group Flow (vph)	46	689	0	0	877	36	0	0	0	234	123	0
Heavy Vehicles (%)	7%	15%	0%	0%	8%	6%	0%	0%	0%	6%	0%	7%
Turn Type	Perm	NA	Perm	Perm	NA	Perm	Perm			pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4		4	8		8	2			6		
Actuated Green, G (s)	16.3	16.3			16.3	16.3				31.7	31.7	
Effective Green, g (s)	16.3	16.3			16.3	16.3				31.7	31.7	
Actuated g/C Ratio	0.27	0.27			0.27	0.27				0.53	0.53	
Clearance Time (s)	6.0	6.0			6.0	6.0				4.5	6.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0				3.0	3.0	
Lane Grp Cap (vph)	118	1225			1304	414				656	797	
v/s Ratio Prot		0.15			c0.18					c0.04	0.08	
v/s Ratio Perm	0.11					0.02				c0.15		
v/c Ratio	0.39	0.56			0.67	0.09				0.36	0.15	
Uniform Delay, d1	17.8	18.8			19.5	16.3				7.9	7.3	
Progression Factor	1.00	1.00			1.00	1.00				1.00	1.00	
Incremental Delay, d2	2.1	0.6			1.4	0.1				0.3	0.4	
Delay (s)	19.9	19.4			20.9	16.4				8.3	7.7	
Level of Service	B	B			C	B				A	A	
Approach Delay (s)		19.4			20.3			0.0			8.0	
Approach LOS		B			C			A			A	

Intersection Summary

HCM 2000 Control Delay	17.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	16.5
Intersection Capacity Utilization	47.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
 10: Steeles Avenue & Hornby Road

Scenario 3 - SAT Peak Hour
 Premier Gateway



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations	↵	↑↑↑	↑↑↑	↵	↵	↵
Traffic Volume (veh/h)	102	757	800	12	9	139
Future Volume (Veh/h)	102	757	800	12	9	139
Sign Control		Free	Free		Stop	
Grade		0%	0%		0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	110	814	860	13	10	149
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type		None	None			
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume	873				1351	287
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol	873				1351	287
tC, single (s)	4.1				6.8	6.9
tC, 2 stage (s)						
tF (s)	2.2				3.5	3.3
p0 queue free %	86				92	79
cM capacity (veh/h)	781				124	713

Direction, Lane #	EB 1	EB 2	EB 3	EB 4	WB 1	WB 2	WB 3	WB 4	SB 1	SB 2
Volume Total	110	271	271	271	287	287	287	13	10	149
Volume Left	110	0	0	0	0	0	0	0	10	0
Volume Right	0	0	0	0	0	0	0	13	0	149
cSH	781	1700	1700	1700	1700	1700	1700	1700	124	713
Volume to Capacity	0.14	0.16	0.16	0.16	0.17	0.17	0.17	0.01	0.08	0.21
Queue Length 95th (m)	3.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.1	6.3
Control Delay (s)	10.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36.7	11.4
Lane LOS	B								E	B
Approach Delay (s)	1.2				0.0				13.0	
Approach LOS									B	

Intersection Summary		
Average Delay		1.6
Intersection Capacity Utilization	34.4%	ICU Level of Service
Analysis Period (min)		15
		A

HCM Unsignalized Intersection Capacity Analysis
 11: Trafalgar Rd & Hornby Rd

Scenario 3 - SAT Peak Hour
 Premier Gateway



Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations							
Traffic Volume (veh/h)	211	1	3	743	645	222	
Future Volume (Veh/h)	211	1	3	743	645	222	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.97	0.97	0.97	0.97	0.97	0.97	
Hourly flow rate (vph)	218	1	3	766	665	229	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				None	None		
Median storage veh							
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume	1041	336	665				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	1041	336	665				
tC, single (s)	6.9	7.0	4.2				
tC, 2 stage (s)							
tF (s)	3.5	3.4	2.3				
p0 queue free %	2	100	100				
cM capacity (veh/h)	222	648	894				
Direction, Lane #	EB 1	NB 1	NB 2	NB 3	SB 1	SB 2	SB 3
Volume Total	219	156	306	306	266	266	362
Volume Left	218	3	0	0	0	0	0
Volume Right	1	0	0	0	0	0	229
cSH	222	894	1700	1700	1700	1700	1700
Volume to Capacity	0.99	0.00	0.18	0.18	0.16	0.16	0.21
Queue Length 95th (m)	70.9	0.1	0.0	0.0	0.0	0.0	0.0
Control Delay (s)	102.8	0.2	0.0	0.0	0.0	0.0	0.0
Lane LOS	F	A					
Approach Delay (s)	102.8	0.0			0.0		
Approach LOS	F						
Intersection Summary							
Average Delay			12.0				
Intersection Capacity Utilization			35.8%		ICU Level of Service		A
Analysis Period (min)			15				

Queues
12: Trafalgar Road & Steeles Avenue

Scenario 3 - SAT Peak Hour
Premier Gateway



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	47	368	486	995	499	82	289	650	1285	107	847
v/c Ratio	0.20	0.34	1.12	0.79	0.18	0.09	1.25	0.65	1.23	0.55	1.04
Control Delay	21.3	48.0	118.1	47.3	16.2	2.1	195.7	56.9	137.6	51.3	99.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.3	48.0	118.1	47.3	16.2	2.1	195.7	56.9	137.6	51.3	99.4
Queue Length 50th (m)	5.0	34.4	~136.0	138.5	27.1	0.0	~56.0	66.9	~460.5	24.1	~100.6
Queue Length 95th (m)	10.2	45.3	#208.5	166.1	34.2	5.8	#87.1	81.9	#547.0	40.5	#130.9
Internal Link Dist (m)		443.0			287.3			749.5			265.5
Turn Bay Length (m)	115.0		40.0	130.0		70.0	100.0		65.0		
Base Capacity (vph)	235	1073	432	1255	2766	904	231	997	1043	193	816
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	0.20	0.34	1.13	0.79	0.18	0.09	1.25	0.65	1.23	0.55	1.04

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
12: Trafalgar Road & Steeles Avenue

