

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

2031 Background 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)	75	840	100	705	640	55	65	400	530	230	1390	330
Future Volume (vph)	75	840	100	705	640	55	65	400	530	230	1390	330
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	115.0		40.0	175.0		70.0	100.0		65.0	250.0		80.0
Storage Lanes	2		1	2		1	2		1	1		1
Taper Length (m)	100.0			100.0			80.0			100.0		
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	2633	4433	1179	3400	4084	1455	2148	4550	1524	1752	4940	950
Flt Permitted	0.950			0.950			0.950			0.476		
Satd. Flow (perm)	2633	4433	1179	3400	4084	1455	2148	4550	1524	878	4940	950
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			230			172			395			292
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)	75	840	100	705	640	55	65	400	530	230	1390	330
Shared Lane Traffic (%)												
Lane Group Flow (vph)	75	840	100	705	640	55	65	400	530	230	1390	330
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	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
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	2.0
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	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	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	2.0
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	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	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	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	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	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	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	20.0

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Premier Gateway Phase 1B Employment Area

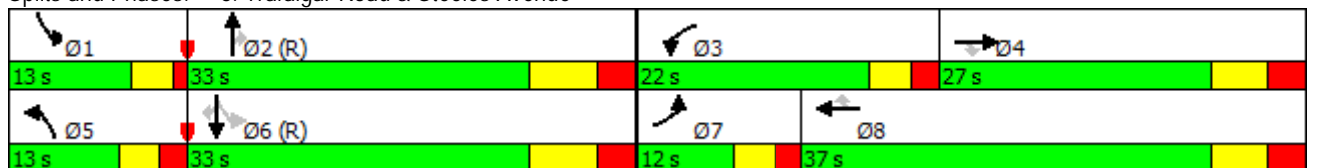


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	12.0	27.0	27.0	13.0	27.0	27.0	13.0	28.0	28.0	13.0	28.0	28.0
Total Split (s)	12.0	27.0	27.0	22.0	37.0	37.0	13.0	33.0	33.0	13.0	33.0	33.0
Total Split (%)	12.6%	28.4%	28.4%	23.2%	38.9%	38.9%	13.7%	34.7%	34.7%	13.7%	34.7%	34.7%
Maximum Green (s)	7.0	20.0	20.0	17.0	30.0	30.0	8.0	25.0	25.0	9.0	25.0	25.0
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	5.0
All-Red Time (s)	2.0	3.0	3.0	2.0	3.0	3.0	2.0	3.0	3.0	1.0	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	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.0	7.0	5.0	7.0	7.0	5.0	8.0	8.0	4.0	8.0	8.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	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	0.2
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	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	26.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	7.0	20.0	20.0	17.0	32.4	32.4	8.0	25.0	25.0	38.8	27.6	27.6
Actuated g/C Ratio	0.07	0.21	0.21	0.18	0.34	0.34	0.08	0.26	0.26	0.41	0.29	0.29
v/c Ratio	0.39	0.90	0.23	1.16	0.46	0.09	0.36	0.33	0.77	0.52	0.97	0.68
Control Delay	48.1	50.6	1.3	125.6	26.6	0.3	47.2	29.2	16.9	22.5	52.7	14.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.1	50.6	1.3	125.6	26.6	0.3	47.2	29.2	16.9	22.5	52.7	14.0
LOS	D	D	A	F	C	A	D	C	B	C	D	B
Approach Delay		45.6			75.4			23.8			42.6	
Approach LOS		D			E			C			D	

Intersection Summary

Area Type:	Other
Cycle Length:	95
Actuated Cycle Length:	95
Offset:	0 (0%), Referenced to phase 2:NBT and 6:SBTL, Start of Green
Natural Cycle:	95
Control Type:	Actuated-Coordinated
Maximum v/c Ratio:	1.16
Intersection Signal Delay:	48.2
Intersection LOS:	D
Intersection Capacity Utilization:	91.1%
ICU Level of Service:	F
Analysis Period (min):	15

Splits and Phases: 6: Trafalgar Road & Steeles Avenue



Queues
6: Trafalgar Road & Steeles Avenue

2031 Background AM - Remedial Measures
Premier Gateway Phase 1B Employment Area



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	75	840	100	705	640	55	65	400	530	230	1390	330
v/c Ratio	0.39	0.90	0.23	1.16	0.46	0.09	0.36	0.33	0.77	0.52	0.97	0.68
Control Delay	48.1	50.6	1.3	125.6	26.6	0.3	47.2	29.2	16.9	22.5	52.7	14.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	48.1	50.6	1.3	125.6	26.6	0.3	47.2	29.2	16.9	22.5	52.7	14.0
Queue Length 50th (m)	7.2	58.2	0.0	-83.6	36.4	0.0	6.2	22.8	21.5	27.7	-109.7	5.6
Queue Length 95th (m)	14.6	#82.0	0.0	#119.4	48.2	0.0	13.0	32.1	66.1	45.1	#139.4	39.9
Internal Link Dist (m)		855.8			287.3			308.0			265.5	
Turn Bay Length (m)	115.0		40.0	175.0		70.0	100.0		65.0	250.0		80.0
Base Capacity (vph)	194	933	429	608	1392	609	180	1197	692	441	1435	483
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	0.39	0.90	0.23	1.16	0.46	0.09	0.36	0.33	0.77	0.52	0.97	0.68

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 2031 Background AM - Remedial Measures 6: Trafalgar Road & 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)	75	840	100	705	640	55	65	400	530	230	1390	330
Future Volume (vph)	75	840	100	705	640	55	65	400	530	230	1390	330
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	7.0	7.0	5.0	7.0	7.0	5.0	8.0	8.0	4.0	8.0	8.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	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)	2633	4433	1179	3400	4084	1455	2148	4550	1524	1752	4940	950
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.48	1.00	1.00
Satd. Flow (perm)	2633	4433	1179	3400	4084	1455	2148	4550	1524	878	4940	950
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)	75	840	100	705	640	55	65	400	530	230	1390	330
RTOR Reduction (vph)	0	0	78	0	0	36	0	0	295	0	0	213
Lane Group Flow (vph)	75	840	22	705	640	19	65	400	235	230	1390	117
Heavy Vehicles (%)	33%	17%	37%	3%	27%	11%	63%	14%	6%	3%	5%	70%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2	6		6
Actuated Green, G (s)	5.6	21.0	21.0	17.0	32.4	32.4	6.4	24.0	24.0	34.6	25.6	25.6
Effective Green, g (s)	5.6	21.0	21.0	17.0	32.4	32.4	6.4	24.0	24.0	34.6	25.6	25.6
Actuated g/C Ratio	0.06	0.22	0.22	0.18	0.34	0.34	0.07	0.25	0.25	0.36	0.27	0.27
Clearance Time (s)	5.0	7.0	7.0	5.0	7.0	7.0	5.0	8.0	8.0	4.0	8.0	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	0.2
Lane Grp Cap (vph)	155	979	260	608	1392	496	144	1149	385	402	1331	256
v/s Ratio Prot	0.03	c0.19		c0.21	0.16		0.03	0.09		c0.05	c0.28	
v/s Ratio Perm			0.02			0.01			0.15	0.15		0.12
v/c Ratio	0.48	0.86	0.09	1.16	0.46	0.04	0.45	0.35	0.61	0.57	1.04	0.46
Uniform Delay, d1	43.3	35.6	29.4	39.0	24.5	20.9	42.6	29.1	31.4	22.1	34.7	28.9
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	2.4	7.6	0.1	89.1	0.2	0.0	3.0	0.8	7.0	2.0	37.1	5.8
Delay (s)	45.7	43.1	29.5	128.1	24.7	20.9	45.7	29.9	38.4	24.1	71.8	34.7
Level of Service	D	D	C	F	C	C	D	C	D	C	E	C
Approach Delay (s)		42.0			76.6			35.5			59.9	
Approach LOS		D			E			D			E	

Intersection Summary

HCM 2000 Control Delay	56.3	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	95.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	91.1%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings

2031 Background 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)	120	1410	20	45	855	35	5	5	15	280	10	555
Future Volume (vph)	120	1410	20	45	855	35	5	5	15	280	10	555
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	120.0		55.0	30.0		30.0	0.0		0.0	100.0		0.0
Storage Lanes	1		1	1		1	2		0	1		0
Taper Length (m)	55.0			90.0			7.5			45.0		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Fr't			0.850			0.850		0.887			0.853	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1719	4673	1404	1752	4287	1482	2633	1536	0	1787	1605	0
Flt Permitted	0.231			0.117			0.950			0.744		
Satd. Flow (perm)	418	4673	1404	216	4287	1482	2633	1536	0	1400	1605	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			164			164		15			384	
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)	120	1410	20	45	855	35	5	5	15	280	10	555
Shared Lane Traffic (%)												
Lane Group Flow (vph)	120	1410	20	45	855	35	5	20	0	280	565	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	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	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	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	
Detector 1 Size(m)	2.0	0.6	2.0	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	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	
Detector 1 Queue (s)	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	
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	Perm	Prot	NA		Perm	NA	
Protected Phases	7	4		3	8		5	2				6
Permitted Phases	4		4	8		8				6		
Detector Phase	7	4	4	3	8	8	5	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	10.0	10.0		10.0	10.0	

