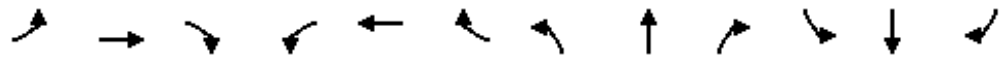


Lanes, Volumes, Timings  
6: Trafalgar Road & Steeles Avenue

Existing AM - Remedial Measures  
Premier Gateway Phase 1B Employment Area



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	503	181	449	305	35	118	264	336	145	995	10
Future Volume (vph)	27	503	181	449	305	35	118	264	336	145	995	10
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	115.0		40.0	130.0		70.0	100.0		65.0	250.0		0.0
Storage Lanes	1		1	2		1	2		1	1		0
Taper Length (m)	100.0			100.0			80.0			100.0		
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	0.95
Frt			0.850			0.850			0.850		0.999	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1357	3085	1179	3400	2843	1455	2148	3167	1524	1752	3414	0
Flt Permitted	0.566			0.950			0.950			0.589		
Satd. Flow (perm)	809	3085	1179	3400	2843	1455	2148	3167	1524	1087	3414	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			179			140			336			1
Link Speed (k/h)		60			60			70			70	
Link Distance (m)		879.8			311.3			332.0			289.5	
Travel Time (s)		52.8			18.7			17.1			14.9	
Peak Hour 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
Heavy Vehicles (%)	33%	17%	37%	3%	27%	11%	63%	14%	6%	3%	5%	70%
Adj. Flow (vph)	27	503	181	449	305	35	118	264	336	145	995	10
Shared Lane Traffic (%)												
Lane Group Flow (vph)	27	503	181	449	305	35	118	264	336	145	1005	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
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		
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	9.0	20.0	

Lanes, Volumes, Timings  
6: Trafalgar Road & Steeles Avenue

Existing AM - Remedial Measures  
Premier Gateway Phase 1B Employment Area

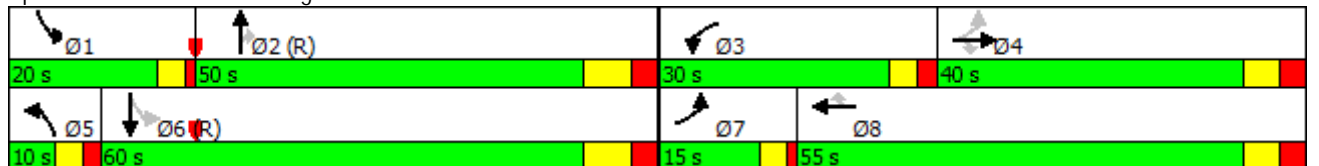


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	11.0	40.0	40.0	13.0	27.0	27.0	13.0	28.0	28.0	13.0	28.0	
Total Split (s)	15.0	40.0	40.0	30.0	55.0	55.0	10.0	50.0	50.0	20.0	60.0	
Total Split (%)	10.7%	28.6%	28.6%	21.4%	39.3%	39.3%	7.1%	35.7%	35.7%	14.3%	42.9%	
Maximum Green (s)	11.0	33.0	33.0	25.0	48.0	48.0	5.0	42.0	42.0	16.0	52.0	
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	
All-Red Time (s)	1.0	3.0	3.0	2.0	3.0	3.0	2.0	3.0	3.0	1.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	7.0	7.0	5.0	7.0	7.0	5.0	8.0	8.0	4.0	8.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
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	
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)		26.0	26.0		26.0	26.0		26.0	26.0		26.0	
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	
Act Effct Green (s)	38.4	27.9	27.9	23.1	48.8	48.8	12.0	53.0	53.0	66.4	52.0	
Actuated g/C Ratio	0.27	0.20	0.20	0.16	0.35	0.35	0.09	0.38	0.38	0.47	0.37	
v/c Ratio	0.11	0.82	0.48	0.80	0.31	0.06	0.64	0.22	0.43	0.25	0.79	
Control Delay	24.2	65.0	10.7	67.5	34.2	0.2	77.6	32.1	5.4	20.4	44.7	
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	24.2	65.0	10.7	67.5	34.2	0.2	77.6	32.1	5.4	20.4	44.7	
LOS	C	E	B	E	C	A	E	C	A	C	D	
Approach Delay		49.6			51.7			27.1			41.7	
Approach LOS		D			D			C			D	

Intersection Summary

Area Type:	Other
Cycle Length:	140
Actuated Cycle Length:	140
Offset:	0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle:	105
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.82
Intersection Signal Delay:	42.6
Intersection LOS:	D
Intersection Capacity Utilization	84.8%
ICU Level of Service	E
Analysis Period (min)	15

Splits and Phases: 6: Trafalgar Road & Steeles Avenue



Queues  
6: Trafalgar Road & Steeles Avenue

Existing AM - Remedial Measures  
Premier Gateway Phase 1B Employment Area



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	27	503	181	449	305	35	118	264	336	145	1005
v/c Ratio	0.11	0.82	0.48	0.80	0.31	0.06	0.64	0.22	0.43	0.25	0.79
Control Delay	24.2	65.0	10.7	67.5	34.2	0.2	77.6	32.1	5.4	20.4	44.7
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	24.2	65.0	10.7	67.5	34.2	0.2	77.6	32.1	5.4	20.4	44.7
Queue Length 50th (m)	4.5	74.5	0.5	64.9	35.0	0.0	17.6	27.6	0.0	21.9	136.4
Queue Length 95th (m)	10.0	91.8	21.6	84.2	46.4	0.0	#46.6	43.6	23.7	38.2	164.3
Internal Link Dist (m)		855.8			287.3			308.0			265.5
Turn Bay Length (m)	115.0		40.0	130.0		70.0	100.0		65.0	250.0	
Base Capacity (vph)	284	727	414	607	1008	606	184	1199	786	618	1268
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	0.69	0.44	0.74	0.30	0.06	0.64	0.22	0.43	0.23	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

## 6: Trafalgar Road & Steeles Avenue

Existing AM - Remedial Measures  
Premier Gateway Phase 1B Employment Area



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	27	503	181	449	305	35	118	264	336	145	995	10
Future Volume (vph)	27	503	181	449	305	35	118	264	336	145	995	10
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	0.95	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)	1357	3085	1179	3400	2843	1455	2148	3167	1524	1752	3412	
Flt Permitted	0.57	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.59	1.00	
Satd. Flow (perm)	809	3085	1179	3400	2843	1455	2148	3167	1524	1086	3412	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	27	503	181	449	305	35	118	264	336	145	995	10
RTOR Reduction (vph)	0	0	141	0	0	23	0	0	213	0	1	0
Lane Group Flow (vph)	27	503	40	449	305	12	118	264	123	145	1004	0
Heavy Vehicles (%)	33%	17%	37%	3%	27%	11%	63%	14%	6%	3%	5%	70%
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)	34.3	29.5	29.5	23.1	48.8	48.8	12.0	51.4	51.4	62.4	50.4	
Effective Green, g (s)	34.3	29.5	29.5	23.1	48.8	48.8	12.0	51.4	51.4	62.4	50.4	
Actuated g/C Ratio	0.24	0.21	0.21	0.17	0.35	0.35	0.09	0.37	0.37	0.45	0.36	
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)	216	650	248	561	990	507	184	1162	559	541	1228	
v/s Ratio Prot	0.00	c0.16		c0.13	0.11		c0.05	0.08		0.02	c0.29	
v/s Ratio Perm	0.03		0.03			0.01			0.08	0.10		
v/c Ratio	0.12	0.77	0.16	0.80	0.31	0.02	0.64	0.23	0.22	0.27	0.82	
Uniform Delay, d1	40.7	52.1	45.1	56.2	33.3	30.0	61.9	30.6	30.5	23.4	40.6	
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	0.3	5.7	0.3	8.5	0.2	0.0	8.3	0.5	0.9	0.3	6.1	
Delay (s)	41.0	57.8	45.4	64.7	33.5	30.0	70.2	31.0	31.4	23.7	46.8	
Level of Service	D	E	D	E	C	C	E	C	C	C	D	
Approach Delay (s)		54.0			51.1			37.6			43.9	
Approach LOS		D			D			D			D	

### Intersection Summary

HCM 2000 Control Delay	46.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.78		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	84.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings

Existing AM - Remedial Measures

8: Toronto Premium Outlets/Eighth Line & Steeles Avenue Premier Gateway Phase 1B Employment Area