Scenario 3 - SAT Peak Hour
Premier Gateway

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	45	353	467	955	479	79	277	624	1234	103	799	14
Future Volume (vph)	45	353	467	955	479	79	277	624	1234	103	799	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	5.0	7.0	7.0	5.0	8.0	5.0	4.0	8.0	
Lane Util. Factor	1.00	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.91	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	
Satd. Flow (prot)	1399	4715	1442	3502	4940	1538	3045	4988	1599	1736	4925	
Flt Permitted	0.46	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.31	1.00	
Satd. Flow (perm)	676	4715	1442	3502	4940	1538	3045	4988	1599	570	4925	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	47	368	486	995	499	82	289	650	1285	107	832	15
RTOR Reduction (vph)	0	0	104	0	0	36	0	0	72	0	2	0
Lane Group Flow (vph)	47	368	382	995	499	46	289	650	1213	107	845	0
Heavy Vehicles (%)	29%	10%	12%	0%	5%	5%	15%	4%	1%	4%	5%	7%
Turn Type	pm+pt	NA	Perm	Prot	NA	Perm	Prot	NA	pm+ov	pm+pt	NA	
Protected Phases	7	4		3	8		5	2	3	1	6	
Permitted Phases	4		4			8			2	6		
Actuated Green, G (s)	39.4	33.8	33.8	52.0	81.2	81.2	11.0	28.2	80.2	30.2	23.2	
Effective Green, g (s)	39.4	33.8	33.8	52.0	81.2	81.2	11.0	28.2	80.2	30.2	23.2	
Actuated g/C Ratio	0.27	0.23	0.23	0.36	0.56	0.56	0.08	0.19	0.55	0.21	0.16	
Clearance Time (s)	4.0	7.0	7.0	5.0	7.0	7.0	5.0	8.0	5.0	4.0	8.0	
Vehicle Extension (s)	3.0	3.0	3.0	4.0	3.0	3.0	4.0	0.2	4.0	3.0	0.2	
Lane Grp Cap (vph)	211	1099	336	1255	2766	861	231	970	884	175	788	
v/s Ratio Prot	0.01	0.08		0.28	0.10		c0.09	0.13	c0.49	0.03	0.17	
v/s Ratio Perm	0.05		c0.27			0.03			0.27	0.10		
v/c Ratio	0.22	0.33	1.14	0.79	0.18	0.05	1.25	0.67	1.37	0.61	1.07	
Uniform Delay, d1	39.8	46.2	55.6	41.7	15.6	14.5	67.0	54.1	32.4	48.9	60.9	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.5	0.8	92.0	3.7	0.1	0.1	143.5	3.7	174.7	6.2	53.4	
Delay (s)	40.3	47.1	147.6	45.4	15.8	14.6	210.5	57.8	207.1	55.1	114.3	
Level of Service	D	D	F	D	B	B	F	E	F	E	F	
Approach Delay (s)		101.0			34.4			163.9			107.6	
Approach LOS		F			C			F			F	
Intersection Summary												
HCM 2000 Control Delay			108.3									F
HCM 2000 Volume to Capacity ratio			1.33									
Actuated Cycle Length (s)			145.0						25.0			
Intersection Capacity Utilization			112.2%									H
Analysis Period (min)			15									
c Critical Lane Group												

Queues
13: Toronto Premier Outlets & Steeles Avenue

Scenario 3 - SAT Peak Hour
Premier Gateway

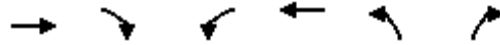


Lane Group	EBT	EBR	WBL	WBT	NBL
Lane Group Flow (vph)	847	811	94	1047	524
v/c Ratio	0.39	0.70	0.22	0.37	0.64
Control Delay	12.9	5.1	6.3	7.6	24.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	12.9	5.1	6.3	7.6	24.9
Queue Length 50th (m)	24.9	0.0	4.0	21.5	28.2
Queue Length 95th (m)	34.3	19.4	8.8	28.9	42.5
Internal Link Dist (m)	287.3			176.7	95.1
Turn Bay Length (m)		130.0	45.0		
Base Capacity (vph)	2161	1159	434	2853	817
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.39	0.70	0.22	0.37	0.64
Intersection Summary					

HCM Signalized Intersection Capacity Analysis
13: Toronto Premier Outlets & Steeles Avenue

Scenario 3 - SAT Peak Hour

Premier Gateway



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↗	↖	↑↑↑	↖	↗
Traffic Volume (vph)	813	779	90	1005	503	0
Future Volume (vph)	813	779	90	1005	503	0
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	4.0	6.0	6.0	
Lane Util. Factor	0.91	1.00	1.00	0.91	0.97	
Frt	1.00	0.85	1.00	1.00	1.00	
Flt Protected	1.00	1.00	0.95	1.00	0.95	
Satd. Flow (prot)	4988	1615	1805	5036	3502	
Flt Permitted	1.00	1.00	0.27	1.00	0.95	
Satd. Flow (perm)	4988	1615	507	5036	3502	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	847	811	94	1047	524	0
RTOR Reduction (vph)	0	460	0	0	0	0
Lane Group Flow (vph)	847	351	94	1047	524	0
Heavy Vehicles (%)	4%	0%	0%	3%	0%	0%
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	26.0	26.0	34.8	34.8	13.2	
Effective Green, g (s)	26.0	26.0	34.8	34.8	13.2	
Actuated g/C Ratio	0.43	0.43	0.58	0.58	0.22	
Clearance Time (s)	6.0	6.0	4.0	6.0	6.0	
Vehicle Extension (s)	0.2	0.2	3.0	0.2	4.0	
Lane Grp Cap (vph)	2161	699	397	2920	770	
v/s Ratio Prot	0.17		0.02	c0.21	c0.15	
v/s Ratio Perm		c0.22	0.12			
v/c Ratio	0.39	0.50	0.24	0.36	0.68	
Uniform Delay, d1	11.6	12.3	5.8	6.7	21.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.5	2.6	0.3	0.3	4.8	
Delay (s)	12.1	14.9	6.1	7.0	26.3	
Level of Service	B	B	A	A	C	
Approach Delay (s)	13.5			7.0	26.3	
Approach LOS	B			A	C	

Intersection Summary

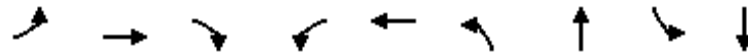
HCM 2000 Control Delay	13.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	60.0	Sum of lost time (s)	16.0
Intersection Capacity Utilization	61.6%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Queues

Scenario 3 - SAT Peak Hour

14: Toronto Premium Outlets/Eighth Line & Steeles Avenue

Premier Gateway



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	184	569	37	245	622	391	483	49	164
v/c Ratio	0.44	0.38	0.06	0.53	0.40	0.74	0.57	0.43	0.32
Control Delay	15.0	22.5	0.2	16.8	22.0	41.9	7.6	44.9	9.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.0	22.5	0.2	16.8	22.0	41.9	7.6	44.9	9.8
Queue Length 50th (m)	15.5	25.6	0.0	21.4	27.6	30.7	10.5	7.3	1.4
Queue Length 95th (m)	27.6	35.3	0.0	36.1	37.7	#48.8	35.8	#18.5	10.1
Internal Link Dist (m)		176.7			846.8		194.1		472.6
Turn Bay Length (m)	105.0		55.0	30.0				20.0	
Base Capacity (vph)	430	1494	644	463	1561	534	846	113	520
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.43	0.38	0.06	0.53	0.40	0.73	0.57	0.43	0.32

Intersection Summary

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

Queue shown is maximum after two cycles.