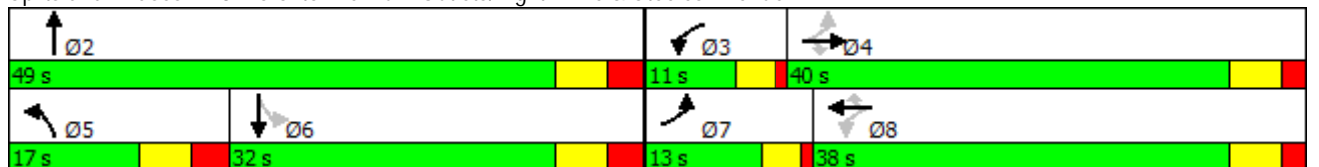


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	11.0	26.0	26.0	11.0	26.0	26.0	17.0	17.0		17.0	17.0	
Total Split (s)	13.0	40.0	40.0	11.0	38.0	38.0	17.0	49.0		32.0	32.0	
Total Split (%)	13.0%	40.0%	40.0%	11.0%	38.0%	38.0%	17.0%	49.0%		32.0%	32.0%	
Maximum Green (s)	9.0	34.0	34.0	7.0	32.0	32.0	10.0	42.0		25.0	25.0	
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	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	0.0	
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	7.0	7.0		7.0	7.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	
Vehicle Extension (s)	3.0	0.2	0.2	3.0	0.2	0.2	4.0	4.0		3.0	3.0	
Recall Mode	None	Max	Max	None	Max	Max	None	None		Max	Max	
Walk Time (s)		7.0	7.0		7.0	7.0		7.0				
Flash Dont Walk (s)		17.0	17.0		17.0	17.0		21.0				
Pedestrian Calls (#/hr)		0	0		0	0		0				
Act Effct Green (s)	45.3	38.2	38.2	41.4	32.4	32.4	10.1	28.1		25.2	25.2	
Actuated g/C Ratio	0.53	0.45	0.45	0.48	0.38	0.38	0.12	0.33		0.29	0.29	
v/c Ratio	0.35	0.68	0.03	0.20	0.53	0.05	0.02	0.04		0.68	0.76	
Control Delay	13.8	23.1	0.1	13.1	23.2	0.1	37.0	10.7		38.4	17.3	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	13.8	23.1	0.1	13.1	23.2	0.1	37.0	10.7		38.4	17.3	
LOS	B	C	A	B	C	A	D	B		D	B	
Approach Delay		22.1			21.8			15.9			24.3	
Approach LOS		C			C			B			C	

Intersection Summary

Area Type:	Other
Cycle Length:	100
Actuated Cycle Length:	85.8
Natural Cycle:	90
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.76
Intersection Signal Delay:	22.5
Intersection LOS:	C
Intersection Capacity Utilization:	82.1%
ICU Level of Service:	E
Analysis Period (min):	15

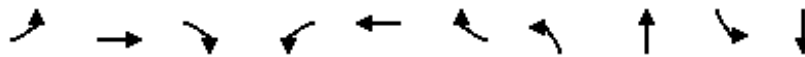
Splits and Phases: 8: Toronto Premium Outlets/Eighth Line & Steeles Avenue



Queues

2031 Background 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	SBL	SBT
Lane Group Flow (vph)	120	1410	20	45	855	35	5	20	280	565
v/c Ratio	0.35	0.68	0.03	0.20	0.53	0.05	0.02	0.04	0.68	0.76
Control Delay	13.8	23.1	0.1	13.1	23.2	0.1	37.0	10.7	38.4	17.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	13.8	23.1	0.1	13.1	23.2	0.1	37.0	10.7	38.4	17.3
Queue Length 50th (m)	8.6	70.6	0.0	3.1	38.4	0.0	0.4	0.6	40.5	24.4
Queue Length 95th (m)	24.3	#120.9	0.0	11.1	68.4	0.0	2.3	5.1	#96.5	#96.5
Internal Link Dist (m)		176.7			846.8			194.1		3062.4
Turn Bay Length (m)	120.0		55.0	30.0		30.0			100.0	
Base Capacity (vph)	358	2080	715	230	1617	661	309	764	410	742
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	0.34	0.68	0.03	0.20	0.53	0.05	0.02	0.03	0.68	0.76

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis 2031 Background AM - Remedial Measures
 8: Toronto Premium Outlets/Eighth Line & Steeles Avenue Premier Gateway Phase 1B Employment Area



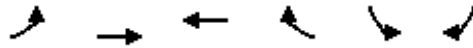
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	120	1410	20	45	855	35	5	5	15	280	10	555
Future Volume (vph)	120	1410	20	45	855	35	5	5	15	280	10	555
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	4.0	6.0	6.0	7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.97	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.89		1.00	0.85	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1719	4673	1404	1752	4287	1482	2633	1536		1787	1604	
Flt Permitted	0.23	1.00	1.00	0.12	1.00	1.00	0.95	1.00		0.74	1.00	
Satd. Flow (perm)	419	4673	1404	216	4287	1482	2633	1536		1400	1604	
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)	120	1410	20	45	855	35	5	5	15	280	10	555
RTOR Reduction (vph)	0	0	12	0	0	22	0	10	0	0	280	0
Lane Group Flow (vph)	120	1410	8	45	855	13	5	10	0	280	285	0
Heavy Vehicles (%)	5%	11%	15%	3%	21%	9%	33%	0%	13%	1%	0%	1%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA		Perm	NA	
Protected Phases	7	4		3	8		5	2				6
Permitted Phases	4		4	8		8				6		
Actuated Green, G (s)	46.3	38.2	38.2	38.2	34.1	34.1	1.7	33.9		25.2	25.2	
Effective Green, g (s)	46.3	38.2	38.2	38.2	34.1	34.1	1.7	33.9		25.2	25.2	
Actuated g/C Ratio	0.50	0.41	0.41	0.41	0.37	0.37	0.02	0.36		0.27	0.27	
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	0.2	0.2	3.0	0.2	0.2	4.0	4.0		3.0	3.0	
Lane Grp Cap (vph)	322	1915	575	156	1568	542	48	558		378	433	
v/s Ratio Prot	c0.03	c0.30		0.01	0.20		c0.00	0.01				0.18
v/s Ratio Perm	0.15		0.01	0.11		0.01				c0.20		
v/c Ratio	0.37	0.74	0.01	0.29	0.55	0.02	0.10	0.02		0.74	0.66	
Uniform Delay, d1	13.4	23.2	16.3	17.6	23.4	18.9	45.0	19.0		31.0	30.2	
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	0.7	2.6	0.0	1.0	1.4	0.1	1.3	0.0		12.3	7.6	
Delay (s)	14.2	25.8	16.4	18.6	24.8	19.0	46.3	19.0		43.3	37.8	
Level of Service	B	C	B	B	C	B	D	B		D	D	
Approach Delay (s)		24.8			24.3			24.5			39.6	
Approach LOS		C			C			C			D	

Intersection Summary

HCM 2000 Control Delay	28.4	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	93.2	Sum of lost time (s)	24.0
Intersection Capacity Utilization	82.1%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

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

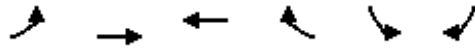
2031 Background AM - Remedial Measures
Premier Gateway Phase 1B Employment Area



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	120	1620	860	335	890	115
Future Volume (vph)	120	1620	860	335	890	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	65.0			75.0	105.0	0.0
Storage Lanes	1			1	1	1
Taper Length (m)	100.0				40.0	
Lane Util. Factor	1.00	0.91	0.91	1.00	0.97	1.00
Frt				0.850		0.850
Flt Protected	0.950				0.950	
Satd. Flow (prot)	1556	4759	4396	1509	3433	1324
Flt Permitted	0.268				0.950	
Satd. Flow (perm)	439	4759	4396	1509	3433	1324
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				335		115
Link Speed (k/h)		70	70		70	
Link Distance (m)		525.4	169.8		3120.2	
Travel Time (s)		27.0	8.7		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)	120	1620	860	335	890	115
Shared Lane Traffic (%)						
Lane Group Flow (vph)	120	1620	860	335	890	115
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	Free	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			Free		6
Detector Phase	7	4	8		6	6
Switch Phase						
Minimum Initial (s)	7.0	20.0	20.0		10.0	10.0

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

2031 Background AM - Remedial Measures
 Premier Gateway Phase 1B Employment Area

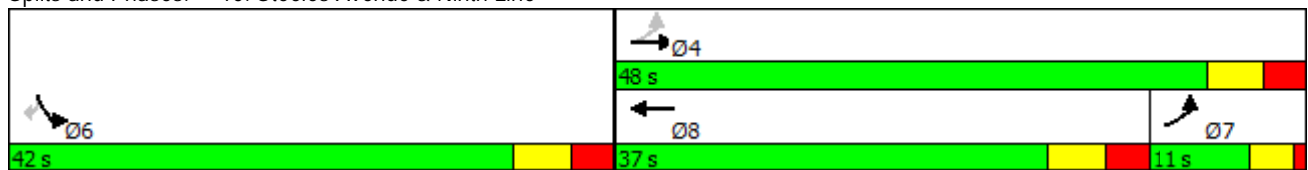


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Minimum Split (s)	11.0	27.0	27.0		17.0	17.0
Total Split (s)	11.0	48.0	37.0		42.0	42.0
Total Split (%)	12.2%	53.3%	41.1%		46.7%	46.7%
Maximum Green (s)	7.0	41.0	30.0		35.0	35.0
Yellow Time (s)	3.0	4.0	4.0		4.0	4.0
All-Red Time (s)	1.0	3.0	3.0		3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.0	7.0	7.0		7.0	7.0
Lead/Lag	Lag		Lead			
Lead-Lag Optimize?	Yes		Yes			
Vehicle Extension (s)	3.0	0.2	0.2		3.0	3.0
Recall Mode	None	Max	Max		Max	Max
Act Effect Green (s)	44.0	41.0	30.0	90.0	35.0	35.0
Actuated g/C Ratio	0.49	0.46	0.33	1.00	0.39	0.39
v/c Ratio	0.40	0.75	0.59	0.22	0.67	0.20
Control Delay	22.3	22.9	26.8	0.3	25.7	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.3	22.9	26.8	0.3	25.7	4.6
LOS	C	C	C	A	C	A
Approach Delay		22.9	19.4		23.3	
Approach LOS		C	B		C	