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	74	867	13	29	442	22	3	1	8	177	5	354
Future Volume (vph)	74	867	13	29	442	22	3	1	8	177	5	354
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	105.0		55.0	30.0		0.0	0.0		0.0	60.0		0.0
Storage Lanes	1		1	1		0	2		0	1		0
Taper Length (m)	55.0			90.0			7.5			45.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	0.97	1.00	1.00	1.00	1.00	1.00
Fr't			0.850		0.993			0.867			0.852	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	3252	1404	1752	2977	0	2633	1477	0	1787	1603	0
Flt Permitted	0.450			0.247			0.950			0.752		
Satd. Flow (perm)	814	3252	1404	456	2977	0	2633	1477	0	1415	1603	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			218		7			8			354	
Link Speed (k/h)		60			60			50			70	
Link Distance (m)		200.7			870.8			218.1			3086.4	
Travel Time (s)		12.0			52.2			15.7			158.7	
Peak Hour 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
Heavy Vehicles (%)	5%	11%	15%	3%	21%	9%	33%	0%	13%	1%	0%	1%
Adj. Flow (vph)	74	867	13	29	442	22	3	1	8	177	5	354
Shared Lane Traffic (%)												
Lane Group Flow (vph)	74	867	13	29	464	0	3	9	0	177	359	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
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		
Detector Phase	7	4	4	3	8		5	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0		10.0	10.0		10.0	10.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	11.0	26.0	26.0	11.0	26.0		17.0	17.0		17.0	17.0	
Total Split (s)	11.0	28.0	28.0	11.0	28.0		17.0	36.0		19.0	19.0	
Total Split (%)	14.7%	37.3%	37.3%	14.7%	37.3%		22.7%	48.0%		25.3%	25.3%	
Maximum Green (s)	7.0	22.0	22.0	7.0	22.0		10.0	29.0		12.0	12.0	
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0		7.0	7.0		7.0	7.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes			Yes	Yes	
Vehicle Extension (s)	3.0	0.2	0.2	3.0	0.2		4.0	4.0		3.0	3.0	
Recall Mode	None	Max	Max	None	Max		None	None		Max	Max	
Walk Time (s)		7.0	7.0		7.0			7.0				
Flash Dont Walk (s)		17.0	17.0		17.0			21.0				
Pedestrian Calls (#/hr)		0	0		0			0				
Act Effct Green (s)	31.3	26.8	26.8	30.6	24.7		10.3	14.9		12.3	12.3	
Actuated g/C Ratio	0.53	0.45	0.45	0.52	0.42		0.17	0.25		0.21	0.21	
v/c Ratio	0.14	0.59	0.02	0.07	0.37		0.01	0.02		0.60	0.58	
Control Delay	8.1	17.0	0.1	8.0	15.1		25.7	10.6		35.7	8.2	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	8.1	17.0	0.1	8.0	15.1		25.7	10.6		35.7	8.2	
LOS	A	B	A	A	B		C	B		D	A	
Approach Delay		16.1			14.7			14.3			17.3	
Approach LOS		B			B			B			B	

Intersection Summary

Area Type:	Other
Cycle Length:	75
Actuated Cycle Length:	59
Natural Cycle:	75
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.60
Intersection Signal Delay:	16.0
Intersection LOS:	B
Intersection Capacity Utilization:	66.1%
ICU Level of Service:	C
Analysis Period (min):	15

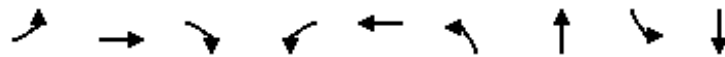
Splits and Phases: 8: Toronto Premium Outlets/Eighth Line & Steeles Avenue

Ø2 36 s	Ø3 11 s	Ø4 28 s
Ø5 17 s	Ø6 19 s	Ø7 11 s
		Ø8 28 s

Queues

Existing AM - Remedial Measures

8: Toronto Premium Outlets/Eighth Line & Steeles Avenue Premier Gateway Phase 1B Employment Area



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	74	867	13	29	464	3	9	177	359
v/c Ratio	0.14	0.59	0.02	0.07	0.37	0.01	0.02	0.60	0.58
Control Delay	8.1	17.0	0.1	8.0	15.1	25.7	10.6	35.7	8.2
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	8.1	17.0	0.1	8.0	15.1	25.7	10.6	35.7	8.2
Queue Length 50th (m)	2.9	26.3	0.0	1.1	18.9	0.1	0.1	18.9	0.5
Queue Length 95th (m)	12.8	#97.6	0.0	6.4	43.8	1.4	3.0	#59.7	24.2
Internal Link Dist (m)		176.7			846.8		194.1		3062.4
Turn Bay Length (m)	105.0		55.0	30.0				60.0	
Base Capacity (vph)	543	1479	757	394	1249	458	750	296	614
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.14	0.59	0.02	0.07	0.37	0.01	0.01	0.60	0.58

Intersection Summary

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

# HCM Signalized Intersection Capacity Analysis

# Existing AM - Remedial Measures

## 8: Toronto Premium Outlets/Eighth Line & Steeles Avenue Premier Gateway Phase 1B Employment Area



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	74	867	13	29	442	22	3	1	8	177	5	354
Future Volume (vph)	74	867	13	29	442	22	3	1	8	177	5	354
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	0.95	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	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1719	3252	1404	1752	2976		2633	1476		1787	1603	
Flt Permitted	0.45	1.00	1.00	0.25	1.00		0.95	1.00		0.75	1.00	
Satd. Flow (perm)	815	3252	1404	455	2976		2633	1476		1414	1603	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	74	867	13	29	442	22	3	1	8	177	5	354
RTOR Reduction (vph)	0	0	8	0	4	0	0	6	0	0	289	0
Lane Group Flow (vph)	74	867	5	29	460	0	3	3	0	177	70	0
Heavy Vehicles (%)	5%	11%	15%	3%	21%	9%	33%	0%	13%	1%	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)	30.6	26.8	26.8	27.8	25.4		1.5	20.8		12.3	12.3	
Effective Green, g (s)	30.6	26.8	26.8	27.8	25.4		1.5	20.8		12.3	12.3	
Actuated g/C Ratio	0.46	0.40	0.40	0.41	0.38		0.02	0.31		0.18	0.18	
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)	423	1300	561	235	1128		58	458		259	294	
v/s Ratio Prot	c0.01	c0.27		0.00	0.15		c0.00	0.00				0.04
v/s Ratio Perm	0.07		0.00	0.05						c0.13		
v/c Ratio	0.17	0.67	0.01	0.12	0.41		0.05	0.01		0.68	0.24	
Uniform Delay, d1	10.4	16.4	12.1	12.0	15.3		32.1	16.0		25.5	23.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.2	2.7	0.0	0.2	1.1		0.5	0.0		13.7	1.9	
Delay (s)	10.6	19.2	12.1	12.2	16.4		32.6	16.0		39.2	25.3	
Level of Service	B	B	B	B	B		C	B		D	C	
Approach Delay (s)		18.4			16.1			20.1			29.9	
Approach LOS		B			B			C			C	

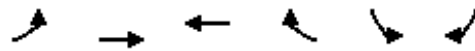
### Intersection Summary

HCM 2000 Control Delay	20.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.63		
Actuated Cycle Length (s)	67.0	Sum of lost time (s)	24.0
Intersection Capacity Utilization	66.1%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			



Lanes, Volumes, Timings  
10: Steeles Avenue & Ninth Line

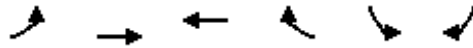
Existing AM - Remedial Measures  
Premier Gateway Phase 1B Employment Area



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	75	1001	445	213	568	73
Future Volume (vph)	75	1001	445	213	568	73
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0			75.0	90.0	0.0
Storage Lanes	1			1	2	1
Taper Length (m)	100.0				40.0	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1556	3312	3059	1509	3433	1324
Flt Permitted	0.425				0.950	
Satd. Flow (perm)	696	3312	3059	1509	3433	1324
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				213		73
Link Speed (k/h)		70	70		70	
Link Distance (m)		525.4	728.8		3120.2	
Travel Time (s)		27.0	37.5		160.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	16%	9%	18%	7%	2%	22%
Adj. Flow (vph)	75	1001	445	213	568	73
Shared Lane Traffic (%)						
Lane Group Flow (vph)	75	1001	445	213	568	73
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		7.2	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	2.0	10.0	10.0	2.0	2.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	0.6	2.0	2.0	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Detector Phase	7	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	7.0	20.0	20.0	20.0	10.0	10.0

Lanes, Volumes, Timings  
10: Steeles Avenue & Ninth Line

Existing AM - Remedial Measures  
Premier Gateway Phase 1B Employment Area

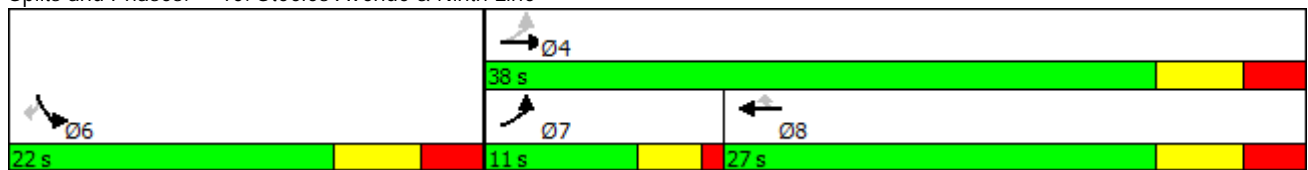


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Minimum Split (s)	11.0	27.0	27.0	27.0	17.0	17.0
Total Split (s)	11.0	38.0	27.0	27.0	22.0	22.0
Total Split (%)	18.3%	63.3%	45.0%	45.0%	36.7%	36.7%
Maximum Green (s)	7.0	31.0	20.0	20.0	15.0	15.0
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead		Lag		Lag	
Lead-Lag Optimize?	Yes		Yes		Yes	
Vehicle Extension (s)	3.0	0.2	0.2	0.2	3.0	3.0
Recall Mode	None	Max	Max	Max	Max	Max
Act Effect Green (s)	34.0	31.0	24.4	24.4	15.0	15.0
Actuated g/C Ratio	0.57	0.52	0.41	0.41	0.25	0.25
v/c Ratio	0.15	0.59	0.36	0.29	0.66	0.19
Control Delay	6.7	11.8	14.8	3.8	24.6	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.7	11.8	14.8	3.8	24.6	6.8
LOS	A	B	B	A	C	A
Approach Delay		11.4	11.3		22.6	
Approach LOS		B	B		C	