HCM Signalized Intersection Capacity Analysis
 14: Toronto Premium Outlets/Eighth Line & Steeles Avenue

Scenario 3 - SAT Peak Hour

Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↘	↑↑↑	↗	↘	↑↑↑		↘↗	↗		↘	↑↗	
Traffic Volume (vph)	180	558	36	240	572	37	383	40	433	48	20	141
Future Volume (vph)	180	558	36	240	572	37	383	40	433	48	20	141
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	4.0	6.0		7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91		0.97	1.00		1.00	0.95	
Frt	1.00	1.00	0.85	1.00	0.99		1.00	0.86		1.00	0.87	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1752	4893	1615	1805	5036		3502	1639		1736	3107	
Flt Permitted	0.38	1.00	1.00	0.40	1.00		0.95	1.00		0.49	1.00	
Satd. Flow (perm)	695	4893	1615	767	5036		3502	1639		891	3107	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	184	569	37	245	584	38	391	41	442	49	20	144
RTOR Reduction (vph)	0	0	26	0	9	0	0	242	0	0	126	0
Lane Group Flow (vph)	184	569	11	245	613	0	391	241	0	49	38	0
Heavy Vehicles (%)	3%	6%	0%	0%	2%	3%	0%	0%	0%	4%	0%	1%
Turn Type	pm+pt	NA	Perm	pm+pt	NA		Prot	NA		Perm	NA	
Protected Phases	7	4		3	8		5	2				6
Permitted Phases	4		4	8						6		
Actuated Green, G (s)	32.6	24.0	24.0	33.0	24.2		11.8	28.8		10.0	10.0	
Effective Green, g (s)	32.6	24.0	24.0	33.0	24.2		11.8	28.8		10.0	10.0	
Actuated g/C Ratio	0.41	0.31	0.31	0.42	0.31		0.15	0.37		0.13	0.13	
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0		7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	0.2	0.2	3.0	0.2		4.0	4.0		3.0	3.0	
Lane Grp Cap (vph)	403	1494	493	438	1550		525	600		113	395	
v/s Ratio Prot	0.05	0.12		c0.06	0.12		c0.11	c0.15			0.01	
v/s Ratio Perm	0.14		0.01	c0.17						0.05		
v/c Ratio	0.46	0.38	0.02	0.56	0.40		0.74	0.40		0.43	0.10	
Uniform Delay, d1	15.1	21.5	19.1	15.3	21.4		32.0	18.5		31.7	30.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.8	0.7	0.1	1.6	0.8		6.0	0.6		11.7	0.5	
Delay (s)	15.9	22.2	19.2	16.9	22.2		38.0	19.1		43.3	30.8	
Level of Service	B	C	B	B	C		D	B		D	C	
Approach Delay (s)		20.6			20.7			27.6			33.7	
Approach LOS		C			C			C			C	

Intersection Summary		
HCM 2000 Control Delay	23.9	HCM 2000 Level of Service C
HCM 2000 Volume to Capacity ratio	0.59	
Actuated Cycle Length (s)	78.6	Sum of lost time (s) 24.0
Intersection Capacity Utilization	87.2%	ICU Level of Service E
Analysis Period (min)	15	
c Critical Lane Group		

HCM Unsignalized Intersection Capacity Analysis
 15: Eighth Line South & Steeles Avenue

Scenario 3 - SAT Peak Hour
 Premier Gateway



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑		↵	↑↑↑	↵	↵
Traffic Volume (veh/h)	1036	3	1	847	3	8
Future Volume (Veh/h)	1036	3	1	847	3	8
Sign Control	Free			Free	Stop	
Grade	0%			0%	0%	
Peak Hour Factor	0.93	0.93	0.93	0.93	0.93	0.93
Hourly flow rate (vph)	1114	3	1	911	3	9
Pedestrians						
Lane Width (m)						
Walking Speed (m/s)						
Percent Blockage						
Right turn flare (veh)						
Median type	None			None		
Median storage (veh)						
Upstream signal (m)						
pX, platoon unblocked						
vC, conflicting volume			1117		1421	373
vC1, stage 1 conf vol						
vC2, stage 2 conf vol						
vCu, unblocked vol			1117		1421	373
tC, single (s)			4.1		6.8	6.9
tC, 2 stage (s)						
tF (s)			2.2		3.5	3.3
p0 queue free %			100		98	99
cM capacity (veh/h)			633		129	630

Direction, Lane #	EB 1	EB 2	EB 3	WB 1	WB 2	WB 3	WB 4	NB 1	NB 2
Volume Total	446	446	226	1	304	304	304	3	9
Volume Left	0	0	0	1	0	0	0	3	0
Volume Right	0	0	3	0	0	0	0	0	9
cSH	1700	1700	1700	633	1700	1700	1700	129	630
Volume to Capacity	0.26	0.26	0.13	0.00	0.18	0.18	0.18	0.02	0.01
Queue Length 95th (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.6	0.3
Control Delay (s)	0.0	0.0	0.0	10.7	0.0	0.0	0.0	33.5	10.8
Lane LOS				B				D	B
Approach Delay (s)	0.0			0.0				16.5	
Approach LOS								C	

Intersection Summary		
Average Delay	0.1	
Intersection Capacity Utilization	30.1%	ICU Level of Service
Analysis Period (min)	15	
		A

Queues
16: Steeles Avenue & Ninth Line



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	147	941	756	365	380	127
v/c Ratio	0.33	0.36	0.40	0.44	0.84	0.26
Control Delay	8.3	9.1	15.6	4.0	41.3	5.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.3	9.1	15.6	4.0	41.3	5.7
Queue Length 50th (m)	7.2	21.7	24.5	0.0	41.8	0.0
Queue Length 95th (m)	14.3	29.4	34.2	15.6	#84.5	10.9
Internal Link Dist (m)		501.4	674.5		3096.2	
Turn Bay Length (m)	65.0			75.0		
Base Capacity (vph)	448	2601	1881	821	451	495
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.36	0.40	0.44	0.84	0.26

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
 16: Steeles Avenue & Ninth Line