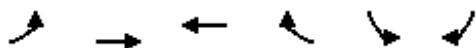
Intersection Summary

Area Type:	Other
Cycle Length:	90
Actuated Cycle Length:	90
Natural Cycle:	60
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.75
Intersection Signal Delay:	21.9
Intersection LOS:	C
Intersection Capacity Utilization	68.4%
ICU Level of Service	C
Analysis Period (min)	15

Splits and Phases: 10: Steeles Avenue & Ninth Line



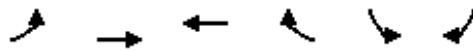
Queues
10: Steeles Avenue & Ninth Line



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	120	1620	860	335	890	115
v/c Ratio	0.40	0.75	0.59	0.22	0.67	0.20
Control Delay	22.3	22.9	26.8	0.3	25.7	4.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.3	22.9	26.8	0.3	25.7	4.6
Queue Length 50th (m)	11.6	85.8	46.9	0.0	67.4	0.0
Queue Length 95th (m)	21.7	104.6	60.5	0.0	88.5	10.4
Internal Link Dist (m)		501.4	145.8		3096.2	
Turn Bay Length (m)	65.0			75.0	105.0	
Base Capacity (vph)	301	2167	1465	1509	1335	585
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	0.40	0.75	0.59	0.22	0.67	0.20
Intersection Summary						

HCM Signalized Intersection Capacity Analysis 2031 Background AM - Remedial Measures 10: Steeles Avenue & Ninth Line

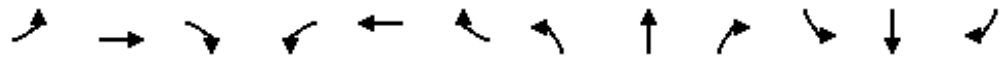
Premier Gateway Phase 1B Employment Area



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	120	1620	860	335	890	115
Future Volume (vph)	120	1620	860	335	890	115
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	0.91	0.91	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	4759	4396	1509	3433	1324
Flt Permitted	0.27	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	439	4759	4396	1509	3433	1324
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	120	1620	860	335	890	115
RTOR Reduction (vph)	0	0	0	0	0	70
Lane Group Flow (vph)	120	1620	860	335	890	45
Heavy Vehicles (%)	16%	9%	18%	7%	2%	22%
Turn Type	pm+pt	NA	NA	Free	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			Free		6
Actuated Green, G (s)	44.0	41.0	30.0	90.0	35.0	35.0
Effective Green, g (s)	44.0	41.0	30.0	90.0	35.0	35.0
Actuated g/C Ratio	0.49	0.46	0.33	1.00	0.39	0.39
Clearance Time (s)	4.0	7.0	7.0		7.0	7.0
Vehicle Extension (s)	3.0	0.2	0.2		3.0	3.0
Lane Grp Cap (vph)	301	2167	1465	1509	1335	514
v/s Ratio Prot	0.03	c0.34	0.20		c0.26	
v/s Ratio Perm	0.16			0.22		0.03
v/c Ratio	0.40	0.75	0.59	0.22	0.67	0.09
Uniform Delay, d1	19.3	20.2	24.9	0.0	22.7	17.4
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.9	2.4	1.7	0.3	2.6	0.3
Delay (s)	20.2	22.6	26.6	0.3	25.3	17.7
Level of Service	C	C	C	A	C	B
Approach Delay (s)		22.5	19.2		24.5	
Approach LOS		C	B		C	
Intersection Summary						
HCM 2000 Control Delay			22.0		HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.75			
Actuated Cycle Length (s)			90.0		Sum of lost time (s)	18.0
Intersection Capacity Utilization			68.4%		ICU Level of Service	C
Analysis Period (min)			15			
c Critical Lane Group						

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

2031 Background 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)	25	565	15	50	180	20	5	135	40	105	775	105
Future Volume (vph)	25	565	15	50	180	20	5	135	40	105	775	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	25.0		0.0
Storage Lanes	0		0	0		0	0		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996			0.988			0.970			0.982	
Flt Protected		0.998			0.990			0.999		0.950		
Satd. Flow (prot)	0	3492	0	0	3389	0	0	1811	0	1805	1864	0
Flt Permitted		0.930			0.668			0.978		0.610		
Satd. Flow (perm)	0	3254	0	0	2287	0	0	1773	0	1159	1864	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		3			12			26			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)	25	565	15	50	180	20	5	135	40	105	775	105
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	605	0	0	250	0	0	180	0	105	880	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		pm+pt	NA	
Protected Phases		4			8			2		1	6	
Permitted Phases	4			8			2			6		
Detector Phase	4	4		8	8		2	2		1	6	
Switch Phase												
Minimum Initial (s)	15.0	15.0		15.0	15.0		15.0	15.0		5.0	15.0	

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

2031 Background AM - Remedial Measures
Premier Gateway Phase 1B Employment Area

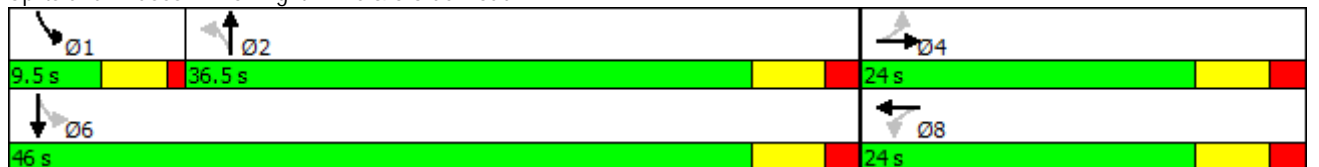


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	24.0	24.0		24.0	24.0		24.0	24.0		9.5	24.0	
Total Split (s)	24.0	24.0		24.0	24.0		36.5	36.5		9.5	46.0	
Total Split (%)	34.3%	34.3%		34.3%	34.3%		52.1%	52.1%		13.6%	65.7%	
Maximum Green (s)	18.0	18.0		18.0	18.0		30.5	30.5		5.0	40.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		3.5	4.0	
All-Red Time (s)	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	
Total Lost Time (s)		6.0			6.0			6.0		4.5	6.0	
Lead/Lag							Lag	Lag		Lead		
Lead-Lag Optimize?							Yes	Yes		Yes		
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	3.0	
Recall Mode	None	None		None	None		Max	Max		None	Max	
Walk Time (s)	7.0	7.0		7.0	7.0		7.0	7.0			7.0	
Flash Dont Walk (s)	11.0	11.0		11.0	11.0		11.0	11.0			11.0	
Pedestrian Calls (#/hr)	0	0		0	0		0	0			0	
Act Effct Green (s)		16.9			16.9			32.5		41.5	40.0	
Actuated g/C Ratio		0.25			0.25			0.47		0.60	0.58	
v/c Ratio		0.76			0.44			0.21		0.14	0.81	
Control Delay		30.9			23.6			11.0		6.6	19.2	
Queue Delay		0.0			0.0			0.0		0.0	0.0	
Total Delay		30.9			23.6			11.0		6.6	19.2	
LOS		C			C			B		A	B	
Approach Delay		30.9			23.6			11.0			17.9	
Approach LOS		C			C			B			B	

Intersection Summary

Area Type:	Other
Cycle Length:	70
Actuated Cycle Length:	68.9
Natural Cycle:	60
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.81
Intersection Signal Delay:	21.9
Intersection LOS:	C
Intersection Capacity Utilization:	105.9%
ICU Level of Service:	G
Analysis Period (min):	15

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



Queues
15: Eighth Line & 5 Side Road



Lane Group	EBT	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	605	250	180	105	880
v/c Ratio	0.76	0.44	0.21	0.14	0.81
Control Delay	30.9	23.6	11.0	6.6	19.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	30.9	23.6	11.0	6.6	19.2
Queue Length 50th (m)	39.7	14.3	12.5	5.5	86.3
Queue Length 95th (m)	57.3	24.6	24.6	11.5	#166.9
Internal Link Dist (m)	619.4	644.7	3062.4		430.5
Turn Bay Length (m)				25.0	
Base Capacity (vph)	852	606	849	745	1089
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	0.71	0.41	0.21	0.14	0.81

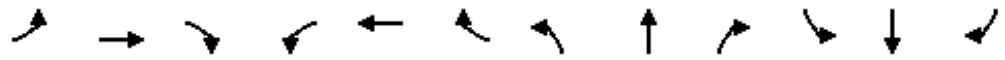
Intersection Summary

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

HCM Signalized Intersection Capacity Analysis 2031 Background AM - Remedial Measures

15: Eighth Line & 5 Side Road

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	565	15	50	180	20	5	135	40	105	775	105	
Future Volume (vph)	25	565	15	50	180	20	5	135	40	105	775	105	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		6.0			6.0			6.0		4.5	6.0		
Lane Util. Factor		0.95			0.95			1.00		1.00	1.00		
Frt		1.00			0.99			0.97		1.00	0.98		
Flt Protected		1.00			0.99			1.00		0.95	1.00		
Satd. Flow (prot)		3493			3389			1811		1805	1864		
Flt Permitted		0.93			0.67			0.98		0.61	1.00		
Satd. Flow (perm)		3255			2288			1773		1159	1864		
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	565	15	50	180	20	5	135	40	105	775	105	
RTOR Reduction (vph)	0	2	0	0	9	0	0	14	0	0	7	0	
Lane Group Flow (vph)	0	603	0	0	241	0	0	166	0	105	873	0	
Heavy Vehicles (%)	13%	2%	14%	7%	3%	8%	0%	1%	4%	0%	0%	1%	
Turn Type	Perm	NA		Perm	NA		Perm	NA		pm+pt	NA		
Protected Phases		4			8			2		1	6		
Permitted Phases	4			8			2			6			
Actuated Green, G (s)		16.9			16.9			32.5		41.0	41.0		
Effective Green, g (s)		16.9			16.9			32.5		41.0	41.0		
Actuated g/C Ratio		0.24			0.24			0.46		0.59	0.59		
Clearance Time (s)		6.0			6.0			6.0		4.5	6.0		
Vehicle Extension (s)		3.0			3.0			3.0		3.0	3.0		
Lane Grp Cap (vph)		786			553			824		716	1093		
v/s Ratio Prot										0.01	c0.47		
v/s Ratio Perm		c0.19			0.11			0.09		0.08			
v/c Ratio		0.77			0.44			0.20		0.15	0.80		
Uniform Delay, d1		24.7			22.5			11.0		6.5	11.2		
Progression Factor		1.00			1.00			1.00		1.00	1.00		
Incremental Delay, d2		4.5			0.6			0.6		0.1	6.1		
Delay (s)		29.2			23.0			11.6		6.6	17.4		
Level of Service		C			C			B		A	B		
Approach Delay (s)		29.2			23.0			11.6			16.2		
Approach LOS		C			C			B			B		
Intersection Summary													
HCM 2000 Control Delay			20.5									HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio			0.86										
Actuated Cycle Length (s)			69.9									Sum of lost time (s)	16.5
Intersection Capacity Utilization			105.9%									ICU Level of Service	G
Analysis Period (min)			15										
c	Critical Lane Group												