Intersection Summary

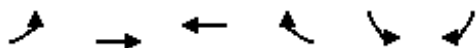
Area Type:	Other
Cycle Length:	60
Actuated Cycle Length:	60
Natural Cycle:	55
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.66
Intersection Signal Delay:	14.4
Intersection LOS:	B
Intersection Capacity Utilization:	55.5%
ICU Level of Service:	B
Analysis Period (min):	15

Splits and Phases: 10: Steeles Avenue & Ninth Line



Queues  
10: Steeles Avenue & Ninth Line

Existing AM - Remedial Measures  
Premier Gateway Phase 1B Employment Area

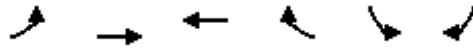


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	75	1001	445	213	568	73
v/c Ratio	0.15	0.59	0.36	0.29	0.66	0.19
Control Delay	6.7	11.8	14.8	3.8	24.6	6.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.7	11.8	14.8	3.8	24.6	6.8
Queue Length 50th (m)	3.5	38.5	20.7	0.0	30.4	0.0
Queue Length 95th (m)	8.3	55.0	32.3	12.2	45.4	8.5
Internal Link Dist (m)		501.4	704.8		3096.2	
Turn Bay Length (m)	65.0			75.0	90.0	
Base Capacity (vph)	494	1711	1243	740	858	385
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	0.15	0.59	0.36	0.29	0.66	0.19
<b>Intersection Summary</b>						

# HCM Signalized Intersection Capacity Analysis

## 10: Steeles Avenue & Ninth Line

Existing AM - Remedial Measures  
Premier Gateway Phase 1B Employment Area



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	75	1001	445	213	568	73
Future Volume (vph)	75	1001	445	213	568	73
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	0.95	0.95	1.00	0.97	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1556	3312	3059	1509	3433	1324
Flt Permitted	0.42	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	696	3312	3059	1509	3433	1324
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	75	1001	445	213	568	73
RTOR Reduction (vph)	0	0	0	129	0	55
Lane Group Flow (vph)	75	1001	445	84	568	18
Heavy Vehicles (%)	16%	9%	18%	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)	32.6	32.6	24.4	24.4	15.0	15.0
Effective Green, g (s)	32.6	32.6	24.4	24.4	15.0	15.0
Actuated g/C Ratio	0.53	0.53	0.40	0.40	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)	426	1752	1211	597	835	322
v/s Ratio Prot	0.01	c0.30	0.15		c0.17	
v/s Ratio Perm	0.08			0.06		0.01
v/c Ratio	0.18	0.57	0.37	0.14	0.68	0.06
Uniform Delay, d1	7.3	9.8	13.1	11.9	21.1	17.9
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	1.4	0.9	0.5	4.4	0.3
Delay (s)	7.5	11.1	14.0	12.4	25.6	18.2
Level of Service	A	B	B	B	C	B
Approach Delay (s)		10.9	13.5		24.7	
Approach LOS		B	B		C	
<b>Intersection Summary</b>						
HCM 2000 Control Delay			15.3		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.66			
Actuated Cycle Length (s)			61.6		Sum of lost time (s)	18.0
Intersection Capacity Utilization			55.5%		ICU Level of Service	B
Analysis Period (min)			15			
c Critical Lane Group						

Lanes, Volumes, Timings  
15: Eighth Line & 5 Side Road

Existing AM - Remedial Measures  
Premier Gateway Phase 1B Employment Area



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	16	360	7	30	115	12	1	86	23	65	493	67
Future Volume (vph)	16	360	7	30	115	12	1	86	23	65	493	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.998			0.990			0.972			0.986	
Fl <sub>t</sub> Protected		0.998			0.991						0.995	
Satd. Flow (prot)	0	1843	0	0	1790	0	0	1817	0	0	1862	0
Fl <sub>t</sub> Permitted		0.985			0.894			0.997			0.961	
Satd. Flow (perm)	0	1819	0	0	1615	0	0	1812	0	0	1798	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		2			8			23			16	
Link Speed (k/h)		60			60			70			70	
Link Distance (m)		643.4			668.7			3086.4			454.5	
Travel Time (s)		38.6			40.1			158.7			23.4	
Peak Hour 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
Heavy Vehicles (%)	13%	2%	14%	7%	3%	8%	0%	1%	4%	0%	0%	1%
Adj. Flow (vph)	16	360	7	30	115	12	1	86	23	65	493	67
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	383	0	0	157	0	0	110	0	0	625	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	23.0	23.0		23.0	23.0		32.0	32.0		32.0	32.0	
Total Split (%)	41.8%	41.8%		41.8%	41.8%		58.2%	58.2%		58.2%	58.2%	

Lanes, Volumes, Timings  
15: Eighth Line & 5 Side Road

Existing AM - Remedial Measures  
Premier Gateway Phase 1B Employment Area



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)	18.5	18.5		18.5	18.5		27.5	27.5		27.5	27.5	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.5			4.5			4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		15.0			15.0			27.6			27.6	
Actuated g/C Ratio		0.29			0.29			0.53			0.53	
v/c Ratio		0.73			0.33			0.11			0.64	
Control Delay		25.0			15.4			6.1			13.0	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		25.0			15.4			6.1			13.0	
LOS		C			B			A			B	
Approach Delay		25.0			15.4			6.1			13.0	
Approach LOS		C			B			A			B	

Intersection Summary

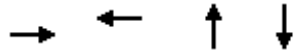
Area Type:	Other
Cycle Length:	55
Actuated Cycle Length:	51.6
Natural Cycle:	55
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.73
Intersection Signal Delay:	16.3
Intersection LOS:	B
Intersection Capacity Utilization:	69.2%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 15: Eighth Line & 5 Side Road



Queues  
15: Eighth Line & 5 Side Road

Existing AM - Remedial Measures  
Premier Gateway Phase 1B Employment Area



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	383	157	110	625
v/c Ratio	0.73	0.33	0.11	0.64
Control Delay	25.0	15.4	6.1	13.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	25.0	15.4	6.1	13.0
Queue Length 50th (m)	32.6	11.2	3.8	38.7
Queue Length 95th (m)	57.3	23.4	10.9	77.5
Internal Link Dist (m)	619.4	644.7	3062.4	430.5
Turn Bay Length (m)				
Base Capacity (vph)	656	586	980	969
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	0.58	0.27	0.11	0.64
<b>Intersection Summary</b>				

# HCM Signalized Intersection Capacity Analysis

## 15: Eighth Line & 5 Side Road

# Existing AM - Remedial Measures

## Premier Gateway Phase 1B Employment Area

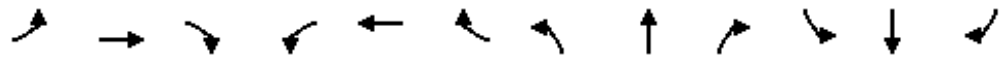


Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↔			↔			↔			↔	
Traffic Volume (vph)	16	360	7	30	115	12	1	86	23	65	493	67
Future Volume (vph)	16	360	7	30	115	12	1	86	23	65	493	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (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			0.99	
Flt Protected		1.00			0.99			1.00			0.99	
Satd. Flow (prot)		1842			1788			1816			1861	
Flt Permitted		0.99			0.89			1.00			0.96	
Satd. Flow (perm)		1818			1614			1811			1798	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	16	360	7	30	115	12	1	86	23	65	493	67
RTOR Reduction (vph)	0	1	0	0	6	0	0	11	0	0	7	0
Lane Group Flow (vph)	0	382	0	0	151	0	0	99	0	0	618	0
Heavy Vehicles (%)	13%	2%	14%	7%	3%	8%	0%	1%	4%	0%	0%	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)		15.0			15.0			27.6			27.6	
Effective Green, g (s)		15.0			15.0			27.6			27.6	
Actuated g/C Ratio		0.29			0.29			0.53			0.53	
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)		528			469			968			961	
v/s Ratio Prot												
v/s Ratio Perm		c0.21			0.09			0.05			c0.34	
v/c Ratio		0.72			0.32			0.10			0.64	
Uniform Delay, d1		16.4			14.3			5.9			8.5	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		4.9			0.4			0.2			3.3	
Delay (s)		21.3			14.7			6.1			11.8	
Level of Service		C			B			A			B	
Approach Delay (s)		21.3			14.7			6.1			11.8	
Approach LOS		C			B			A			B	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			14.5					HCM 2000 Level of Service			B	
HCM 2000 Volume to Capacity ratio			0.67									
Actuated Cycle Length (s)			51.6					Sum of lost time (s)		9.0		
Intersection Capacity Utilization			69.2%					ICU Level of Service		C		
Analysis Period (min)			15									
c Critical Lane Group												



Lanes, Volumes, Timings  
16: Ninth Line & 5 Side Road

Existing AM - Remedial Measures  
Premier Gateway Phase 1B Employment Area



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕		↕	↕	
Traffic Volume (vph)	21	446	26	2	112	12	9	303	20	263	647	26
Future Volume (vph)	21	446	26	2	112	12	9	303	20	263	647	26
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		30.0	0.0		0.0	40.0		0.0
Storage Lanes	0		0	0		1	0		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.993				0.850		0.992			0.994	
Flt Protected		0.998			0.999			0.999		0.950		
Satd. Flow (prot)	0	1804	0	0	1862	1615	0	1681	0	1805	1783	0
Flt Permitted		0.985			0.992			0.977		0.410		
Satd. Flow (perm)	0	1781	0	0	1848	1615	0	1644	0	779	1783	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		5				109		5			4	
Link Speed (k/h)		60			60			70			70	
Link Distance (m)		580.9			458.3			3120.2			329.9	
Travel Time (s)		34.9			27.5			160.5			17.0	
Peak Hour 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
Heavy Vehicles (%)	10%	4%	6%	0%	2%	0%	40%	12%	0%	0%	6%	4%
Adj. Flow (vph)	21	446	26	2	112	12	9	303	20	263	647	26
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	493	0	0	114	12	0	332	0	263	673	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		1	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	20.0	20.0		5.0	20.0	