Scenario 3 - SAT Peak Hour
 Premier Gateway



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	141	903	726	350	365	122
Future Volume (vph)	141	903	726	350	365	122
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	7.0	7.0	7.0
Lane Util. Factor	1.00	0.91	0.91	1.00	1.00	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1736	5036	5085	1599	1805	1599
Flt Permitted	0.30	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	546	5036	5085	1599	1805	1599
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	147	941	756	365	380	127
RTOR Reduction (vph)	0	0	0	232	0	96
Lane Group Flow (vph)	147	941	756	133	380	31
Heavy Vehicles (%)	4%	3%	2%	1%	0%	1%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	31.8	31.8	22.2	22.2	15.0	15.0
Effective Green, g (s)	31.8	31.8	22.2	22.2	15.0	15.0
Actuated g/C Ratio	0.52	0.52	0.37	0.37	0.25	0.25
Clearance Time (s)	4.0	7.0	7.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	0.2	0.2	0.2	3.0	3.0
Lane Grp Cap (vph)	395	2633	1856	583	445	394
v/s Ratio Prot	0.03	c0.19	0.15		c0.21	
v/s Ratio Perm	c0.16			0.08		0.02
v/c Ratio	0.37	0.36	0.41	0.23	0.85	0.08
Uniform Delay, d1	7.7	8.5	14.4	13.4	21.9	17.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	0.4	0.7	0.9	18.5	0.4
Delay (s)	8.3	8.9	15.1	14.3	40.3	18.0
Level of Service	A	A	B	B	D	B
Approach Delay (s)		8.8	14.8		34.7	
Approach LOS		A	B		C	

Intersection Summary

HCM 2000 Control Delay	16.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	60.8	Sum of lost time (s)	18.0
Intersection Capacity Utilization	59.7%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Queues
17: Ninth Line (South) & Steeles Avenue

Scenario 3 - SAT Peak Hour
Premier Gateway



Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Group Flow (vph)	1108	255	128	905	253	185
v/c Ratio	0.67	0.36	0.38	0.38	0.47	0.30
Control Delay	20.4	4.2	10.8	10.7	21.9	4.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.4	4.2	10.8	10.7	21.9	4.8
Queue Length 50th (m)	42.7	0.0	7.1	23.3	25.5	0.0
Queue Length 95th (m)	56.7	14.0	14.3	31.5	45.4	12.7
Internal Link Dist (m)	674.5			176.7	143.5	
Turn Bay Length (m)		75.0	145.0		60.0	
Base Capacity (vph)	1666	704	333	2608	537	610
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.67	0.36	0.38	0.35	0.47	0.30

Intersection Summary

HCM Signalized Intersection Capacity Analysis
17: Ninth Line (South) & Steeles Avenue

Scenario 3 - SAT Peak Hour
Premier Gateway



Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↑↑↑	↑	↑	↑↑↑	↑	↑
Traffic Volume (vph)	1030	237	119	842	235	172
Future Volume (vph)	1030	237	119	842	235	172
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	4.0	7.0	7.0	7.0
Lane Util. Factor	0.91	1.00	1.00	0.91	1.00	1.00
Frt	1.00	0.85	1.00	1.00	1.00	0.85
Flt Protected	1.00	1.00	0.95	1.00	0.95	1.00
Satd. Flow (prot)	5036	1615	1787	5085	1805	1615
Flt Permitted	1.00	1.00	0.17	1.00	0.95	1.00
Satd. Flow (perm)	5036	1615	312	5085	1805	1615
Peak-hour factor, PHF	0.93	0.93	0.93	0.93	0.93	0.93
Adj. Flow (vph)	1108	255	128	905	253	185
RTOR Reduction (vph)	0	172	0	0	0	131
Lane Group Flow (vph)	1108	83	128	905	253	54
Heavy Vehicles (%)	3%	0%	1%	2%	0%	0%
Turn Type	NA	Perm	pm+pt	NA	Prot	Perm
Protected Phases	4		3	8	2	
Permitted Phases		4	8			2
Actuated Green, G (s)	20.1	20.1	29.5	29.5	18.1	18.1
Effective Green, g (s)	20.1	20.1	29.5	29.5	18.1	18.1
Actuated g/C Ratio	0.33	0.33	0.48	0.48	0.29	0.29
Clearance Time (s)	7.0	7.0	4.0	7.0	7.0	7.0
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	1643	526	278	2435	530	474
v/s Ratio Prot	c0.22		c0.04	0.18	c0.14	
v/s Ratio Perm		0.05	0.18			0.03
v/c Ratio	0.67	0.16	0.46	0.37	0.48	0.11
Uniform Delay, d1	17.9	14.7	9.9	10.2	17.9	15.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.1	0.1	1.2	0.1	3.1	0.5
Delay (s)	19.0	14.9	11.1	10.3	20.9	16.4
Level of Service	B	B	B	B	C	B
Approach Delay (s)	18.3			10.4	19.0	
Approach LOS	B			B	B	

Intersection Summary

HCM 2000 Control Delay	15.5	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	61.6	Sum of lost time (s)	18.0
Intersection Capacity Utilization	54.5%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues

18: James Snow Parkway & Hwy 401 (Westbound Ramp)



Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	613	277	606	807
v/c Ratio	0.67	0.60	0.27	0.35
Control Delay	23.2	16.5	11.6	12.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	23.2	16.5	11.6	12.2
Queue Length 50th (m)	32.2	16.3	15.7	21.9
Queue Length 95th (m)	46.9	39.3	26.8	35.7
Internal Link Dist (m)	390.4		415.8	504.8
Turn Bay Length (m)				
Base Capacity (vph)	1670	743	2227	2293
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.37	0.37	0.27	0.35

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 18: James Snow Parkway & Hwy 401 (Westbound Ramp)

Scenario 3 - SAT Peak Hour

Premier Gateway



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔↔	↗	↑↑↑			↑↑↑
Traffic Volume (vph)	532	332	588	0	0	783
Future Volume (vph)	532	332	588	0	0	783
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.2	8.2	9.3			9.3
Lane Util. Factor	0.97	0.91	0.91			0.91
Frt	0.98	0.85	1.00			1.00
Flt Protected	0.96	1.00	1.00			1.00
Satd. Flow (prot)	3423	1400	4940			5085
Flt Permitted	0.96	1.00	1.00			1.00
Satd. Flow (perm)	3423	1400	4940			5085
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	548	342	606	0	0	807
RTOR Reduction (vph)	15	92	0	0	0	0
Lane Group Flow (vph)	598	185	606	0	0	807
Heavy Vehicles (%)	1%	5%	5%	0%	0%	2%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	16.3	16.3	27.8			27.8
Effective Green, g (s)	16.3	16.3	27.8			27.8
Actuated g/C Ratio	0.26	0.26	0.45			0.45
Clearance Time (s)	8.2	8.2	9.3			9.3
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	905	370	2229			2294
v/s Ratio Prot	c0.17		0.12			c0.16
v/s Ratio Perm		0.13				
v/c Ratio	0.66	0.50	0.27			0.35
Uniform Delay, d1	20.2	19.2	10.6			11.0
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	1.8	1.1	0.3			0.4
Delay (s)	22.0	20.3	10.9			11.4
Level of Service	C	C	B			B
Approach Delay (s)	21.5		10.9			11.4
Approach LOS	C		B			B