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

2031 Background 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)	35	700	45	5	175	20	15	475	35	415	1015	45
Future Volume (vph)	35	700	45	5	175	20	15	475	35	415	1015	45
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		0.0	40.0		40.0	40.0		0.0	55.0		0.0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.991				0.850		0.990			0.994	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1641	3436	0	1805	3539	1615	1289	3215	0	1805	3388	0
Flt Permitted	0.641			0.203			0.270			0.349		
Satd. Flow (perm)	1107	3436	0	386	3539	1615	366	3215	0	663	3388	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		8				95		9			9	
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)	35	700	45	5	175	20	15	475	35	415	1015	45
Shared Lane Traffic (%)												
Lane Group Flow (vph)	35	745	0	5	175	20	15	510	0	415	1060	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			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	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)	15.0	15.0		15.0	15.0	15.0	15.0	15.0		7.0	20.0	

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

2031 Background AM - Remedial Measures
Premier Gateway Phase 1B Employment Area

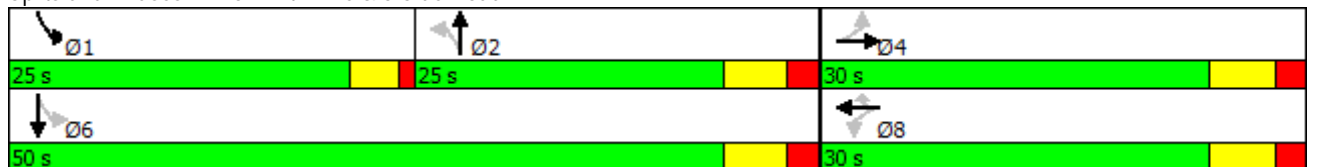


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	24.0	24.0		24.0	24.0	24.0	21.0	21.0		11.0	26.0	
Total Split (s)	30.0	30.0		30.0	30.0	30.0	25.0	25.0		25.0	50.0	
Total Split (%)	37.5%	37.5%		37.5%	37.5%	37.5%	31.3%	31.3%		31.3%	62.5%	
Maximum Green (s)	24.0	24.0		24.0	24.0	24.0	19.0	19.0		21.0	44.0	
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	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	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)	21.4	21.4		21.4	21.4	21.4	24.9	24.9		46.1	44.1	
Actuated g/C Ratio	0.28	0.28		0.28	0.28	0.28	0.32	0.32		0.59	0.57	
v/c Ratio	0.11	0.78		0.05	0.18	0.04	0.13	0.49		0.67	0.55	
Control Delay	21.7	32.0		21.4	21.6	0.1	26.5	24.5		14.8	12.1	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	21.7	32.0		21.4	21.6	0.1	26.5	24.5		14.8	12.1	
LOS	C	C		C	C	A	C	C		B	B	
Approach Delay		31.5			19.4			24.6			12.9	
Approach LOS		C			B			C			B	

Intersection Summary

Area Type:	Other
Cycle Length:	80
Actuated Cycle Length:	77.5
Natural Cycle:	60
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.78
Intersection Signal Delay:	20.3
Intersection LOS:	C
Intersection Capacity Utilization:	86.1%
ICU Level of Service:	E
Analysis Period (min):	15

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



Queues
16: Ninth Line & 5 Side Road

2031 Background AM - Remedial Measures
Premier Gateway Phase 1B Employment Area



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	35	745	5	175	20	15	510	415	1060
v/c Ratio	0.11	0.78	0.05	0.18	0.04	0.13	0.49	0.67	0.55
Control Delay	21.7	32.0	21.4	21.6	0.1	26.5	24.5	14.8	12.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	21.7	32.0	21.4	21.6	0.1	26.5	24.5	14.8	12.1
Queue Length 50th (m)	4.0	55.0	0.6	10.7	0.0	1.7	33.5	32.3	51.8
Queue Length 95th (m)	10.9	75.1	3.2	18.4	0.0	7.4	55.0	52.7	71.3
Internal Link Dist (m)		556.9		434.3			3096.2		305.9
Turn Bay Length (m)	40.0		40.0		40.0	40.0		55.0	
Base Capacity (vph)	343	1071	119	1097	566	117	1040	704	1930
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	0.70	0.04	0.16	0.04	0.13	0.49	0.59	0.55
Intersection Summary									

HCM Signalized Intersection Capacity Analysis 2031 Background AM - Remedial Measures

16: Ninth Line & 5 Side Road

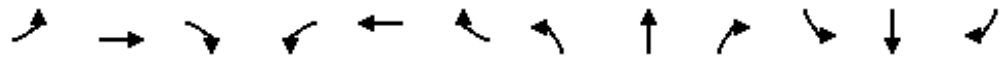
Premier Gateway Phase 1B Employment Area



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations	↖	↗		↖	↗	↗	↖	↗		↖	↗		
Traffic Volume (vph)	35	700	45	5	175	20	15	475	35	415	1015	45	
Future Volume (vph)	35	700	45	5	175	20	15	475	35	415	1015	45	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		4.0	6.0		
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		1.00	0.95		
Frt	1.00	0.99		1.00	1.00	0.85	1.00	0.99		1.00	0.99		
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00		
Satd. Flow (prot)	1641	3436		1805	3539	1615	1289	3214		1805	3387		
Flt Permitted	0.64	1.00		0.20	1.00	1.00	0.27	1.00		0.35	1.00		
Satd. Flow (perm)	1108	3436		386	3539	1615	366	3214		663	3387		
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)	35	700	45	5	175	20	15	475	35	415	1015	45	
RTOR Reduction (vph)	0	6	0	0	0	14	0	6	0	0	4	0	
Lane Group Flow (vph)	35	739	0	5	175	6	15	504	0	415	1056	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)	21.4	21.4		21.4	21.4	21.4	25.0	25.0		44.1	44.1		
Effective Green, g (s)	21.4	21.4		21.4	21.4	21.4	25.0	25.0		44.1	44.1		
Actuated g/C Ratio	0.28	0.28		0.28	0.28	0.28	0.32	0.32		0.57	0.57		
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		4.0	6.0		
Vehicle Extension (s)	3.5	3.5		3.5	3.5	3.5	5.5	5.5		3.0	5.5		
Lane Grp Cap (vph)	305	948		106	977	445	118	1036		599	1927		
v/s Ratio Prot		c0.22			0.05			0.16		c0.13	0.31		
v/s Ratio Perm	0.03			0.01		0.00	0.04			c0.26			
v/c Ratio	0.11	0.78		0.05	0.18	0.01	0.13	0.49		0.69	0.55		
Uniform Delay, d1	21.0	25.9		20.6	21.4	20.4	18.5	21.1		10.0	10.5		
Progression Factor	1.00	1.00		1.00	1.00	1.00	1.00	1.00		1.00	1.00		
Incremental Delay, d2	0.2	4.2		0.2	0.1	0.0	2.2	1.6		3.5	1.1		
Delay (s)	21.2	30.1		20.8	21.5	20.4	20.8	22.7		13.4	11.6		
Level of Service	C	C		C	C	C	C	C		B	B		
Approach Delay (s)		29.7			21.3			22.7			12.1		
Approach LOS		C			C			C			B		
Intersection Summary													
HCM 2000 Control Delay			19.2									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.76										
Actuated Cycle Length (s)			77.5									Sum of lost time (s)	16.0
Intersection Capacity Utilization			86.1%									ICU Level of Service	E
Analysis Period (min)			15										
c	Critical Lane Group												

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

2031 Background 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)	335	780	60	895	1280	235	90	875	845	60	340	75
Future Volume (vph)	335	780	60	895	1280	235	90	875	845	60	340	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	115.0		40.0	175.0		70.0	100.0		65.0	250.0		80.0
Storage Lanes	2		1	2		1	2		1	1		1
Taper Length (m)	100.0			100.0			80.0			100.0		
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	0.91	1.00	1.00	0.91	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	2653	4510	1262	3433	4759	1583	3099	5036	1568	1805	4988	1129
Flt Permitted	0.950			0.950			0.950			0.232		
Satd. Flow (perm)	2653	4510	1262	3433	4759	1583	3099	5036	1568	441	4988	1129
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			156			151			622			148
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)	335	780	60	895	1280	235	90	875	845	60	340	75
Shared Lane Traffic (%)												
Lane Group Flow (vph)	335	780	60	895	1280	235	90	875	845	60	340	75
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	1
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
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	2.0
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	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	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	2.0
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	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	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	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	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	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2	6		6
Detector Phase	7	4	4	3	8	8	5	2	2	1	6	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	20.0