Lanes, Volumes, Timings  
16: Ninth Line & 5 Side Road

Existing AM - Remedial Measures  
Premier Gateway Phase 1B Employment Area

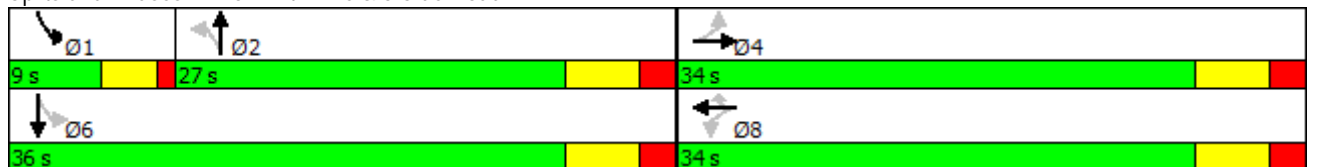


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	24.0	24.0		24.0	24.0	24.0	26.0	26.0		9.0	26.0	
Total Split (s)	34.0	34.0		34.0	34.0	34.0	27.0	27.0		9.0	36.0	
Total Split (%)	48.6%	48.6%		48.6%	48.6%	48.6%	38.6%	38.6%		12.9%	51.4%	
Maximum Green (s)	28.0	28.0		28.0	28.0	28.0	21.0	21.0		5.0	30.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		3.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		1.0	2.0	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0		0.0	0.0	
Total Lost Time (s)		6.0			6.0	6.0		6.0		4.0	6.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.5	3.5		3.5	3.5	3.5	5.5	5.5		3.0	5.5	
Recall Mode	None	None		None	None	None	Max	Max		None	Max	
Walk Time (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0			0.0	
Flash Dont Walk (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0			7.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0			0	
Act Effct Green (s)		22.0			22.0	22.0		21.1		32.2	30.2	
Actuated g/C Ratio		0.34			0.34	0.34		0.33		0.50	0.47	
v/c Ratio		0.81			0.18	0.02		0.61		0.56	0.80	
Control Delay		29.9			14.9	0.1		25.0		16.6	25.6	
Queue Delay		0.0			0.0	0.0		0.0		0.0	0.0	
Total Delay		29.9			14.9	0.1		25.0		16.6	25.6	
LOS		C			B	A		C		B	C	
Approach Delay		29.9			13.5			25.0			23.0	
Approach LOS		C			B			C			C	

Intersection Summary

Area Type:	Other
Cycle Length:	70
Actuated Cycle Length:	64.3
Natural Cycle:	60
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.81
Intersection Signal Delay:	24.5
Intersection LOS:	C
Intersection Capacity Utilization:	101.2%
ICU Level of Service:	G
Analysis Period (min):	15

Splits and Phases: 16: Ninth Line & 5 Side Road



Queues  
16: Ninth Line & 5 Side Road

Existing AM - Remedial Measures  
Premier Gateway Phase 1B Employment Area



Lane Group	EBT	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	493	114	12	332	263	673
v/c Ratio	0.81	0.18	0.02	0.61	0.56	0.80
Control Delay	29.9	14.9	0.1	25.0	16.6	25.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	29.9	14.9	0.1	25.0	16.6	25.6
Queue Length 50th (m)	53.9	9.7	0.0	34.4	18.4	68.7
Queue Length 95th (m)	87.4	19.6	0.0	66.3	37.7	#146.8
Internal Link Dist (m)	556.9	434.3		3096.2		305.9
Turn Bay Length (m)			30.0		40.0	
Base Capacity (vph)	783	810	769	544	470	839
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.63	0.14	0.02	0.61	0.56	0.80

Intersection Summary

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

# HCM Signalized Intersection Capacity Analysis

## 16: Ninth Line & 5 Side Road

# Existing AM - Remedial Measures

## Premier Gateway Phase 1B Employment Area



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↔			↔	↔		↔		↔	↔		
Traffic Volume (vph)	21	446	26	2	112	12	9	303	20	263	647	26	
Future Volume (vph)	21	446	26	2	112	12	9	303	20	263	647	26	
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		4.0	6.0		
Lane Util. Factor		1.00			1.00	1.00		1.00		1.00	1.00		
Frt		0.99			1.00	0.85		0.99		1.00	0.99		
Flt Protected		1.00			1.00	1.00		1.00		0.95	1.00		
Satd. Flow (prot)		1804			1862	1615		1680		1805	1783		
Flt Permitted		0.99			0.99	1.00		0.98		0.41	1.00		
Satd. Flow (perm)		1781			1848	1615		1643		780	1783		
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Adj. Flow (vph)	21	446	26	2	112	12	9	303	20	263	647	26	
RTOR Reduction (vph)	0	3	0	0	0	8	0	3	0	0	2	0	
Lane Group Flow (vph)	0	490	0	0	114	4	0	329	0	263	671	0	
Heavy Vehicles (%)	10%	4%	6%	0%	2%	0%	40%	12%	0%	0%	6%	4%	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		pm+pt	NA		
Protected Phases		4			8			2		1	6		
Permitted Phases	4			8		8	2			6			
Actuated Green, G (s)		22.0			22.0	22.0		21.2		30.2	30.2		
Effective Green, g (s)		22.0			22.0	22.0		21.2		30.2	30.2		
Actuated g/C Ratio		0.34			0.34	0.34		0.33		0.47	0.47		
Clearance Time (s)		6.0			6.0	6.0		6.0		4.0	6.0		
Vehicle Extension (s)		3.5			3.5	3.5		5.5		3.0	5.5		
Lane Grp Cap (vph)		610			633	553		542		446	838		
v/s Ratio Prot										0.05	c0.38		
v/s Ratio Perm		c0.27			0.06	0.00		0.20		0.23			
v/c Ratio		0.80			0.18	0.01		0.61		0.59	0.80		
Uniform Delay, d1		19.1			14.8	13.9		18.0		12.6	14.4		
Progression Factor		1.00			1.00	1.00		1.00		1.00	1.00		
Incremental Delay, d2		7.7			0.2	0.0		5.0		2.0	7.9		
Delay (s)		26.9			14.9	13.9		23.0		14.6	22.4		
Level of Service		C			B	B		C		B	C		
Approach Delay (s)		26.9			14.8			23.0			20.2		
Approach LOS		C			B			C			C		
<b>Intersection Summary</b>													
HCM 2000 Control Delay			22.1									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.87										
Actuated Cycle Length (s)			64.2									Sum of lost time (s)	16.0
Intersection Capacity Utilization			101.2%									ICU Level of Service	G
Analysis Period (min)			15										
c	Critical Lane Group												

Lanes, Volumes, Timings  
6: Trafalgar Road & Steeles Avenue

Existing PM - Remedial Measures  
Premier Gateway Phase 1B Employment Area



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	346	108	570	746	150	155	608	539	38	280	14
Future Volume (vph)	25	346	108	570	746	150	155	608	539	38	280	14
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	115.0		40.0	130.0		70.0	100.0		65.0	250.0		0.0
Storage Lanes	1		1	2		1	2		1	1		0
Taper Length (m)	100.0			100.0			80.0			100.0		
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	0.95
Frt			0.850			0.850			0.850		0.993	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1367	3139	1262	3433	3312	1583	3099	3505	1568	1805	3386	0
Flt Permitted	0.368			0.950			0.950			0.388		
Satd. Flow (perm)	530	3139	1262	3433	3312	1583	3099	3505	1568	737	3386	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			196			150			539			4
Link Speed (k/h)		60			60			70			70	
Link Distance (m)		879.8			311.3			332.0			289.5	
Travel Time (s)		52.8			18.7			17.1			14.9	
Peak Hour 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
Heavy Vehicles (%)	32%	15%	28%	2%	9%	2%	13%	3%	3%	0%	4%	43%
Adj. Flow (vph)	25	346	108	570	746	150	155	608	539	38	280	14
Shared Lane Traffic (%)												
Lane Group Flow (vph)	25	346	108	570	746	150	155	608	539	38	294	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		7.2			7.2			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2	1	1	2	1	1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	2.0	2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	2.0	2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
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		
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	8.0	20.0	20.0	8.0	20.0	20.0	7.0	20.0	