Intersection Summary			
HCM 2000 Control Delay	15.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.47		
Actuated Cycle Length (s)	61.6	Sum of lost time (s)	17.5
Intersection Capacity Utilization	49.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues

19: James Snow Parkway & Hwy 401 (Eastbound Ramp)



Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	89	40	537	851
v/c Ratio	0.20	0.17	0.14	0.22
Control Delay	24.1	10.9	4.0	4.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	24.1	10.9	4.0	4.2
Queue Length 50th (m)	4.9	0.0	8.4	14.4
Queue Length 95th (m)	10.4	8.3	12.1	19.4
Internal Link Dist (m)	305.5		1282.4	415.8
Turn Bay Length (m)				
Base Capacity (vph)	787	404	3760	3797
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.11	0.10	0.14	0.22

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 19: James Snow Parkway & Hwy 401 (Eastbound Ramp)

Scenario 3 - SAT Peak Hour

Premier Gateway



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	73	54	0	532	842	0
Future Volume (vph)	73	54	0	532	842	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0		7.4	7.4	
Lane Util. Factor	0.97	0.91		0.91	0.91	
Frt	0.97	0.85		1.00	1.00	
Flt Protected	0.96	1.00		1.00	1.00	
Satd. Flow (prot)	3044	1470		5085	5136	
Flt Permitted	0.96	1.00		1.00	1.00	
Satd. Flow (perm)	3044	1470		5085	5136	
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	74	55	0	537	851	0
RTOR Reduction (vph)	13	36	0	0	0	0
Lane Group Flow (vph)	76	4	0	537	851	0
Heavy Vehicles (%)	16%	0%	0%	2%	1%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	7.9	7.9		50.9	50.9	
Effective Green, g (s)	7.9	7.9		50.9	50.9	
Actuated g/C Ratio	0.11	0.11		0.70	0.70	
Clearance Time (s)	6.0	6.0		7.4	7.4	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	333	160		3584	3620	
v/s Ratio Prot	c0.02			0.11	c0.17	
v/s Ratio Perm		0.00				
v/c Ratio	0.23	0.03		0.15	0.24	
Uniform Delay, d1	29.4	28.7		3.5	3.8	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.3	0.1		0.1	0.2	
Delay (s)	29.7	28.8		3.6	3.9	
Level of Service	C	C		A	A	
Approach Delay (s)	29.4			3.6	3.9	
Approach LOS	C			A	A	

Intersection Summary

HCM 2000 Control Delay	6.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.23		
Actuated Cycle Length (s)	72.2	Sum of lost time (s)	13.4
Intersection Capacity Utilization	49.9%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues
 20: Trafalgar Road & Hwy 401 (Westbound Ramp)



Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	648	470	1276	1774
v/c Ratio	0.56	0.88	0.49	0.68
Control Delay	26.9	47.0	18.4	22.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	26.9	47.0	18.4	22.0
Queue Length 50th (m)	53.9	96.7	61.2	98.5
Queue Length 95th (m)	70.0	143.9	98.2	154.8
Internal Link Dist (m)	383.1		312.7	749.5
Turn Bay Length (m)				
Base Capacity (vph)	1655	762	2625	2600
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.39	0.62	0.49	0.68
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
 20: Trafalgar Road & Hwy 401 (Westbound Ramp)

Scenario 3 - SAT Peak Hour
 Premier Gateway



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↶↶	↶	↷↷↷			↷↷↷
Traffic Volume (vph)	173	922	1250	0	0	1739
Future Volume (vph)	173	922	1250	0	0	1739
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	6.0	6.0	6.0			6.0
Lane Util. Factor	0.97	0.91	0.91			0.91
Frt	0.89	0.85	1.00			1.00
Flt Protected	0.99	1.00	1.00			1.00
Satd. Flow (prot)	3151	1441	5036			4988
Flt Permitted	0.99	1.00	1.00			1.00
Satd. Flow (perm)	3151	1441	5036			4988
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	177	941	1276	0	0	1774
RTOR Reduction (vph)	15	15	0	0	0	0
Lane Group Flow (vph)	633	455	1276	0	0	1774
Heavy Vehicles (%)	5%	2%	3%	0%	0%	4%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	37.9	37.9	54.6			54.6
Effective Green, g (s)	37.9	37.9	54.6			54.6
Actuated g/C Ratio	0.36	0.36	0.52			0.52
Clearance Time (s)	6.0	6.0	6.0			6.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	1142	522	2631			2606
v/s Ratio Prot	0.20		0.25			c0.36
v/s Ratio Perm		c0.32				
v/c Ratio	0.55	0.87	0.48			0.68
Uniform Delay, d1	26.6	31.0	16.0			18.5
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	0.6	14.8	0.6			1.5
Delay (s)	27.2	45.9	16.6			19.9
Level of Service	C	D	B			B
Approach Delay (s)	35.0		16.6			19.9
Approach LOS	D		B			B

Intersection Summary

HCM 2000 Control Delay	23.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	104.5	Sum of lost time (s)	12.0
Intersection Capacity Utilization	72.2%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Queues
 21: Trafalgar Road & Hwy 401 (Eastbound Ramp)



Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	527	241	1460	1485
v/c Ratio	0.72	0.72	0.44	0.44
Control Delay	40.2	41.5	8.3	8.2
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	40.2	41.5	8.3	8.2
Queue Length 50th (m)	48.3	40.1	41.4	41.3
Queue Length 95th (m)	65.6	69.2	68.2	68.3
Internal Link Dist (m)	204.3		1138.2	312.7
Turn Bay Length (m)				
Base Capacity (vph)	1539	667	3356	3350
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.34	0.36	0.44	0.44
Intersection Summary				

HCM Signalized Intersection Capacity Analysis
 21: Trafalgar Road & Hwy 401 (Eastbound Ramp)

Scenario 3 - SAT Peak Hour
 Premier Gateway



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	419	288	0	1343	1199	167
Future Volume (vph)	419	288	0	1343	1199	167
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	5.0		6.0	6.0	
Lane Util. Factor	0.97	0.91		0.91	0.91	
Frt	0.98	0.85		1.00	0.98	
Flt Protected	0.96	1.00		1.00	1.00	
Satd. Flow (prot)	3356	1413		4988	4961	
Flt Permitted	0.96	1.00		1.00	1.00	
Satd. Flow (perm)	3356	1413		4988	4961	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	455	313	0	1460	1303	182
RTOR Reduction (vph)	13	34	0	0	11	0
Lane Group Flow (vph)	514	207	0	1460	1474	0
Heavy Vehicles (%)	3%	4%	0%	4%	3%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	20.6	20.6		65.2	65.2	
Effective Green, g (s)	20.6	20.6		65.2	65.2	
Actuated g/C Ratio	0.21	0.21		0.67	0.67	
Clearance Time (s)	5.0	5.0		6.0	6.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	714	300		3359	3341	
v/s Ratio Prot	c0.15			0.29	c0.30	
v/s Ratio Perm		0.15				
v/c Ratio	0.72	0.69		0.43	0.44	
Uniform Delay, d1	35.4	35.2		7.3	7.3	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	3.5	6.7		0.4	0.4	
Delay (s)	38.9	41.9		7.7	7.8	
Level of Service	D	D		A	A	
Approach Delay (s)	39.8			7.7	7.8	
Approach LOS	D			A	A	