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

2031 Background PM - Remedial Measures
Premier Gateway Phase 1B Employment Area

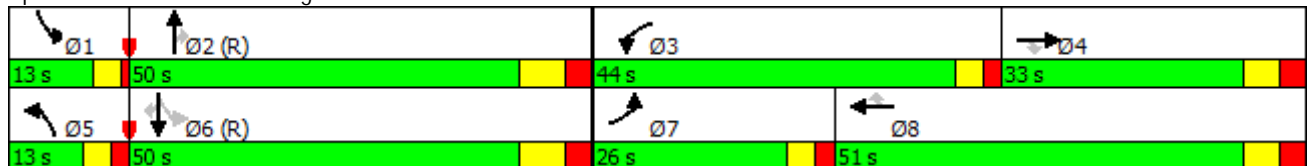


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	12.0	27.0	27.0	13.0	27.0	27.0	13.0	28.0	28.0	13.0	28.0	28.0
Total Split (s)	26.0	33.0	33.0	44.0	51.0	51.0	13.0	50.0	50.0	13.0	50.0	50.0
Total Split (%)	18.6%	23.6%	23.6%	31.4%	36.4%	36.4%	9.3%	35.7%	35.7%	9.3%	35.7%	35.7%
Maximum Green (s)	21.0	26.0	26.0	39.0	44.0	44.0	8.0	42.0	42.0	9.0	42.0	42.0
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	5.0
All-Red Time (s)	2.0	3.0	3.0	2.0	3.0	3.0	2.0	3.0	3.0	1.0	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	0.0	0.0	0.0
Total Lost Time (s)	5.0	7.0	7.0	5.0	7.0	7.0	5.0	8.0	8.0	4.0	8.0	8.0
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead	Lag	Lag
Lead-Lag Optimize?	Yes	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	0.2
Recall Mode	None	None	None	None	None	None	None	C-Max	C-Max	None	C-Max	C-Max
Walk Time (s)		7.0	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	26.0
Pedestrian Calls (#/hr)		0	0		0	0		0	0		0	0
Act Effct Green (s)	20.3	25.8	25.8	38.6	44.2	44.2	8.0	45.1	45.1	55.5	42.5	42.5
Actuated g/C Ratio	0.14	0.18	0.18	0.28	0.32	0.32	0.06	0.32	0.32	0.40	0.30	0.30
v/c Ratio	0.87	0.94	0.17	0.95	0.85	0.39	0.51	0.54	0.91	0.23	0.22	0.17
Control Delay	81.6	75.5	1.0	68.2	51.5	15.4	74.6	41.2	27.3	26.6	37.0	0.8
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	81.6	75.5	1.0	68.2	51.5	15.4	74.6	41.2	27.3	26.6	37.0	0.8
LOS	F	E	A	E	D	B	E	D	C	C	D	A
Approach Delay		73.5			54.2			36.4			30.0	
Approach LOS		E			D			D			C	

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:	0.95
Intersection Signal Delay:	50.6
Intersection LOS:	D
Intersection Capacity Utilization:	92.3%
ICU Level of Service:	F
Analysis Period (min):	15

Splits and Phases: 6: Trafalgar Road & Steeles Avenue



Queues
6: Trafalgar Road & Steeles Avenue

2031 Background PM - Remedial Measures
Premier Gateway Phase 1B Employment Area



Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	335	780	60	895	1280	235	90	875	845	60	340	75
v/c Ratio	0.87	0.94	0.17	0.95	0.85	0.39	0.51	0.54	0.91	0.23	0.22	0.17
Control Delay	81.6	75.5	1.0	68.2	51.5	15.4	74.6	41.2	27.3	26.6	37.0	0.8
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	81.6	75.5	1.0	68.2	51.5	15.4	74.6	41.2	27.3	26.6	37.0	0.8
Queue Length 50th (m)	49.5	82.9	0.0	131.8	128.3	17.8	13.4	79.3	81.2	10.4	27.3	0.0
Queue Length 95th (m)	#74.7	#109.2	0.0	#172.3	148.3	41.9	23.0	94.5	#182.7	20.1	36.5	0.0
Internal Link Dist (m)	855.8						287.3		308.0		265.5	
Turn Bay Length (m)	115.0	40.0		175.0	70.0		100.0	65.0		250.0	80.0	
Base Capacity (vph)	397	837	361	956	1501	603	177	1623	926	262	1515	446
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	0.84	0.93	0.17	0.94	0.85	0.39	0.51	0.54	0.91	0.23	0.22	0.17

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis 2031 Background PM - Remedial Measures 6: Trafalgar Road & 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)	335	780	60	895	1280	235	90	875	845	60	340	75
Future Volume (vph)	335	780	60	895	1280	235	90	875	845	60	340	75
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	7.0	7.0	5.0	7.0	7.0	5.0	8.0	8.0	4.0	8.0	8.0
Lane Util. Factor	0.97	0.91	1.00	0.97	0.91	1.00	0.97	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)	2653	4510	1262	3433	4759	1583	3099	5036	1568	1805	4988	1129
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.23	1.00	1.00
Satd. Flow (perm)	2653	4510	1262	3433	4759	1583	3099	5036	1568	441	4988	1129
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)	335	780	60	895	1280	235	90	875	845	60	340	75
RTOR Reduction (vph)	0	0	49	0	0	103	0	0	425	0	0	52
Lane Group Flow (vph)	335	780	11	895	1280	132	90	875	420	60	340	23
Heavy Vehicles (%)	32%	15%	28%	2%	9%	2%	13%	3%	3%	0%	4%	43%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	pm+pt	NA	Perm
Protected Phases	7	4		3	8		5	2		1	6	
Permitted Phases			4			8			2	6		6
Actuated Green, G (s)	20.3	25.9	25.9	38.6	44.2	44.2	8.0	44.3	44.3	49.7	42.5	42.5
Effective Green, g (s)	20.3	25.9	25.9	38.6	44.2	44.2	8.0	44.3	44.3	49.7	42.5	42.5
Actuated g/C Ratio	0.15	0.18	0.18	0.28	0.32	0.32	0.06	0.32	0.32	0.36	0.30	0.30
Clearance Time (s)	5.0	7.0	7.0	5.0	7.0	7.0	5.0	8.0	8.0	4.0	8.0	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	0.2
Lane Grp Cap (vph)	384	834	233	946	1502	499	177	1593	496	226	1514	342
v/s Ratio Prot	0.13	c0.17		c0.26	0.27		c0.03	0.17		0.01	0.07	
v/s Ratio Perm			0.01			0.08			c0.27	0.08		0.02
v/c Ratio	0.87	0.94	0.05	0.95	0.85	0.26	0.51	0.55	0.85	0.27	0.22	0.07
Uniform Delay, d1	58.6	56.2	46.9	49.7	44.8	35.8	64.1	39.6	44.7	30.6	36.4	34.7
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	19.1	17.4	0.1	17.7	4.9	0.3	3.1	1.4	16.2	0.6	0.3	0.4
Delay (s)	77.6	73.6	47.0	67.4	49.7	36.0	67.2	41.0	60.9	31.2	36.8	35.0
Level of Service	E	E	D	E	D	D	E	D	E	C	D	D
Approach Delay (s)		73.4			54.9			51.6			35.8	
Approach LOS		E			D			D			D	

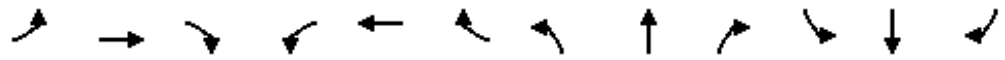
Intersection Summary

HCM 2000 Control Delay	56.0	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.89		
Actuated Cycle Length (s)	140.0	Sum of lost time (s)	25.0
Intersection Capacity Utilization	92.3%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Lanes, Volumes, Timings

2031 Background 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)	340	1225	25	180	1955	180	85	45	155	55	30	95
Future Volume (vph)	340	1225	25	180	1955	180	85	45	155	55	30	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	120.0		55.0	30.0		30.0	0.0		0.0	100.0		0.0
Storage Lanes	1		1	1		1	2		0	1		0
Taper Length (m)	55.0			90.0			7.5			45.0		
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850		0.884			0.886	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1805	4631	1615	1770	4848	1599	3367	1654	0	1752	1658	0
Flt Permitted	0.069			0.212			0.950			0.632		
Satd. Flow (perm)	131	4631	1615	395	4848	1599	3367	1654	0	1166	1658	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			136			173		135			95	
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)	340	1225	25	180	1955	180	85	45	155	55	30	95
Shared Lane Traffic (%)												
Lane Group Flow (vph)	340	1225	25	180	1955	180	85	200	0	55	125	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	1	2		1	2	
Detector Template	Left	Thru	Right	Left	Thru	Right	Left	Thru		Left	Thru	
Leading Detector (m)	2.0	10.0	2.0	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	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	
Detector 1 Size(m)	2.0	0.6	2.0	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	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	
Detector 1 Queue (s)	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	
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	Perm	Prot	NA		Perm	NA	
Protected Phases	7	4		3	8		5	2			6	
Permitted Phases	4		4	8		8				6		
Detector Phase	7	4	4	3	8	8	5	2		6	6	
Switch Phase												
Minimum Initial (s)	7.0	20.0	20.0	7.0	20.0	20.0	10.0	10.0		10.0	10.0	