Lanes, Volumes, Timings  
6: Trafalgar Road & Steeles Avenue

Existing PM - Remedial Measures  
Premier Gateway Phase 1B Employment Area

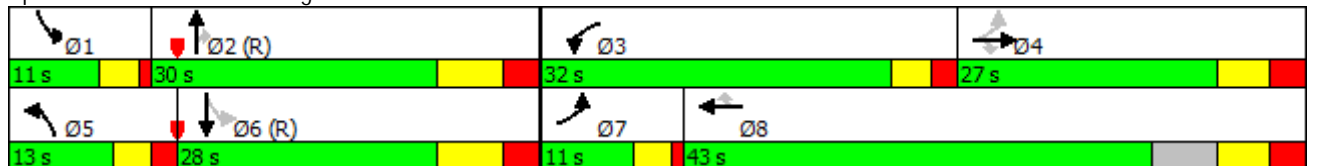


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	11.0	27.0	27.0	13.0	27.0	27.0	13.0	28.0	28.0	11.0	28.0	
Total Split (s)	11.0	27.0	27.0	32.0	43.0	43.0	13.0	30.0	30.0	11.0	28.0	
Total Split (%)	11.0%	27.0%	27.0%	32.0%	43.0%	43.0%	13.0%	30.0%	30.0%	11.0%	28.0%	
Maximum Green (s)	7.0	20.0	20.0	27.0	36.0	36.0	8.0	22.0	22.0	7.0	20.0	
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	3.0	5.0	5.0	3.0	5.0	
All-Red Time (s)	1.0	3.0	3.0	2.0	3.0	3.0	2.0	3.0	3.0	1.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Total Lost Time (s)	4.0	7.0	7.0	5.0	7.0	7.0	5.0	8.0	8.0	4.0	8.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
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	
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	
Walk Time (s)		7.0	7.0		7.0	7.0		7.0	7.0		7.0	
Flash Dont Walk (s)		26.0	26.0		26.0	26.0		26.0	26.0		26.0	
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	
Act Effct Green (s)	30.0	20.0	20.0	22.6	43.2	43.2	9.5	30.7	30.7	34.1	23.0	
Actuated g/C Ratio	0.30	0.20	0.20	0.23	0.43	0.43	0.10	0.31	0.31	0.34	0.23	
v/c Ratio	0.12	0.55	0.26	0.74	0.52	0.20	0.53	0.57	0.63	0.12	0.38	
Control Delay	15.4	39.8	1.6	53.7	24.5	6.3	50.4	33.7	6.8	20.4	34.7	
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	15.4	39.8	1.6	53.7	24.5	6.3	50.4	33.7	6.8	20.4	34.7	
LOS	B	D	A	D	C	A	D	C	A	C	C	
Approach Delay		29.9			34.0			24.6			33.0	
Approach LOS		C			C			C			C	

Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	100
Offset:	0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle:	85
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	0.74
Intersection Signal Delay:	29.9
Intersection LOS:	C
Intersection Capacity Utilization	77.1%
ICU Level of Service	D
Analysis Period (min)	15

Splits and Phases: 6: Trafalgar Road & Steeles Avenue



Queues  
6: Trafalgar Road & Steeles Avenue

Existing PM - Remedial Measures  
Premier Gateway Phase 1B Employment Area



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT
Lane Group Flow (vph)	25	346	108	570	746	150	155	608	539	38	294
v/c Ratio	0.12	0.55	0.26	0.74	0.52	0.20	0.53	0.57	0.63	0.12	0.38
Control Delay	15.4	39.8	1.6	53.7	24.5	6.3	50.4	33.7	6.8	20.4	34.7
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	15.4	39.8	1.6	53.7	24.5	6.3	50.4	33.7	6.8	20.4	34.7
Queue Length 50th (m)	2.5	33.6	0.0	63.7	50.2	0.9	15.4	58.1	0.0	4.6	27.0
Queue Length 95th (m)	6.1	48.6	0.0	81.4	63.3	m9.8	#27.0	82.5	30.7	11.9	40.7
Internal Link Dist (m)		855.8			287.3			308.0			265.5
Turn Bay Length (m)	115.0		40.0	130.0		70.0	100.0		65.0	250.0	
Base Capacity (vph)	217	627	409	926	1440	773	293	1076	855	326	780
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	0.12	0.55	0.26	0.62	0.52	0.19	0.53	0.57	0.63	0.12	0.38

Intersection Summary

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

Queue shown is maximum after two cycles.

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

# HCM Signalized Intersection Capacity Analysis

## 6: Trafalgar Road & Steeles Avenue

# Existing PM - Remedial Measures

## Premier Gateway Phase 1B Employment Area



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	346	108	570	746	150	155	608	539	38	280	14
Future Volume (vph)	25	346	108	570	746	150	155	608	539	38	280	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	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	0.99	
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)	1367	3139	1262	3433	3312	1583	3099	3505	1568	1805	3386	
Flt Permitted	0.37	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.39	1.00	
Satd. Flow (perm)	530	3139	1262	3433	3312	1583	3099	3505	1568	737	3386	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	25	346	108	570	746	150	155	608	539	38	280	14
RTOR Reduction (vph)	0	0	84	0	0	85	0	0	395	0	3	0
Lane Group Flow (vph)	25	346	24	570	746	65	155	608	144	38	291	0
Heavy Vehicles (%)	32%	15%	28%	2%	9%	2%	13%	3%	3%	0%	4%	43%
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)	25.2	22.4	22.4	22.6	43.2	43.2	9.5	26.7	26.7	24.8	20.5	
Effective Green, g (s)	25.2	22.4	22.4	22.6	43.2	43.2	9.5	26.7	26.7	24.8	20.5	
Actuated g/C Ratio	0.25	0.22	0.22	0.23	0.43	0.43	0.10	0.27	0.27	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)	156	703	282	775	1430	683	294	935	418	228	694	
v/s Ratio Prot	0.00	0.11		c0.17	c0.23		c0.05	c0.17		0.01	0.09	
v/s Ratio Perm	0.04		0.02			0.04			0.09	0.03		
v/c Ratio	0.16	0.49	0.09	0.74	0.52	0.09	0.53	0.65	0.34	0.17	0.42	
Uniform Delay, d1	28.5	33.8	30.7	35.9	20.8	16.8	43.1	32.5	29.6	28.9	34.6	
Progression Factor	1.00	1.00	1.00	1.36	1.09	1.77	1.00	1.00	1.00	1.00	1.00	
Incremental Delay, d2	0.5	0.5	0.1	3.2	0.3	0.1	2.2	3.5	2.2	0.3	1.9	
Delay (s)	29.0	34.4	30.8	52.3	23.0	29.8	45.3	36.0	31.8	29.2	36.4	
Level of Service	C	C	C	D	C	C	D	D	C	C	D	
Approach Delay (s)		33.3			35.1			35.4			35.6	
Approach LOS		C			D			D			D	

### Intersection Summary

HCM 2000 Control Delay	35.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	100.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	77.1%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			



Lanes, Volumes, Timings

Existing PM - Remedial Measures

8: Toronto Premium Outlets/Eighth Line & Steeles Avenue Premier Gateway Phase 1B Employment Area



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	217	632	15	114	1175	113	52	27	99	33	19	58
Future Volume (vph)	217	632	15	114	1175	113	52	27	99	33	19	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	105.0		55.0	30.0		0.0	0.0		0.0	60.0		0.0
Storage Lanes	1		1	1		0	2		0	1		0
Taper Length (m)	55.0			90.0			7.5			45.0		
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	0.95	0.97	1.00	1.00	1.00	1.00	1.00
Frt			0.850		0.987			0.882			0.887	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	3223	1615	1770	3346	0	3367	1650	0	1752	1660	0
Flt Permitted	0.089			0.402			0.950			0.676		
Satd. Flow (perm)	169	3223	1615	749	3346	0	3367	1650	0	1247	1660	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			164		13			99				58
Link Speed (k/h)		60			60			50				70
Link Distance (m)		200.7			870.8			218.1				3086.4
Travel Time (s)		12.0			52.2			15.7				158.7
Peak Hour 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
Heavy Vehicles (%)	0%	12%	0%	2%	7%	1%	4%	0%	2%	3%	0%	2%
Adj. Flow (vph)	217	632	15	114	1175	113	52	27	99	33	19	58
Shared Lane Traffic (%)												
Lane Group Flow (vph)	217	632	15	114	1288	0	52	126	0	33	77	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		3.6			3.6			7.2				7.2
Link Offset(m)		0.0			0.0			0.0				0.0
Crosswalk Width(m)		4.8			4.8			4.8				4.8
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2	1	1	2		1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6	2.0	2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4				9.4
Detector 2 Size(m)		0.6			0.6			0.6				0.6
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex				Cl+Ex
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0				0.0
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		
Detector Phase	7	4	4	3	8		5	2		6		6
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0		10.0	10.0		10.0	10.0	



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	11.0	26.0	26.0	11.0	26.0		17.0	17.0		17.0	17.0	
Total Split (s)	15.0	51.0	51.0	15.0	51.0		17.0	34.0		17.0	17.0	
Total Split (%)	15.0%	51.0%	51.0%	15.0%	51.0%		17.0%	34.0%		17.0%	17.0%	
Maximum Green (s)	11.0	45.0	45.0	11.0	45.0		10.0	27.0		10.0	10.0	
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0		3.0	3.0		3.0	3.0	
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0		7.0	7.0		7.0	7.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag		Lead			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes		Yes			Yes	Yes	
Vehicle Extension (s)	3.0	0.2	0.2	3.0	0.2		4.0	4.0		3.0	3.0	
Recall Mode	None	Max	Max	None	Max		None	None		Max	Max	
Walk Time (s)		7.0	7.0		7.0			7.0				
Flash Dont Walk (s)		17.0	17.0		17.0			21.0				
Pedestrian Calls (#/hr)		0	0		0			0				
Act Effct Green (s)	60.6	50.1	50.1	55.6	45.3		10.1	23.1		10.1	10.1	
Actuated g/C Ratio	0.63	0.52	0.52	0.58	0.47		0.11	0.24		0.11	0.11	
v/c Ratio	0.76	0.38	0.02	0.22	0.81		0.15	0.27		0.25	0.34	
Control Delay	37.7	16.6	0.0	8.9	27.9		42.3	10.6		47.0	21.1	
Queue Delay	0.0	0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	37.7	16.6	0.0	8.9	27.9		42.3	10.6		47.0	21.1	
LOS	D	B	A	A	C		D	B		D	C	
Approach Delay		21.6			26.3			19.8			28.9	
Approach LOS		C			C			B			C	

Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	96
Natural Cycle:	80
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.81
Intersection Signal Delay:	24.4
Intersection LOS:	C
Intersection Capacity Utilization:	84.8%
ICU Level of Service:	E
Analysis Period (min):	15

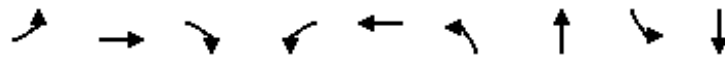
Splits and Phases: 8: Toronto Premium Outlets/Eighth Line & Steeles Avenue

Ø2 34 s	Ø3 15 s	Ø4 51 s
Ø5 17 s	Ø6 17 s	Ø7 15 s
		Ø8 51 s

Queues

Existing PM - Remedial Measures

8: Toronto Premium Outlets/Eighth Line & Steeles Avenue Premier Gateway Phase 1B Employment Area



Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	217	632	15	114	1288	52	126	33	77
v/c Ratio	0.76	0.38	0.02	0.22	0.81	0.15	0.27	0.25	0.34
Control Delay	37.7	16.6	0.0	8.9	27.9	42.3	10.6	47.0	21.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.7	16.6	0.0	8.9	27.9	42.3	10.6	47.0	21.1
Queue Length 50th (m)	24.2	42.4	0.0	8.7	118.6	5.1	4.1	6.3	3.6
Queue Length 95th (m)	#62.0	59.2	0.0	15.8	150.3	11.0	18.2	16.2	17.8
Internal Link Dist (m)		176.7			846.8		194.1		3062.4
Turn Bay Length (m)	105.0		55.0	30.0				60.0	
Base Capacity (vph)	295	1681	921	573	1586	353	538	130	226
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	0.74	0.38	0.02	0.20	0.81	0.15	0.23	0.25	0.34

Intersection Summary

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

# HCM Signalized Intersection Capacity Analysis

# Existing PM - Remedial Measures

## 8: Toronto Premium Outlets/Eighth Line & Steeles Avenue Premier Gateway Phase 1B Employment Area



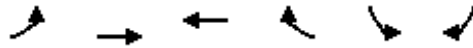
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	217	632	15	114	1175	113	52	27	99	33	19	58
Future Volume (vph)	217	632	15	114	1175	113	52	27	99	33	19	58
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost 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	0.95	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	0.88		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)	1805	3223	1615	1770	3346		3367	1650		1752	1660	
Flt Permitted	0.09	1.00	1.00	0.40	1.00		0.95	1.00		0.68	1.00	
Satd. Flow (perm)	169	3223	1615	748	3346		3367	1650		1247	1660	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	217	632	15	114	1175	113	52	27	99	33	19	58
RTOR Reduction (vph)	0	0	7	0	7	0	0	74	0	0	52	0
Lane Group Flow (vph)	217	632	8	114	1281	0	52	52	0	33	25	0
Heavy Vehicles (%)	0%	12%	0%	2%	7%	1%	4%	0%	2%	3%	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)	60.5	50.1	50.1	52.9	46.3		7.7	24.8		10.1	10.1	
Effective Green, g (s)	60.5	50.1	50.1	52.9	46.3		7.7	24.8		10.1	10.1	
Actuated g/C Ratio	0.61	0.51	0.51	0.54	0.47		0.08	0.25		0.10	0.10	
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)	276	1639	821	470	1572		263	415		127	170	
v/s Ratio Prot	c0.08	0.20		0.02	0.38		0.02	c0.03			0.02	
v/s Ratio Perm	c0.40		0.00	0.11						c0.03		
v/c Ratio	0.79	0.39	0.01	0.24	0.81		0.20	0.13		0.26	0.15	
Uniform Delay, d1	21.9	14.8	11.9	11.3	22.4		42.5	28.5		40.8	40.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00		1.00	1.00	
Incremental Delay, d2	13.7	0.7	0.0	0.3	4.8		0.5	0.2		4.9	1.8	
Delay (s)	35.6	15.5	12.0	11.6	27.2		43.0	28.7		45.7	42.1	
Level of Service	D	B	B	B	C		D	C		D	D	
Approach Delay (s)		20.5			25.9			32.8			43.2	
Approach LOS		C			C			C			D	

### 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)	98.5	Sum of lost time (s)	24.0
Intersection Capacity Utilization	84.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings  
10: Steeles Avenue & Ninth Line

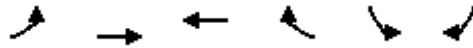
Existing PM - Remedial Measures  
Premier Gateway Phase 1B Employment Area



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	100	664	1317	699	266	67
Future Volume (vph)	100	664	1317	699	266	67
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0			75.0	90.0	0.0
Storage Lanes	1			1	2	1
Taper Length (m)	100.0				40.0	
Lane Util. Factor	1.00	0.95	0.95	1.00	0.97	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1719	3252	3406	1615	3367	1524
Flt Permitted	0.117				0.950	
Satd. Flow (perm)	212	3252	3406	1615	3367	1524
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				699		67
Link Speed (k/h)		70	70		70	
Link Distance (m)		525.4	728.8		3120.2	
Travel Time (s)		27.0	37.5		160.5	
Peak Hour Factor	1.00	1.00	1.00	1.00	1.00	1.00
Heavy Vehicles (%)	5%	11%	6%	0%	4%	6%
Adj. Flow (vph)	100	664	1317	699	266	67
Shared Lane Traffic (%)						
Lane Group Flow (vph)	100	664	1317	699	266	67
Enter Blocked Intersection	No	No	No	No	No	No
Lane Alignment	Left	Left	Left	Right	Left	Right
Median Width(m)		3.6	3.6		7.2	
Link Offset(m)		0.0	0.0		0.0	
Crosswalk Width(m)		4.8	4.8		4.8	
Two way Left Turn Lane						
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25			15	25	15
Number of Detectors	1	2	2	1	1	1
Detector Template	Left	Thru	Thru	Right	Left	Right
Leading Detector (m)	2.0	10.0	10.0	2.0	2.0	2.0
Trailing Detector (m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Position(m)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Size(m)	2.0	0.6	0.6	2.0	2.0	2.0
Detector 1 Type	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex
Detector 1 Channel						
Detector 1 Extend (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Queue (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 1 Delay (s)	0.0	0.0	0.0	0.0	0.0	0.0
Detector 2 Position(m)		9.4	9.4			
Detector 2 Size(m)		0.6	0.6			
Detector 2 Type		Cl+Ex	Cl+Ex			
Detector 2 Channel						
Detector 2 Extend (s)		0.0	0.0			
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Detector Phase	7	4	8	8	6	6
Switch Phase						
Minimum Initial (s)	7.0	20.0	20.0	20.0	10.0	10.0

Lanes, Volumes, Timings  
10: Steeles Avenue & Ninth Line

Existing PM - Remedial Measures  
Premier Gateway Phase 1B Employment Area

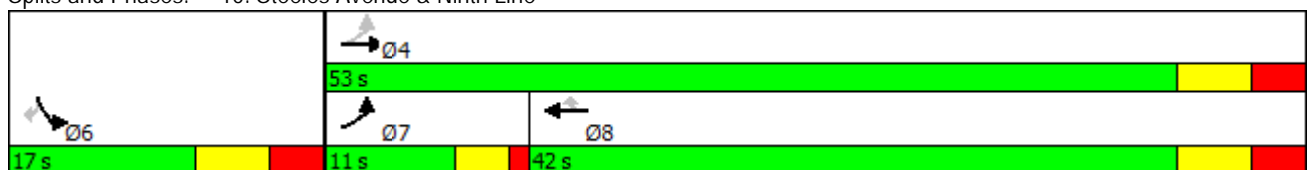


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Minimum Split (s)	11.0	27.0	27.0	27.0	17.0	17.0
Total Split (s)	11.0	53.0	42.0	42.0	17.0	17.0
Total Split (%)	15.7%	75.7%	60.0%	60.0%	24.3%	24.3%
Maximum Green (s)	7.0	46.0	35.0	35.0	10.0	10.0
Yellow Time (s)	3.0	4.0	4.0	4.0	4.0	4.0
All-Red Time (s)	1.0	3.0	3.0	3.0	3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0	0.0	0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0	7.0	7.0	7.0
Lead/Lag	Lead		Lag			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	0.2	0.2	0.2	3.0	3.0
Recall Mode	None	Max	Max	Max	Max	Max
Act Effect Green (s)	49.0	46.0	37.2	37.2	10.0	10.0
Actuated g/C Ratio	0.70	0.66	0.53	0.53	0.14	0.14
v/c Ratio	0.33	0.31	0.73	0.59	0.55	0.24
Control Delay	6.4	5.6	16.3	3.3	32.8	10.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.4	5.6	16.3	3.3	32.8	10.4
LOS	A	A	B	A	C	B
Approach Delay	5.7		11.8		28.3	
Approach LOS	A		B		C	

Intersection Summary

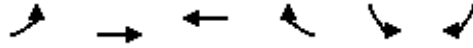
Area Type:	Other
Cycle Length:	70
Actuated Cycle Length:	70
Natural Cycle:	60
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.73
Intersection Signal Delay:	12.1
Intersection LOS:	B
Intersection Capacity Utilization:	65.6%
ICU Level of Service:	C
Analysis Period (min):	15