Intersection Summary

HCM 2000 Control Delay	14.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	96.8	Sum of lost time (s)	11.0
Intersection Capacity Utilization	51.0%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

Queues

22: Winston Churchill Boulevard & Hwy 401 (Westbound Ramp)



Lane Group	WBL	WBR	NBT	SBT
Lane Group Flow (vph)	875	333	858	1071
v/c Ratio	0.91	0.68	0.41	0.52
Control Delay	55.4	27.2	14.1	15.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	55.4	27.2	14.1	15.6
Queue Length 50th (m)	106.2	42.0	58.5	79.4
Queue Length 95th (m)	#141.5	80.7	73.0	97.3
Internal Link Dist (m)	284.7		32.1	320.2
Turn Bay Length (m)				
Base Capacity (vph)	1001	502	2069	2069
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.87	0.66	0.41	0.52

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis
 22: Winston Churchill Boulevard & Hwy 401 (Westbound Ramp)

Scenario 3 - SAT Peak Hour
 Premier Gateway



Movement	WBL	WBR	NBT	NBR	SBL	SBT
Lane Configurations	↔↔	↗	↕↕			↕↕
Traffic Volume (vph)	813	359	832	0	0	1039
Future Volume (vph)	813	359	832	0	0	1039
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	7.0	7.0	8.0			8.0
Lane Util. Factor	0.97	0.91	0.95			0.95
Frt	0.99	0.85	1.00			1.00
Flt Protected	0.95	1.00	1.00			1.00
Satd. Flow (prot)	3382	1324	3505			3505
Flt Permitted	0.95	1.00	1.00			1.00
Satd. Flow (perm)	3382	1324	3505			3505
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	838	370	858	0	0	1071
RTOR Reduction (vph)	3	113	0	0	0	0
Lane Group Flow (vph)	872	220	858	0	0	1071
Heavy Vehicles (%)	3%	11%	3%	0%	0%	3%
Turn Type	Prot	Perm	NA			NA
Protected Phases	8		2			6
Permitted Phases		8				
Actuated Green, G (s)	33.6	33.6	70.0			70.0
Effective Green, g (s)	33.6	33.6	70.0			70.0
Actuated g/C Ratio	0.28	0.28	0.59			0.59
Clearance Time (s)	7.0	7.0	8.0			8.0
Vehicle Extension (s)	3.0	3.0	3.0			3.0
Lane Grp Cap (vph)	958	375	2068			2068
v/s Ratio Prot	c0.26		0.24			c0.31
v/s Ratio Perm		0.17				
v/c Ratio	0.91	0.59	0.41			0.52
Uniform Delay, d1	41.0	36.5	13.2			14.3
Progression Factor	1.00	1.00	1.00			1.00
Incremental Delay, d2	12.5	2.3	0.6			0.9
Delay (s)	53.5	38.9	13.8			15.3
Level of Service	D	D	B			B
Approach Delay (s)	49.5		13.8			15.3
Approach LOS	D		B			B

Intersection Summary

HCM 2000 Control Delay	28.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	118.6	Sum of lost time (s)	15.0
Intersection Capacity Utilization	97.8%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Queues

23: Winston Churchill Boulevard & Hwy 401 (Eastbound Ramp)



Lane Group	EBL	EBR	NBT	SBT
Lane Group Flow (vph)	424	201	1010	1404
v/c Ratio	0.73	0.69	0.27	0.39
Control Delay	45.1	42.2	5.9	7.6
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	45.1	42.2	5.9	7.6
Queue Length 50th (m)	40.8	32.7	24.9	42.0
Queue Length 95th (m)	57.7	60.7	40.1	64.3
Internal Link Dist (m)	152.5		433.2	198.3
Turn Bay Length (m)				
Base Capacity (vph)	829	401	3718	3593
Starvation Cap Reductn	0	0	0	0
Spillback Cap Reductn	0	0	0	0
Storage Cap Reductn	0	0	0	0
Reduced v/c Ratio	0.51	0.50	0.27	0.39

Intersection Summary

HCM Signalized Intersection Capacity Analysis
 23: Winston Churchill Boulevard & Hwy 401 (Eastbound Ramp)

Scenario 3 - SAT Peak Hour

Premier Gateway



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Lane Configurations						
Traffic Volume (vph)	248	365	0	990	1350	25
Future Volume (vph)	248	365	0	990	1350	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	8.0	8.0		4.5	7.0	
Lane Util. Factor	0.97	0.91		0.91	0.91	
Frt	0.94	0.85		1.00	1.00	
Flt Protected	0.97	1.00		1.00	1.00	
Satd. Flow (prot)	3215	1455		5136	5122	
Flt Permitted	0.97	1.00		1.00	1.00	
Satd. Flow (perm)	3215	1455		5136	5122	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	253	372	0	1010	1378	26
RTOR Reduction (vph)	54	54	0	0	1	0
Lane Group Flow (vph)	370	147	0	1010	1403	0
Heavy Vehicles (%)	7%	1%	0%	1%	1%	0%
Turn Type	Prot	Perm		NA	NA	
Protected Phases	4			2	6	
Permitted Phases		4				
Actuated Green, G (s)	18.2	18.2		80.6	78.1	
Effective Green, g (s)	18.2	18.2		80.6	78.1	
Actuated g/C Ratio	0.16	0.16		0.72	0.70	
Clearance Time (s)	8.0	8.0		4.5	7.0	
Vehicle Extension (s)	3.0	3.0		3.0	3.0	
Lane Grp Cap (vph)	525	237		3719	3594	
v/s Ratio Prot	c0.12			0.20	c0.27	
v/s Ratio Perm		0.10				
v/c Ratio	0.71	0.62		0.27	0.39	
Uniform Delay, d1	44.0	43.3		5.3	6.8	
Progression Factor	1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.3	5.0		0.2	0.3	
Delay (s)	48.3	48.4		5.5	7.1	
Level of Service	D	D		A	A	
Approach Delay (s)	48.3			5.5	7.1	
Approach LOS	D			A	A	

Intersection Summary			
HCM 2000 Control Delay	15.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.45		
Actuated Cycle Length (s)	111.3	Sum of lost time (s)	15.0
Intersection Capacity Utilization	86.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Queues
24: James Snow Parkway & Main Street East