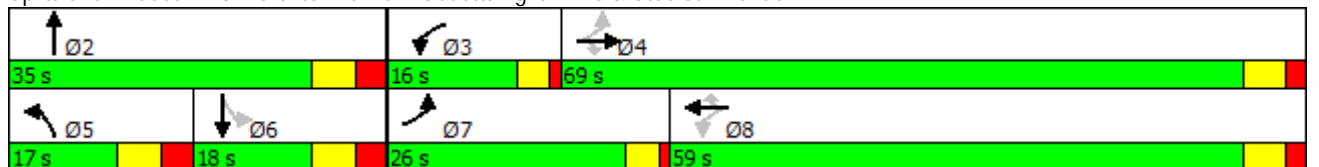


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	11.0	26.0	26.0	11.0	26.0	26.0	17.0	17.0		17.0	17.0	
Total Split (s)	26.0	69.0	69.0	16.0	59.0	59.0	17.0	35.0		18.0	18.0	
Total Split (%)	21.7%	57.5%	57.5%	13.3%	49.2%	49.2%	14.2%	29.2%		15.0%	15.0%	
Maximum Green (s)	22.0	63.0	63.0	12.0	53.0	53.0	10.0	28.0		11.0	11.0	
Yellow Time (s)	3.0	4.0	4.0	3.0	4.0	4.0	4.0	4.0		4.0	4.0	
All-Red Time (s)	1.0	2.0	2.0	1.0	2.0	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	0.0	
Total Lost Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	7.0	7.0		7.0	7.0	
Lead/Lag	Lead	Lag	Lag	Lead	Lag	Lag	Lead			Lag	Lag	
Lead-Lag Optimize?	Yes	Yes	Yes	Yes	Yes	Yes	Yes			Yes	Yes	
Vehicle Extension (s)	3.0	0.2	0.2	3.0	0.2	0.2	4.0	4.0		3.0	3.0	
Recall Mode	None	Max	Max	None	Max	Max	None	None		Max	Max	
Walk Time (s)		7.0	7.0		7.0	7.0		7.0				
Flash Dont Walk (s)		17.0	17.0		17.0	17.0		21.0				
Pedestrian Calls (#/hr)		0	0		0	0		0				
Act Effct Green (s)	80.2	64.4	64.4	65.9	54.2	54.2	10.1	24.2		11.1	11.1	
Actuated g/C Ratio	0.69	0.56	0.56	0.57	0.47	0.47	0.09	0.21		0.10	0.10	
v/c Ratio	0.90	0.47	0.03	0.53	0.86	0.21	0.29	0.44		0.50	0.51	
Control Delay	59.0	17.0	0.0	14.7	33.5	4.0	54.2	17.0		68.0	24.5	
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	59.0	17.0	0.0	14.7	33.5	4.0	54.2	17.0		68.0	24.5	
LOS	E	B	A	B	C	A	D	B		E	C	
Approach Delay		25.7			29.8			28.1			37.8	
Approach LOS		C			C			C			D	

Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	115.4
Natural Cycle:	90
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.90
Intersection Signal Delay:	28.5
Intersection LOS:	C
Intersection Capacity Utilization:	96.9%
ICU Level of Service:	F
Analysis Period (min):	15

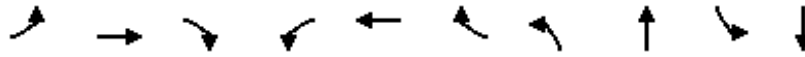
Splits and Phases: 8: Toronto Premium Outlets/Eighth Line & Steeles Avenue



Queues

2031 Background 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	SBL	SBT
Lane Group Flow (vph)	340	1225	25	180	1955	180	85	200	55	125
v/c Ratio	0.90	0.47	0.03	0.53	0.86	0.21	0.29	0.44	0.50	0.51
Control Delay	59.0	17.0	0.0	14.7	33.5	4.0	54.2	17.0	68.0	24.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	59.0	17.0	0.0	14.7	33.5	4.0	54.2	17.0	68.0	24.5
Queue Length 50th (m)	64.5	66.3	0.0	14.7	162.7	1.0	10.4	13.0	13.2	7.0
Queue Length 95th (m)	#116.1	82.1	0.0	23.5	186.8	14.2	18.8	34.8	#29.2	26.7
Internal Link Dist (m)		176.7			846.8			194.1		3062.4
Turn Bay Length (m)	120.0		55.0	30.0		30.0			100.0	
Base Capacity (vph)	412	2586	961	377	2278	842	293	506	111	245
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	0.83	0.47	0.03	0.48	0.86	0.21	0.29	0.40	0.50	0.51

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis 2031 Background PM - Remedial Measures
 8: Toronto Premium Outlets/Eighth Line & Steeles Avenue Premier Gateway Phase 1B Employment Area



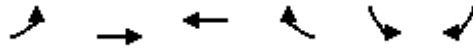
Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	340	1225	25	180	1955	180	85	45	155	55	30	95
Future Volume (vph)	340	1225	25	180	1955	180	85	45	155	55	30	95
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	6.0	6.0	4.0	6.0	6.0	7.0	7.0		7.0	7.0	
Lane Util. Factor	1.00	0.91	1.00	1.00	0.91	1.00	0.97	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.88		1.00	0.89	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	4631	1615	1770	4848	1599	3367	1653		1752	1658	
Flt Permitted	0.07	1.00	1.00	0.21	1.00	1.00	0.95	1.00		0.63	1.00	
Satd. Flow (perm)	131	4631	1615	395	4848	1599	3367	1653		1166	1658	
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)	340	1225	25	180	1955	180	85	45	155	55	30	95
RTOR Reduction (vph)	0	0	11	0	0	93	0	105	0	0	86	0
Lane Group Flow (vph)	340	1225	14	180	1955	87	85	95	0	55	39	0
Heavy Vehicles (%)	0%	12%	0%	2%	7%	1%	4%	0%	2%	3%	0%	2%
Turn Type	pm+pt	NA	Perm	pm+pt	NA	Perm	Prot	NA		Perm	NA	
Protected Phases	7	4		3	8		5	2				6
Permitted Phases	4		4	8		8				6		
Actuated Green, G (s)	78.1	64.4	64.4	63.9	54.2	54.2	7.7	25.8		11.1	11.1	
Effective Green, g (s)	78.1	64.4	64.4	63.9	54.2	54.2	7.7	25.8		11.1	11.1	
Actuated g/C Ratio	0.67	0.55	0.55	0.55	0.46	0.46	0.07	0.22		0.09	0.09	
Clearance Time (s)	4.0	6.0	6.0	4.0	6.0	6.0	7.0	7.0		7.0	7.0	
Vehicle Extension (s)	3.0	0.2	0.2	3.0	0.2	0.2	4.0	4.0		3.0	3.0	
Lane Grp Cap (vph)	372	2551	889	330	2247	741	221	364		110	157	
v/s Ratio Prot	c0.16	0.26		0.05	0.40		0.03	c0.06				0.02
v/s Ratio Perm	c0.46		0.01	0.25		0.05				c0.05		
v/c Ratio	0.91	0.48	0.02	0.55	0.87	0.12	0.38	0.26		0.50	0.25	
Uniform Delay, d1	36.6	16.0	11.9	13.4	28.2	17.8	52.3	37.7		50.3	49.0	
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	26.2	0.7	0.0	1.8	4.9	0.3	1.5	0.5		15.3	3.8	
Delay (s)	62.8	16.7	11.9	15.2	33.1	18.1	53.8	38.2		65.6	52.8	
Level of Service	E	B	B	B	C	B	D	D		E	D	
Approach Delay (s)		26.5			30.6			42.9			56.7	
Approach LOS		C			C			D			E	

Intersection Summary

HCM 2000 Control Delay	31.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.85		
Actuated Cycle Length (s)	116.9	Sum of lost time (s)	24.0
Intersection Capacity Utilization	96.9%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

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

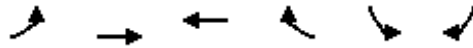
2031 Background PM - Remedial Measures
Premier Gateway Phase 1B Employment Area



Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	160	1275	2175	1095	420	105
Future Volume (vph)	160	1275	2175	1095	420	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Storage Length (m)	70.0			75.0	105.0	0.0
Storage Lanes	1			1	1	1
Taper Length (m)	100.0				40.0	
Lane Util. Factor	1.00	0.91	0.91	1.00	0.97	1.00
Fr _t				0.850		0.850
Fl _t Protected	0.950				0.950	
Satd. Flow (prot)	1719	4673	4893	1615	3367	1524
Fl _t Permitted	0.056				0.950	
Satd. Flow (perm)	101	4673	4893	1615	3367	1524
Right Turn on Red				Yes		Yes
Satd. Flow (RTOR)				428		105
Link Speed (k/h)		70	70		70	
Link Distance (m)		525.4	169.8		3120.2	
Travel Time (s)		27.0	8.7		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)	160	1275	2175	1095	420	105
Shared Lane Traffic (%)						
Lane Group Flow (vph)	160	1275	2175	1095	420	105
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	Free	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			Free		6
Detector Phase	7	4	8		6	6
Switch Phase						
Minimum Initial (s)	7.0	20.0	20.0		10.0	10.0

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

2031 Background PM - Remedial Measures
Premier Gateway Phase 1B Employment Area

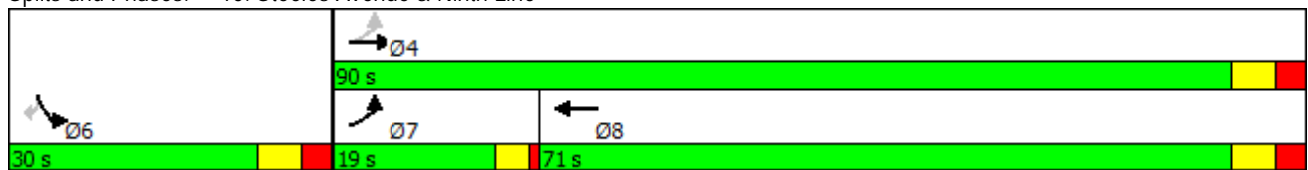


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Minimum Split (s)	11.0	27.0	27.0		17.0	17.0
Total Split (s)	19.0	90.0	71.0		30.0	30.0
Total Split (%)	15.8%	75.0%	59.2%		25.0%	25.0%
Maximum Green (s)	15.0	83.0	64.0		23.0	23.0
Yellow Time (s)	3.0	4.0	4.0		4.0	4.0
All-Red Time (s)	1.0	3.0	3.0		3.0	3.0
Lost Time Adjust (s)	0.0	0.0	0.0		0.0	0.0
Total Lost Time (s)	4.0	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		3.0	3.0
Recall Mode	None	Max	Max		Max	Max
Act Effect Green (s)	86.0	83.0	67.7	120.0	23.0	23.0
Actuated g/C Ratio	0.72	0.69	0.56	1.00	0.19	0.19
v/c Ratio	0.71	0.39	0.79	0.68	0.65	0.28
Control Delay	41.8	8.3	23.7	2.3	50.2	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.8	8.3	23.7	2.3	50.2	9.7
LOS	D	A	C	A	D	A
Approach Delay		12.0	16.6		42.1	
Approach LOS		B	B		D	