Splits and Phases: 10: Steeles Avenue & Ninth Line



Queues  
10: Steeles Avenue & Ninth Line

Existing PM - Remedial Measures  
Premier Gateway Phase 1B Employment Area

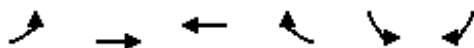


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	100	664	1317	699	266	67
v/c Ratio	0.33	0.31	0.73	0.59	0.55	0.24
Control Delay	6.4	5.6	16.3	3.3	32.8	10.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	6.4	5.6	16.3	3.3	32.8	10.4
Queue Length 50th (m)	3.6	17.5	72.7	0.0	17.8	0.0
Queue Length 95th (m)	7.4	25.0	98.9	15.7	29.0	10.3
Internal Link Dist (m)		501.4	704.8		3096.2	
Turn Bay Length (m)	65.0			75.0	90.0	
Base Capacity (vph)	299	2137	1810	1186	481	275
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	0.31	0.73	0.59	0.55	0.24
<b>Intersection Summary</b>						

# HCM Signalized Intersection Capacity Analysis

## 10: Steeles Avenue & Ninth Line

Existing PM - Remedial Measures  
Premier Gateway Phase 1B Employment Area



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	100	664	1317	699	266	67
Future Volume (vph)	100	664	1317	699	266	67
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	0.95	0.95	1.00	0.97	1.00
Frt	1.00	1.00	1.00	0.85	1.00	0.85
Flt Protected	0.95	1.00	1.00	1.00	0.95	1.00
Satd. Flow (prot)	1719	3252	3406	1615	3367	1524
Flt Permitted	0.12	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	212	3252	3406	1615	3367	1524
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	100	664	1317	699	266	67
RTOR Reduction (vph)	0	0	0	332	0	58
Lane Group Flow (vph)	100	664	1317	367	266	9
Heavy Vehicles (%)	5%	11%	6%	0%	4%	6%
Turn Type	pm+pt	NA	NA	Perm	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			8		6
Actuated Green, G (s)	46.8	46.8	37.2	37.2	10.0	10.0
Effective Green, g (s)	46.8	46.8	37.2	37.2	10.0	10.0
Actuated g/C Ratio	0.66	0.66	0.53	0.53	0.14	0.14
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)	259	2149	1789	848	475	215
v/s Ratio Prot	c0.03	0.20	c0.39		c0.08	
v/s Ratio Perm	0.22			0.23		0.01
v/c Ratio	0.39	0.31	0.74	0.43	0.56	0.04
Uniform Delay, d1	7.4	5.1	13.0	10.3	28.3	26.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.0	0.4	2.7	1.6	4.7	0.4
Delay (s)	8.4	5.5	15.7	11.9	33.1	26.7
Level of Service	A	A	B	B	C	C
Approach Delay (s)		5.9	14.4		31.8	
Approach LOS		A	B		C	
<b>Intersection Summary</b>						
HCM 2000 Control Delay			14.2		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.67			
Actuated Cycle Length (s)			70.8		Sum of lost time (s)	18.0
Intersection Capacity Utilization			65.6%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						



Lanes, Volumes, Timings  
15: Eighth Line & 5 Side Road

Existing PM - Remedial Measures  
Premier Gateway Phase 1B Employment Area



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	44	198	5	18	389	70	2	325	40	18	99	23
Future Volume (vph)	44	198	5	18	389	70	2	325	40	18	99	23
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Fr <sub>t</sub>		0.997			0.980			0.985			0.978	
Fl <sub>t</sub> Protected		0.991			0.998			0.999			0.994	
Satd. Flow (prot)	0	1824	0	0	1833	0	0	1845	0	0	1835	0
Fl <sub>t</sub> Permitted		0.884			0.983			0.999			0.940	
Satd. Flow (perm)	0	1627	0	0	1805	0	0	1843	0	0	1735	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			23			16			23	
Link Speed (k/h)		60			60			70			70	
Link Distance (m)		643.4			668.7			3086.4			454.5	
Travel Time (s)		38.6			40.1			158.7			23.4	
Peak Hour 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
Heavy Vehicles (%)	5%	2%	22%	11%	1%	1%	0%	1%	5%	0%	0%	4%
Adj. Flow (vph)	44	198	5	18	389	70	2	325	40	18	99	23
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	247	0	0	477	0	0	367	0	0	140	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			3.6			3.6	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2		1	2		1	2	
Detector Template	Left	Thru		Left	Thru		Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0		2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6		2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA		Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		6	6	
Switch Phase												
Minimum Initial (s)	5.0	5.0		5.0	5.0		5.0	5.0		5.0	5.0	
Minimum Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (s)	22.5	22.5		22.5	22.5		22.5	22.5		22.5	22.5	
Total Split (%)	50.0%	50.0%		50.0%	50.0%		50.0%	50.0%		50.0%	50.0%	

Lanes, Volumes, Timings  
15: Eighth Line & 5 Side Road

Existing PM - Remedial Measures  
Premier Gateway Phase 1B Employment Area

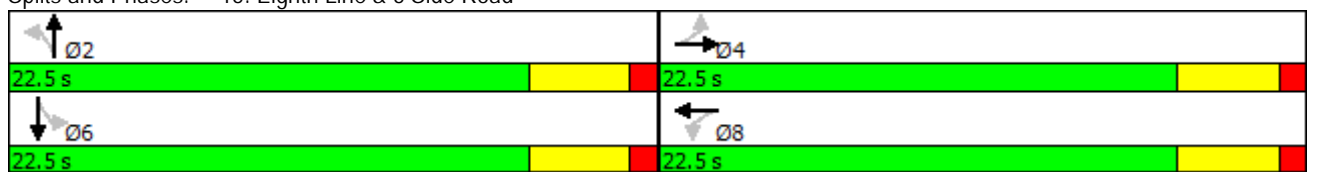


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Maximum Green (s)	18.0	18.0		18.0	18.0		18.0	18.0		18.0	18.0	
Yellow Time (s)	3.5	3.5		3.5	3.5		3.5	3.5		3.5	3.5	
All-Red Time (s)	1.0	1.0		1.0	1.0		1.0	1.0		1.0	1.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		4.5			4.5			4.5			4.5	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		Max	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0		7.0	7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0		11.0	11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0		0	0	
Act Effct Green (s)		14.5			14.5			18.1			18.1	
Actuated g/C Ratio		0.35			0.35			0.43			0.43	
v/c Ratio		0.43			0.74			0.45			0.18	
Control Delay		12.7			19.1			11.1			8.0	
Queue Delay		0.0			0.0			0.0			0.0	
Total Delay		12.7			19.1			11.1			8.0	
LOS		B			B			B			A	
Approach Delay		12.7			19.1			11.1			8.0	
Approach LOS		B			B			B			A	

Intersection Summary

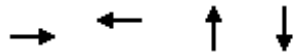
Area Type:	Other
Cycle Length:	45
Actuated Cycle Length:	41.7
Natural Cycle:	45
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.74
Intersection Signal Delay:	14.2
Intersection LOS:	B
Intersection Capacity Utilization	57.8%
ICU Level of Service	B
Analysis Period (min)	15

Splits and Phases: 15: Eighth Line & 5 Side Road



Queues  
15: Eighth Line & 5 Side Road

Existing PM - Remedial Measures  
Premier Gateway Phase 1B Employment Area



Lane Group	EBT	WBT	NBT	SBT
Lane Group Flow (vph)	247	477	367	140
v/c Ratio	0.43	0.74	0.45	0.18
Control Delay	12.7	19.1	11.1	8.0
Queue Delay	0.0	0.0	0.0	0.0
Total Delay	12.7	19.1	11.1	8.0
Queue Length 50th (m)	13.4	28.5	17.8	5.2
Queue Length 95th (m)	27.1	53.4	38.4	14.3
Internal Link Dist (m)	619.4	644.7	3062.4	430.5
Turn Bay Length (m)				
Base Capacity (vph)	708	797	809	766
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	0.35	0.60	0.45	0.18
<b>Intersection Summary</b>				

# HCM Signalized Intersection Capacity Analysis

## 15: Eighth Line & 5 Side Road

# Existing PM - Remedial Measures

## Premier Gateway Phase 1B Employment Area



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕			↕			↕	
Traffic Volume (vph)	44	198	5	18	389	70	2	325	40	18	99	23
Future Volume (vph)	44	198	5	18	389	70	2	325	40	18	99	23
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			0.98			0.99			0.98	
Flt Protected		0.99			1.00			1.00			0.99	
Satd. Flow (prot)		1824			1834			1845			1834	
Flt Permitted		0.88			0.98			1.00			0.94	
Satd. Flow (perm)		1628			1806			1844			1735	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	44	198	5	18	389	70	2	325	40	18	99	23
RTOR Reduction (vph)	0	2	0	0	15	0	0	9	0	0	13	0
Lane Group Flow (vph)	0	245	0	0	462	0	0	358	0	0	127	0
Heavy Vehicles (%)	5%	2%	22%	11%	1%	1%	0%	1%	5%	0%	0%	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)		14.5			14.5			18.1			18.1	
Effective Green, g (s)		14.5			14.5			18.1			18.1	
Actuated g/C Ratio		0.35			0.35			0.44			0.44	
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)		567			629			802			754	
v/s Ratio Prot												
v/s Ratio Perm		0.15			0.26			0.19			0.07	
v/c Ratio		0.43			0.73			0.45			0.17	
Uniform Delay, d1		10.4			11.9			8.2			7.2	
Progression Factor		1.00			1.00			1.00			1.00	
Incremental Delay, d2		0.5			4.4			1.8			0.5	
Delay (s)		10.9			16.3			10.0			7.6	
Level of Service		B			B			B			A	
Approach Delay (s)		10.9			16.3			10.0			7.6	
Approach LOS		B			B			B			A	
<b>Intersection Summary</b>												
HCM 2000 Control Delay			12.4				HCM 2000 Level of Service			B		
HCM 2000 Volume to Capacity ratio			0.57									
Actuated Cycle Length (s)			41.6				Sum of lost time (s)		9.0			
Intersection Capacity Utilization			57.8%				ICU Level of Service		B			
Analysis Period (min)			15									
c Critical Lane Group												