Lane Group
Lane Group Flow (vph)
v/c Ratio
Control Delay
Queue Delay
Total Delay
Queue Length 50th (m)
Queue Length 95th (m)
Internal Link Dist (m)
Turn Bay Length (m)
Base Capacity (vph)
Starvation Cap Reductn
Spillback Cap Reductn
Storage Cap Reductn
Reduced v/c Ratio
Intersection Summary

HCM Signalized Intersection Capacity Analysis
 24: James Snow Parkway & Main Street East

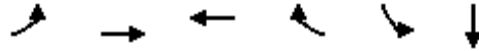
Scenario 3 - SAT Peak Hour
 Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↔↔	↑	↔	↔	↔↔		↔	↔↔↔		↔	↔↔↔	↔	
Traffic Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Future Volume (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)													
Lane Util. Factor													
Frt													
Flt Protected													
Satd. Flow (prot)													
Flt Permitted													
Satd. Flow (perm)													
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	
Adj. Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
RTOR Reduction (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Lane Group Flow (vph)	0	0	0	0	0	0	0	0	0	0	0	0	
Heavy Vehicles (%)	0%	0%	0%	0%	0%	3%	0%	3%	2%	2%	0%	1%	
Turn Type	Perm		Perm	Perm			Perm			Perm		Perm	
Protected Phases		4			8			2			6		
Permitted Phases	4		4	8			2			6		6	
Actuated Green, G (s)													
Effective Green, g (s)													
Actuated g/C Ratio													
Clearance Time (s)													
Vehicle Extension (s)													
Lane Grp Cap (vph)													
v/s Ratio Prot													
v/s Ratio Perm													
v/c Ratio													
Uniform Delay, d1													
Progression Factor													
Incremental Delay, d2													
Delay (s)													
Level of Service													
Approach Delay (s)		0.0			0.0			0.0			0.0		
Approach LOS		A			A			A			A		
Intersection Summary													
HCM 2000 Control Delay			0.0									HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio			0.00										
Actuated Cycle Length (s)			37.5									Sum of lost time (s)	9.0
Intersection Capacity Utilization			0.0%									ICU Level of Service	A
Analysis Period (min)			15										
c Critical Lane Group													

Queues
25: Street B & Steeles Avenue

Scenario 3 - SAT Peak Hour
Premier Gateway



Lane Group	EBL	EBT	WBT	WBR	SBL	SBT
Lane Group Flow (vph)	91	707	710	92	194	135
v/c Ratio	0.33	0.44	0.64	0.19	0.33	0.14
Control Delay	15.7	16.4	25.8	0.8	13.3	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.7	16.4	25.8	0.8	13.3	0.3
Queue Length 50th (m)	7.3	24.1	31.2	0.0	15.0	0.0
Queue Length 95th (m)	15.6	33.1	42.7	0.0	29.2	0.0
Internal Link Dist (m)		388.7	443.0			311.5
Turn Bay Length (m)	50.0			30.0	30.0	
Base Capacity (vph)	279	2045	1351	563	592	932
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.33	0.35	0.53	0.16	0.33	0.14

Intersection Summary

HCM Signalized Intersection Capacity Analysis
25: Street B & Steeles Avenue

Scenario 3 - SAT Peak Hour
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↑↑↑	↗	↖	↑↑↑	↗	↖	↑	↗	↖	↗	↖
Traffic Volume (vph)	87	679	0	0	682	88	0	0	0	186	0	130
Future Volume (vph)	87	679	0	0	682	88	0	0	0	186	0	130
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0			6.0	6.0				4.5	6.0	
Lane Util. Factor	1.00	0.91			0.91	1.00				1.00	1.00	
Frt	1.00	1.00			1.00	0.85				1.00	0.85	
Flt Protected	0.95	1.00			1.00	1.00				0.95	1.00	
Satd. Flow (prot)	1703	4590			4803	1524				1703	1524	
Flt Permitted	0.24	1.00			1.00	1.00				0.61	1.00	
Satd. Flow (perm)	421	4590			4803	1524				1091	1524	
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	91	707	0	0	710	92	0	0	0	194	0	135
RTOR Reduction (vph)	0	0	0	0	0	71	0	0	0	0	74	0
Lane Group Flow (vph)	91	707	0	0	710	21	0	0	0	194	61	0
Heavy Vehicles (%)	6%	13%	0%	0%	8%	6%	0%	0%	0%	6%	0%	6%
Turn Type	pm+pt	NA	Perm	Perm	NA	Perm	pm+pt		Perm	pm+pt	NA	
Protected Phases	7	4			8		5	2		1	6	
Permitted Phases	4		4	8		8	2		2	6		
Actuated Green, G (s)	24.0	24.0			14.9	14.9				29.7	29.7	
Effective Green, g (s)	24.0	24.0			14.9	14.9				29.7	29.7	
Actuated g/C Ratio	0.37	0.37			0.23	0.23				0.45	0.45	
Clearance Time (s)	4.5	6.0			6.0	6.0				4.5	6.0	
Vehicle Extension (s)	3.0	3.0			3.0	3.0				3.0	3.0	
Lane Grp Cap (vph)	243	1676			1089	345				556	688	
v/s Ratio Prot	0.03	c0.15			c0.15					c0.04	0.04	
v/s Ratio Perm	0.11					0.01				c0.12		
v/c Ratio	0.37	0.42			0.65	0.06				0.35	0.09	
Uniform Delay, d1	14.4	15.6			23.0	19.9				11.3	10.3	
Progression Factor	1.00	1.00			1.00	1.00				1.00	1.00	
Incremental Delay, d2	1.0	0.2			1.4	0.1				0.4	0.3	
Delay (s)	15.4	15.8			24.5	20.0				11.7	10.5	
Level of Service	B	B			C	B				B	B	
Approach Delay (s)		15.8			23.9			0.0			11.2	
Approach LOS		B			C			A			B	

Intersection Summary

HCM 2000 Control Delay	18.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.51		
Actuated Cycle Length (s)	65.7	Sum of lost time (s)	21.0
Intersection Capacity Utilization	42.6%	ICU Level of Service	A
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis
 26: Hornby Road & Street A

Scenario 3 - SAT Peak Hour
 Premier Gateway



Movement	EBL	EBR	NBL	NBT	SBT	SBR
Right Turn Channelized						
Traffic Volume (veh/h)	61	0	0	151	175	76
Future Volume (veh/h)	61	0	0	151	175	76
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96
Hourly flow rate (vph)	64	0	0	157	182	79
Approach Volume (veh/h)	64			157	261	
Crossing Volume (veh/h)	182			64	0	
High Capacity (veh/h)	1201			1317	1385	
High v/c (veh/h)	0.05			0.12	0.19	
Low Capacity (veh/h)	994			1100	1161	
Low v/c (veh/h)	0.06			0.14	0.22	
Intersection Summary						
Maximum v/c High			0.19			
Maximum v/c Low			0.22			
Intersection Capacity Utilization			23.9%		ICU Level of Service	A