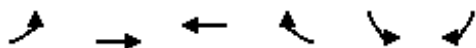
Intersection Summary

Area Type:	Other
Cycle Length:	120
Actuated Cycle Length:	120
Natural Cycle:	65
Control Type:	Actuated-Uncoordinated
Maximum v/c Ratio:	0.79
Intersection Signal Delay:	17.9
Intersection LOS:	B
Intersection Capacity Utilization:	77.9%
ICU Level of Service:	D
Analysis Period (min):	15

Splits and Phases: 10: Steeles Avenue & Ninth Line



Queues
10: Steeles Avenue & Ninth Line

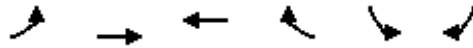


Lane Group	EBL	EBT	WBT	WBR	SBL	SBR
Lane Group Flow (vph)	160	1275	2175	1095	420	105
v/c Ratio	0.71	0.39	0.79	0.68	0.65	0.28
Control Delay	41.8	8.3	23.7	2.3	50.2	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.8	8.3	23.7	2.3	50.2	9.7
Queue Length 50th (m)	21.8	44.2	148.6	0.0	50.0	0.0
Queue Length 95th (m)	44.9	52.3	182.0	0.0	67.8	15.3
Internal Link Dist (m)		501.4	145.8		3096.2	
Turn Bay Length (m)	70.0			75.0	105.0	
Base Capacity (vph)	274	3232	2758	1615	645	376
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	0.39	0.79	0.68	0.65	0.28
Intersection Summary						

HCM Signalized Intersection Capacity Analysis 2031 Background PM - Remedial Measures

10: Steeles Avenue & Ninth Line

Premier Gateway Phase 1B Employment Area



Movement	EBL	EBT	WBT	WBR	SBL	SBR
Lane Configurations						
Traffic Volume (vph)	160	1275	2175	1095	420	105
Future Volume (vph)	160	1275	2175	1095	420	105
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	7.0	7.0	4.0	7.0	7.0
Lane Util. Factor	1.00	0.91	0.91	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	4673	4893	1615	3367	1524
Flt Permitted	0.06	1.00	1.00	1.00	0.95	1.00
Satd. Flow (perm)	101	4673	4893	1615	3367	1524
Peak-hour factor, PHF	1.00	1.00	1.00	1.00	1.00	1.00
Adj. Flow (vph)	160	1275	2175	1095	420	105
RTOR Reduction (vph)	0	0	0	0	0	85
Lane Group Flow (vph)	160	1275	2175	1095	420	20
Heavy Vehicles (%)	5%	11%	6%	0%	4%	6%
Turn Type	pm+pt	NA	NA	Free	Prot	Perm
Protected Phases	7	4	8		6	
Permitted Phases	4			Free		6
Actuated Green, G (s)	83.0	83.0	67.7	120.0	23.0	23.0
Effective Green, g (s)	83.0	83.0	67.7	120.0	23.0	23.0
Actuated g/C Ratio	0.69	0.69	0.56	1.00	0.19	0.19
Clearance Time (s)	4.0	7.0	7.0		7.0	7.0
Vehicle Extension (s)	3.0	0.2	0.2		3.0	3.0
Lane Grp Cap (vph)	222	3232	2760	1615	645	292
v/s Ratio Prot	0.07	0.27	c0.44		0.12	
v/s Ratio Perm	0.43			c0.68		0.01
v/c Ratio	0.72	0.39	0.79	0.68	0.65	0.07
Uniform Delay, d1	30.8	7.8	20.5	0.0	44.8	39.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	10.9	0.4	2.4	2.3	5.0	0.5
Delay (s)	41.7	8.2	22.9	2.3	49.8	40.2
Level of Service	D	A	C	A	D	D
Approach Delay (s)		11.9	16.0		47.9	
Approach LOS		B	B		D	
Intersection Summary						
HCM 2000 Control Delay			18.1		HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.82			
Actuated Cycle Length (s)			120.0		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						

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

2031 Background 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)	70	310	10	30	610	110	5	510	65	30	155	40
Future Volume (vph)	70	310	10	30	610	110	5	510	65	30	155	40
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	0.0		0.0	0.0		0.0	0.0		0.0	25.0		0.0
Storage Lanes	0		0	0		0	0		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	0.95	0.95	0.95	0.95	0.95	0.95	1.00	1.00	1.00	1.00	1.00	1.00
Frt		0.996			0.978			0.985			0.969	
Flt Protected		0.991			0.998					0.950		
Satd. Flow (prot)	0	3458	0	0	3475	0	0	1845	0	1805	1826	0
Flt Permitted		0.692			0.923			0.997		0.381		
Satd. Flow (perm)	0	2414	0	0	3214	0	0	1839	0	724	1826	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		6			43			15			31	
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)	70	310	10	30	610	110	5	510	65	30	155	40
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	390	0	0	750	0	0	580	0	30	195	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)	15.0	15.0		15.0	15.0		15.0	15.0		15.0	15.0	

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

2031 Background PM - Remedial Measures
Premier Gateway Phase 1B Employment Area

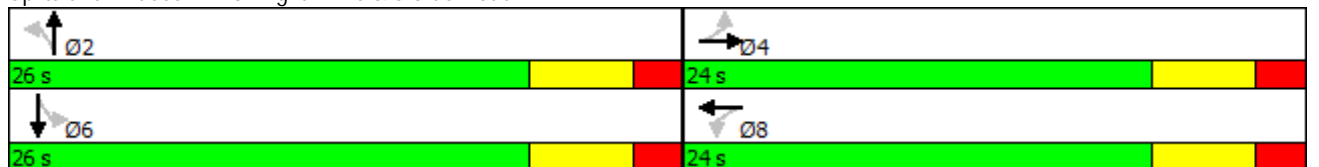


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	24.0	24.0		24.0	24.0		24.0	24.0		24.0	24.0	
Total Split (s)	24.0	24.0		24.0	24.0		26.0	26.0		26.0	26.0	
Total Split (%)	48.0%	48.0%		48.0%	48.0%		52.0%	52.0%		52.0%	52.0%	
Maximum Green (s)	18.0	18.0		18.0	18.0		20.0	20.0		20.0	20.0	
Yellow Time (s)	4.0	4.0		4.0	4.0		4.0	4.0		4.0	4.0	
All-Red Time (s)	2.0	2.0		2.0	2.0		2.0	2.0		2.0	2.0	
Lost Time Adjust (s)		0.0			0.0			0.0			0.0	
Total Lost Time (s)		6.0			6.0			6.0			6.0	
Lead/Lag												
Lead-Lag Optimize?												
Vehicle Extension (s)	3.0	3.0		3.0	3.0		3.0	3.0		3.0	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)		16.4			16.4			20.0			20.0	
Actuated g/C Ratio		0.34			0.34			0.41			0.41	0.41
v/c Ratio		0.47			0.67			0.76			0.10	0.25
Control Delay		14.6			16.3			20.9			10.4	9.2
Queue Delay		0.0			0.0			0.0			0.0	0.0
Total Delay		14.6			16.3			20.9			10.4	9.2
LOS		B			B			C			B	A
Approach Delay		14.6			16.3			20.9				9.4
Approach LOS		B			B			C				A

Intersection Summary

Area Type:	Other
Cycle Length:	50
Actuated Cycle Length:	48.5
Natural Cycle:	50
Control Type:	Semi Act-Uncoord
Maximum v/c Ratio:	0.76
Intersection Signal Delay:	16.5
Intersection LOS:	B
Intersection Capacity Utilization:	83.6%
ICU Level of Service:	E
Analysis Period (min):	15

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



Queues
15: Eighth Line & 5 Side Road



Lane Group	EBT	WBT	NBT	SBL	SBT
Lane Group Flow (vph)	390	750	580	30	195
v/c Ratio	0.47	0.67	0.76	0.10	0.25
Control Delay	14.6	16.3	20.9	10.4	9.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	14.6	16.3	20.9	10.4	9.2
Queue Length 50th (m)	13.8	27.6	40.6	1.6	8.9
Queue Length 95th (m)	23.8	43.1	#92.2	5.8	20.7
Internal Link Dist (m)	619.4	644.7	3062.4		430.5
Turn Bay Length (m)				25.0	
Base Capacity (vph)	901	1221	768	299	772
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.43	0.61	0.76	0.10	0.25

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis 2031 Background PM - Remedial Measures

15: Eighth Line & 5 Side Road

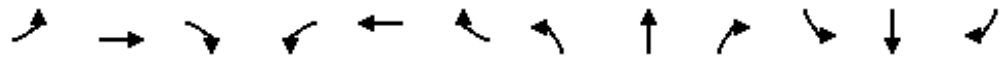
Premier Gateway Phase 1B Employment Area