Lanes, Volumes, Timings  
16: Ninth Line & 5 Side Road

Existing PM - Remedial Measures  
Premier Gateway Phase 1B Employment Area



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	25	197	14	6	444	223	12	750	9	27	305	20
Future Volume (vph)	25	197	14	6	444	223	12	750	9	27	305	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		30.0	0.0		0.0	40.0		0.0
Storage Lanes	0		0	0		1	0		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.992				0.850		0.998			0.991	
Flt Protected		0.995			0.999			0.999		0.950		
Satd. Flow (prot)	0	1869	0	0	1898	1615	0	1894	0	1805	1865	0
Flt Permitted		0.740			0.995			0.994		0.313		
Satd. Flow (perm)	0	1390	0	0	1890	1615	0	1884	0	595	1865	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4				152		1			6	
Link Speed (k/h)		60			60			70			70	
Link Distance (m)		580.9			458.3			3120.2			329.9	
Travel Time (s)		34.9			27.5			160.5			17.0	
Peak Hour 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
Heavy Vehicles (%)	3%	0%	0%	0%	0%	0%	0%	0%	3%	0%	1%	0%
Adj. Flow (vph)	25	197	14	6	444	223	12	750	9	27	305	20
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	236	0	0	450	223	0	771	0	27	325	0
Enter Blocked Intersection	No	No	No	No	No	No	No	No	No	No	No	No
Lane Alignment	Left	Left	Right	Left	Left	Right	Left	Left	Right	Left	Left	Right
Median Width(m)		0.0			0.0			7.2			7.2	
Link Offset(m)		0.0			0.0			0.0			0.0	
Crosswalk Width(m)		4.8			4.8			4.8			4.8	
Two way Left Turn Lane												
Headway Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Turning Speed (k/h)	25		15	25		15	25		15	25		15
Number of Detectors	1	2		1	2	1	1	2		1	2	
Detector Template	Left	Thru		Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0		2.0	10.0	2.0	2.0	10.0		2.0	10.0	
Trailing Detector (m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Position(m)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Size(m)	2.0	0.6		2.0	0.6	2.0	2.0	0.6		2.0	0.6	
Detector 1 Type	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex	Cl+Ex		Cl+Ex	Cl+Ex	
Detector 1 Channel												
Detector 1 Extend (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Queue (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 1 Delay (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Detector 2 Position(m)		9.4			9.4			9.4			9.4	
Detector 2 Size(m)		0.6			0.6			0.6			0.6	
Detector 2 Type		Cl+Ex			Cl+Ex			Cl+Ex			Cl+Ex	
Detector 2 Channel												
Detector 2 Extend (s)		0.0			0.0			0.0			0.0	
Turn Type	Perm	NA		Perm	NA	Perm	Perm	NA		Perm	NA	
Protected Phases		4			8			2			6	
Permitted Phases	4			8		8	2			6		
Detector Phase	4	4		8	8	8	2	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	7.0		7.0	7.0	7.0	20.0	20.0		20.0	20.0	

Lanes, Volumes, Timings  
16: Ninth Line & 5 Side Road

Existing PM - Remedial Measures  
Premier Gateway Phase 1B Employment Area



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	24.0	24.0		24.0	24.0	24.0	26.0	26.0		26.0	26.0	
Total Split (s)	34.0	34.0		34.0	34.0	34.0	46.0	46.0		46.0	46.0	
Total Split (%)	42.5%	42.5%		42.5%	42.5%	42.5%	57.5%	57.5%		57.5%	57.5%	
Maximum Green (s)	28.0	28.0		28.0	28.0	28.0	40.0	40.0		40.0	40.0	
Yellow Time (s)	4.0	4.0		4.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0	2.0	2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0	0.0		0.0		0.0	0.0	
Total Lost Time (s)		6.0			6.0	6.0		6.0		6.0	6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.5	3.5		3.5	3.5	3.5	5.5	5.5		5.5	5.5	
Recall Mode	None	None		None	None	None	Max	Max		Max	Max	
Walk Time (s)	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Flash Dont Walk (s)	7.0	7.0		7.0	7.0	7.0	7.0	7.0		7.0	7.0	
Pedestrian Calls (#/hr)	0	0		0	0	0	0	0		0	0	
Act Effct Green (s)		22.6			22.6	22.6		40.2		40.2	40.2	
Actuated g/C Ratio		0.30			0.30	0.30		0.54		0.54	0.54	
v/c Ratio		0.56			0.79	0.38		0.76		0.08	0.32	
Control Delay		26.8			34.6	8.9		21.3		11.0	11.6	
Queue Delay		0.0			0.0	0.0		0.0		0.0	0.0	
Total Delay		26.8			34.6	8.9		21.3		11.0	11.6	
LOS		C			C	A		C		B	B	
Approach Delay		26.8			26.1			21.3			11.6	
Approach LOS		C			C			C			B	

Intersection Summary

Area Type:	Other
Cycle Length:	80
Actuated Cycle Length:	74.8
Natural Cycle:	60
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.79
Intersection Signal Delay:	21.9
Intersection LOS:	C
Intersection Capacity Utilization:	91.9%
ICU Level of Service:	F
Analysis Period (min):	15

Splits and Phases: 16: Ninth Line & 5 Side Road



Queues  
16: Ninth Line & 5 Side Road

Existing PM - Remedial Measures  
Premier Gateway Phase 1B Employment Area



Lane Group	EBT	WBT	WBR	NBT	SBL	SBT
Lane Group Flow (vph)	236	450	223	771	27	325
v/c Ratio	0.56	0.79	0.38	0.76	0.08	0.32
Control Delay	26.8	34.6	8.9	21.3	11.0	11.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	26.8	34.6	8.9	21.3	11.0	11.6
Queue Length 50th (m)	28.5	60.5	7.6	87.1	1.9	25.6
Queue Length 95th (m)	50.0	93.4	23.1	#168.4	6.6	47.0
Internal Link Dist (m)	556.9	434.3		3096.2		305.9
Turn Bay Length (m)			30.0		40.0	
Base Capacity (vph)	525	710	702	1012	319	1004
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.45	0.63	0.32	0.76	0.08	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

## 16: Ninth Line & 5 Side Road

# Existing PM - Remedial Measures

## Premier Gateway Phase 1B Employment Area



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations		↕			↕	↕		↕		↕	↕	
Traffic Volume (vph)	25	197	14	6	444	223	12	750	9	27	305	20
Future Volume (vph)	25	197	14	6	444	223	12	750	9	27	305	20
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)		6.0			6.0	6.0		6.0		6.0	6.0	
Lane Util. Factor		1.00			1.00	1.00		1.00		1.00	1.00	
Frt		0.99			1.00	0.85		1.00		1.00	0.99	
Flt Protected		0.99			1.00	1.00		1.00		0.95	1.00	
Satd. Flow (prot)		1869			1899	1615		1895		1805	1865	
Flt Permitted		0.74			1.00	1.00		0.99		0.31	1.00	
Satd. Flow (perm)		1391			1891	1615		1884		595	1865	
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	25	197	14	6	444	223	12	750	9	27	305	20
RTOR Reduction (vph)	0	3	0	0	0	106	0	0	0	0	3	0
Lane Group Flow (vph)	0	233	0	0	450	117	0	771	0	27	322	0
Heavy Vehicles (%)	3%	0%	0%	0%	0%	0%	0%	0%	3%	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)		22.6			22.6	22.6		40.2		40.2	40.2	
Effective Green, g (s)		22.6			22.6	22.6		40.2		40.2	40.2	
Actuated g/C Ratio		0.30			0.30	0.30		0.54		0.54	0.54	
Clearance Time (s)		6.0			6.0	6.0		6.0		6.0	6.0	
Vehicle Extension (s)		3.5			3.5	3.5		5.5		5.5	5.5	
Lane Grp Cap (vph)		420			571	487		1012		319	1002	
v/s Ratio Prot												0.17
v/s Ratio Perm		0.17			0.24	0.07		0.41		0.05		
v/c Ratio		0.56			0.79	0.24		0.76		0.08	0.32	
Uniform Delay, d1		21.9			23.9	19.6		13.5		8.4	9.7	
Progression Factor		1.00			1.00	1.00		1.00		1.00	1.00	
Incremental Delay, d2		1.8			7.3	0.3		5.4		0.5	0.8	
Delay (s)		23.6			31.2	19.9		18.9		8.9	10.5	
Level of Service		C			C	B		B		A	B	
Approach Delay (s)		23.6			27.5			18.9			10.4	
Approach LOS		C			C			B			B	

### Intersection Summary

HCM 2000 Control Delay	20.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.77		
Actuated Cycle Length (s)	74.8	Sum of lost time (s)	12.0
Intersection Capacity Utilization	91.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			