Queues
27: Trafalgar Road & Street B

Scenario 3 - SAT Peak Hour
Premier Gateway



Lane Group	EBL	EBT	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	72	263	172	146	84	628	68	35	603	34
v/c Ratio	0.14	0.43	0.35	0.22	0.27	0.45	0.12	0.12	0.55	0.07
Control Delay	11.3	12.6	13.0	10.7	15.2	20.0	0.4	13.4	24.4	0.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	11.3	12.6	13.0	10.7	15.2	20.0	0.4	13.4	24.4	0.3
Queue Length 50th (m)	4.6	11.6	11.7	6.2	6.7	20.9	0.0	2.7	25.6	0.0
Queue Length 95th (m)	12.4	33.6	25.8	20.0	14.7	36.8	0.0	7.7	35.8	0.0
Internal Link Dist (m)		260.1		649.3		221.2			63.9	
Turn Bay Length (m)	50.0		50.0		50.0		50.0	50.0		50.0
Base Capacity (vph)	521	605	500	663	310	1674	640	302	1514	592
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	0.14	0.43	0.34	0.22	0.27	0.38	0.11	0.12	0.40	0.06

Intersection Summary

HCM Signalized Intersection Capacity Analysis
27: Trafalgar Road & Street B

Scenario 3 - SAT Peak Hour
Premier Gateway



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations	↖	↗		↖	↗		↖	↑↑↑	↗	↖	↑↑↑	↗
Traffic Volume (vph)	69	82	171	165	66	74	81	603	65	34	579	33
Future Volume (vph)	69	82	171	165	66	74	81	603	65	34	579	33
Ideal Flow (vphp)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0		4.5	6.0		4.5	6.0	6.0	4.5	6.0	6.0
Lane Util. Factor	1.00	1.00		1.00	1.00		1.00	0.91	1.00	1.00	0.91	1.00
Frt	1.00	0.90		1.00	0.92		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)	1703	1610		1703	1659		1703	4940	1524	1703	4988	1524
Flt Permitted	0.66	1.00		0.48	1.00		0.33	1.00	1.00	0.40	1.00	1.00
Satd. Flow (perm)	1190	1610		862	1659		593	4940	1524	722	4988	1524
Peak-hour factor, PHF	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96	0.96
Adj. Flow (vph)	72	85	178	172	69	77	84	628	68	35	603	34
RTOR Reduction (vph)	0	101	0	0	50	0	0	0	50	0	0	26
Lane Group Flow (vph)	72	162	0	172	96	0	84	628	18	35	603	8
Heavy Vehicles (%)	6%	6%	6%	6%	6%	5%	6%	5%	6%	6%	4%	6%
Turn Type	pm+pt	NA		pm+pt	NA		pm+pt	NA	Perm	pm+pt	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases	2			6			8		8	4		4
Actuated Green, G (s)	23.0	20.2		28.2	22.8		21.8	17.6	17.6	17.0	15.2	15.2
Effective Green, g (s)	23.0	20.2		28.2	22.8		21.8	17.6	17.6	17.0	15.2	15.2
Actuated g/C Ratio	0.35	0.31		0.43	0.35		0.33	0.27	0.27	0.26	0.23	0.23
Clearance Time (s)	4.5	6.0		4.5	6.0		4.5	6.0	6.0	4.5	6.0	6.0
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0	3.0	3.0	3.0	3.0
Lane Grp Cap (vph)	436	492		437	573		266	1317	406	212	1148	350
v/s Ratio Prot	0.01	0.10		c0.03	0.06		c0.02	c0.13		0.00	0.12	
v/s Ratio Perm	0.05			c0.14			0.08		0.01	0.04		0.01
v/c Ratio	0.17	0.33		0.39	0.17		0.32	0.48	0.04	0.17	0.53	0.02
Uniform Delay, d1	14.6	17.7		12.2	15.0		15.7	20.3	18.0	18.6	22.2	19.7
Progression Factor	1.00	1.00		1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	1.8		0.6	0.6		0.7	0.3	0.0	0.4	0.4	0.0
Delay (s)	14.8	19.5		12.8	15.6		16.4	20.6	18.0	18.9	22.7	19.7
Level of Service	B	B		B	B		B	C	B	B	C	B
Approach Delay (s)		18.5			14.1			19.9			22.3	
Approach LOS		B			B			B			C	

Intersection Summary

HCM 2000 Control Delay	19.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	66.0	Sum of lost time (s)	21.0
Intersection Capacity Utilization	57.3%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

HCM Unsignalized Intersection Capacity Analysis

28: Eighth Line & Street B

Scenario 3 - SAT Peak Hour
Premier Gateway



Movement	EBL	EBR	NBL	NBT	SBT	SBR	
Lane Configurations							
Traffic Volume (veh/h)	66	26	25	277	161	31	
Future Volume (Veh/h)	66	26	25	277	161	31	
Sign Control	Stop			Free	Free		
Grade	0%			0%	0%		
Peak Hour Factor	0.96	0.96	0.96	0.96	0.96	0.96	
Hourly flow rate (vph)	69	27	26	289	168	32	
Pedestrians							
Lane Width (m)							
Walking Speed (m/s)							
Percent Blockage							
Right turn flare (veh)							
Median type				None	None		
Median storage veh							
Upstream signal (m)							
pX, platoon unblocked							
vC, conflicting volume	380	100	200				
vC1, stage 1 conf vol							
vC2, stage 2 conf vol							
vCu, unblocked vol	380	100	200				
tC, single (s)	6.9	7.1	4.3				
tC, 2 stage (s)							
tF (s)	3.6	3.4	2.3				
p0 queue free %	88	97	98				
cM capacity (veh/h)	572	917	1327				
Direction, Lane #	EB 1	EB 2	NB 1	NB 2	NB 3	SB 1	SB 2
Volume Total	69	27	26	144	144	112	88
Volume Left	69	0	26	0	0	0	0
Volume Right	0	27	0	0	0	0	32
cSH	572	917	1327	1700	1700	1700	1700
Volume to Capacity	0.12	0.03	0.02	0.09	0.09	0.07	0.05
Queue Length 95th (m)	3.3	0.7	0.5	0.0	0.0	0.0	0.0
Control Delay (s)	12.1	9.0	7.8	0.0	0.0	0.0	0.0
Lane LOS	B	A	A				
Approach Delay (s)	11.3		0.6			0.0	
Approach LOS	B						
Intersection Summary							
Average Delay			2.1				
Intersection Capacity Utilization			22.4%	ICU Level of Service		A	
Analysis Period (min)			15				