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations		↕↕			↕↕			↕↕		↕	↕		
Traffic Volume (vph)	70	310	10	30	610	110	5	510	65	30	155	40	
Future Volume (vph)	70	310	10	30	610	110	5	510	65	30	155	40	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)		6.0			6.0			6.0		6.0	6.0		
Lane Util. Factor		0.95			0.95			1.00		1.00	1.00		
Frt		1.00			0.98			0.98		1.00	0.97		
Flt Protected		0.99			1.00			1.00		0.95	1.00		
Satd. Flow (prot)		3459			3475			1844		1805	1827		
Flt Permitted		0.69			0.92			1.00		0.38	1.00		
Satd. Flow (perm)		2416			3215			1840		725	1827		
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)	70	310	10	30	610	110	5	510	65	30	155	40	
RTOR Reduction (vph)	0	4	0	0	28	0	0	9	0	0	18	0	
Lane Group Flow (vph)	0	386	0	0	722	0	0	571	0	30	177	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)		16.4			16.4			20.0		20.0	20.0		
Effective Green, g (s)		16.4			16.4			20.0		20.0	20.0		
Actuated g/C Ratio		0.34			0.34			0.41		0.41	0.41		
Clearance Time (s)		6.0			6.0			6.0		6.0	6.0		
Vehicle Extension (s)		3.0			3.0			3.0		3.0	3.0		
Lane Grp Cap (vph)		818			1089			760		299	754		
v/s Ratio Prot											0.10		
v/s Ratio Perm		0.16			0.22			0.31		0.04			
v/c Ratio		0.47			0.66			0.75		0.10	0.23		
Uniform Delay, d1		12.6			13.6			12.1		8.7	9.2		
Progression Factor		1.00			1.00			1.00		1.00	1.00		
Incremental Delay, d2		0.4			1.5			6.8		0.7	0.7		
Delay (s)		13.0			15.2			18.8		9.4	10.0		
Level of Service		B			B			B		A	A		
Approach Delay (s)		13.0			15.2			18.8			9.9		
Approach LOS		B			B			B			A		
Intersection Summary													
HCM 2000 Control Delay			15.2									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.71										
Actuated Cycle Length (s)			48.4									Sum of lost time (s)	12.0
Intersection Capacity Utilization			83.6%									ICU Level of Service	E
Analysis Period (min)			15										
c Critical Lane Group													

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

2031 Background 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)	40	310	25	10	700	350	20	1175	15	45	480	35
Future Volume (vph)	40	310	25	10	700	350	20	1175	15	45	480	35
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (m)	40.0		0.0	40.0		40.0	40.0		0.0	55.0		0.0
Storage Lanes	1		0	1		1	1		0	1		0
Taper Length (m)	7.5			7.5			7.5			7.5		
Lane Util. Factor	1.00	0.95	0.95	1.00	0.95	1.00	1.00	0.95	0.95	1.00	0.95	0.95
Frt		0.989				0.850		0.998			0.990	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	1752	3570	0	1805	3610	1615	1805	3601	0	1805	3541	0
Flt Permitted	0.263			0.550			0.462			0.135		
Satd. Flow (perm)	485	3570	0	1045	3610	1615	878	3601	0	256	3541	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		14				298		2			18	
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)	40	310	25	10	700	350	20	1175	15	45	480	35
Shared Lane Traffic (%)												
Lane Group Flow (vph)	40	335	0	10	700	350	20	1190	0	45	515	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			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	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)	15.0	15.0		15.0	15.0	15.0	15.0	15.0		7.0	20.0	

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

2031 Background PM - Remedial Measures
Premier Gateway Phase 1B Employment Area

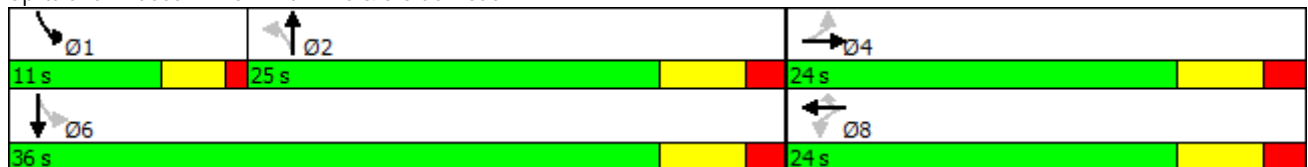


Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Minimum Split (s)	24.0	24.0		24.0	24.0	24.0	21.0	21.0		11.0	26.0	
Total Split (s)	24.0	24.0		24.0	24.0	24.0	25.0	25.0		11.0	36.0	
Total Split (%)	40.0%	40.0%		40.0%	40.0%	40.0%	41.7%	41.7%		18.3%	60.0%	
Maximum Green (s)	18.0	18.0		18.0	18.0	18.0	19.0	19.0		7.0	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	0.0		0.0	0.0	
Total Lost Time (s)	6.0	6.0		6.0	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)	17.1	17.1		17.1	17.1	17.1	25.7	25.7		32.0	30.0	
Actuated g/C Ratio	0.29	0.29		0.29	0.29	0.29	0.43	0.43		0.54	0.51	
v/c Ratio	0.29	0.32		0.03	0.67	0.52	0.05	0.76		0.14	0.29	
Control Delay	22.6	16.7		15.3	22.2	6.9	13.9	22.4		7.7	8.8	
Queue Delay	0.0	0.0		0.0	0.0	0.0	0.0	0.0		0.0	0.0	
Total Delay	22.6	16.7		15.3	22.2	6.9	13.9	22.4		7.7	8.8	
LOS	C	B		B	C	A	B	C		A	A	
Approach Delay		17.3			17.1			22.3			8.7	
Approach LOS		B			B			C			A	

Intersection Summary

Area Type: Other
 Cycle Length: 60
 Actuated Cycle Length: 59.1
 Natural Cycle: 60
 Control Type: Semi Act-Uncoord
 Maximum v/c Ratio: 0.76
 Intersection Signal Delay: 17.6
 Intersection LOS: B
 Intersection Capacity Utilization 82.1%
 ICU Level of Service E
 Analysis Period (min) 15

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



Queues
16: Ninth Line & 5 Side Road

2031 Background PM - Remedial Measures
Premier Gateway Phase 1B Employment Area



Lane Group	EBL	EBT	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	40	335	10	700	350	20	1190	45	515
v/c Ratio	0.29	0.32	0.03	0.67	0.52	0.05	0.76	0.14	0.29
Control Delay	22.6	16.7	15.3	22.2	6.9	13.9	22.4	7.7	8.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	22.6	16.7	15.3	22.2	6.9	13.9	22.4	7.7	8.8
Queue Length 50th (m)	3.5	14.8	0.8	36.6	4.3	1.1	49.8	2.3	16.2
Queue Length 95th (m)	11.3	24.3	3.8	53.0	21.6	5.8	#118.8	6.1	24.8
Internal Link Dist (m)		556.9		434.3			3096.2		305.9
Turn Bay Length (m)	40.0		40.0		40.0	40.0		55.0	
Base Capacity (vph)	147	1096	318	1099	699	381	1564	322	1805
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	0.27	0.31	0.03	0.64	0.50	0.05	0.76	0.14	0.29

Intersection Summary

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

HCM Signalized Intersection Capacity Analysis 2031 Background PM - Remedial Measures

16: Ninth Line & 5 Side Road

Premier Gateway Phase 1B Employment Area



Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR	
Lane Configurations													
Traffic Volume (vph)	40	310	25	10	700	350	20	1175	15	45	480	35	
Future Volume (vph)	40	310	25	10	700	350	20	1175	15	45	480	35	
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
Total Lost time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		4.0	6.0		
Lane Util. Factor	1.00	0.95		1.00	0.95	1.00	1.00	0.95		1.00	0.95		
Frt	1.00	0.99		1.00	1.00	0.85	1.00	1.00		1.00	0.99		
Flt Protected	0.95	1.00		0.95	1.00	1.00	0.95	1.00		0.95	1.00		
Satd. Flow (prot)	1752	3570		1805	3610	1615	1805	3602		1805	3540		
Flt Permitted	0.26	1.00		0.55	1.00	1.00	0.46	1.00		0.13	1.00		
Satd. Flow (perm)	484	3570		1045	3610	1615	878	3602		256	3540		
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)	40	310	25	10	700	350	20	1175	15	45	480	35	
RTOR Reduction (vph)	0	10	0	0	0	215	0	1	0	0	9	0	
Lane Group Flow (vph)	40	325	0	10	700	135	20	1189	0	45	506	0	
Heavy Vehicles (%)	3%	0%	0%	0%	0%	0%	0%	0%	3%	0%	1%	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			
Actuated Green, G (s)	17.1	17.1		17.1	17.1	17.1	25.7	25.7		32.5	32.5		
Effective Green, g (s)	17.1	17.1		17.1	17.1	17.1	25.7	25.7		32.5	32.5		
Actuated g/C Ratio	0.28	0.28		0.28	0.28	0.28	0.42	0.42		0.53	0.53		
Clearance Time (s)	6.0	6.0		6.0	6.0	6.0	6.0	6.0		4.0	6.0		
Vehicle Extension (s)	3.5	3.5		3.5	3.5	3.5	5.5	5.5		3.0	5.5		
Lane Grp Cap (vph)	134	991		290	1002	448	366	1502		205	1867		
v/s Ratio Prot		0.09			c0.19			c0.33		0.01	c0.14		
v/s Ratio Perm	0.08			0.01		0.08	0.02			0.11			
v/c Ratio	0.30	0.33		0.03	0.70	0.30	0.05	0.79		0.22	0.27		
Uniform Delay, d1	17.5	17.7		16.2	19.9	17.5	10.7	15.6		9.6	8.0		
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	0.2		0.1	2.2	0.4	0.3	4.3		0.5	0.4		
Delay (s)	19.0	17.9		16.3	22.2	18.0	11.0	20.0		10.2	8.4		
Level of Service	B	B		B	C	B	B	B		B	A		
Approach Delay (s)		18.0			20.7			19.8			8.5		
Approach LOS		B			C			B			A		
Intersection Summary													
HCM 2000 Control Delay			17.9									HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio			0.73										
Actuated Cycle Length (s)			61.6									Sum of lost time (s)	16.0
Intersection Capacity Utilization			82.1%									ICU Level of Service	E
Analysis Period (min)			15										
c Critical Lane Group													